CHAPTER ONE

INTRODUCTION

**1.1 Background to the Study**

Fiscal decentralization, which mirrors the amount of fiscal autonomy and responsibility accorded to subnational governments has been an important subject in the policy equation of many developing and developed countries. Fiscal federalism is essentially about the allocation of government resources and spending to the various tiers of government (Oates, 1972; Tanzi 1995). In general the intensification of clamour for greater decentralization is informed by a combination of people desiring to get more involved in government, and the inability of the central government to deliver quality services (Chete, 1998). Fiscal decentralization serves as a constraint on the behavior of revenue-maximizung central government, while it serves as a booster on behalf of underdeveloped subnational governments. 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 fundamental need to restructure the public sector to make it more responsive to efficient and equitable provision of public services for the public sector’s contribution to a stable macroeconomic performance (Aigbokhan, 1999). 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 movement towards participatory democracy and the need to provide public goods and services that meet the preferences of people in each locality.

Federalism is essentially about multilevel government structure, rather than within a level structure of government, for the performance of government functions and service delivery to the people. 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 referred to as fiscal federalism also known as fiscal decentralization. It refers to the scope and structure of the tiers of governmental responsibilities and functions, and the allocation of resources among the tiers of government to cope with respective functions. Decentralization encompasses a wide range of distinct processes. The main ones are administrative deconcentration, or the transfer of state functions from higher to lower levels of government while retaining central control over budgets and policy making; fiscal deconcentration, or the ceding of influence over budgets and financial decisions from higher to lower levels; and development or transfer of resources and political authority to lower-level authorities that are independent of higher levels of government.

The concepts of concentration and deconcentration are issues relating to decentralization. Deconcentration is often considered to be the weakest form of decentralization and is used most frequently in unitary states that redistribute decision making authority and financial management responsibilities among different levels of the central government. It merely shifts responsibilities from central government officials in the capital city to those working in states, regions, provinces or districts, creates strong field administration or local administrative capacity under the supervision of central government ministries.

Political federalism deals with the devolution of powers between tiers of government, where the tiers each, within a sphere, coordinate its partially independent tasks (Oates, 1972; Asobie, 1998; Taiwo 1999). It follows, therefore, that there would be constitutional or some legal provisions to protect the autonomy of the different tiers of government.

Administrative federalism, on the other hand, involves delegation of functions to lower-level governments, usually according to the guidelines or controls imposed by the higher level government and, therefore, without the autonomy which is characteristic of decentralization. Of the different forms of federalism the one of relevance in this study is fiscal federalism.

Recent interest in fiscal decentralization fueled 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, for example, fiscal deficits at the central level and put macroeconomic stability into jeopardy. 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, especially with respect to the issue and management of the national currency, on the basis of its spatial incidence which covers the entire country. Thus, it can be seen that issues of fiscal federalism affect national development and macroeconomic stability.

**1.2 Statement of Research Problem.**

The overall objective of this study is to examine the issue of fiscal federalism and effects on macroeconomic performance in Nigeria. Fiscal federalism is the product of the reciprocal and dynamic interaction between different tiers of government, and therefore poses questions as to how the nature and conditions of the financial relations in any federal system affect the production and distribution of the wealth of a nation. In particular it influences how political decisions and interests influence the location of economic activities and the distribution of the costs and benefits of these activities.

There has been a resurgence of interest, in many parts of the world, in problems of multi-level government finance. Recent and ongoing political and economic developments raise questions about the role of nation, subnational governments and supranational public authorities in the provision and financing of public sector programmes.

Problems of fiscal decentralization and intergovernmental fiscal relations are of wide-spread concern in developing countries. Much of the 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 hitherto 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, 1999).

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 (Bahi 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).

Most developing countries do not meet implicit or explicit assumptions posed by the fiscal federalism theory. In developing countries, for example, local voter preferences may not be as readily reflected in local budget outcomes as in developed countries. Local governments have weak administrative capacities to carry out their own fiscal decisions. Without an independent decision-making capacity to determine the quantity and quality of public goods provided and sources of finance that internalize the costs, decentralized provision of local public goods may not increase efficiency (Kwon, 2008).

Several studies in developed countries regarding decentralization have found that the stage of economic development in a country measured by income, urbanization and the Gross Domestic Product (GDP) is associated with a significantly greater subnational share of expenditures (Kee, 1977; Bahi and Nath, 1986; Waisylenko, 1987; Panizza, 1999).

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). As Oates (1994) puts it, “fiscal federalism has much to offer, but it is a complicated enterprise”. The common conclusion which seems to arise from such views is that a decentralized governance structure is incompatible with prudent fiscal management (Tanzi, 1996).

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, as the thesis is more comprehensive in its scope.

Fiscal federalism in Nigeria dates back to 1954 when the country, which had until then been governed as a unitary state by the British, adopted a federal constitution. However, despite over fifty years of experience with fiscal federalism, the country is still beset with the challenges of 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 question central to this thesis is could fiscal federalism challenges be responsible for poor macroeconomic performance in Nigeria? Another question is: What are the current issues promoting or inhibiting the principles and practice of fiscal federalism in Nigeria? In Nigeria, fiscal federalism has generated intense debate and controversy in recent years. Debates about fiscal management within federal system are not peculiar to Nigeria. From independence in 1960 till date (2011) Nigeria’s fiscal management system has neither been efficient nor equitable (Ike, 1981). Indeed it manifested a wide spectrum of vulnerability, ethnicity, language, region and religion interactively forming Nigeria’s matrix of cultural pluralism (Ike, 1981). The 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).

There is the problem of how to allocate revenue vertically to the different tiers of government in relation to the constitutionally assigned functions. The discordance between fiscal capacity of the various levels of government and their expenditure responsibilities, and the non-correspondence problem, is a striking feature of the Nigeria federal finance. There is also the problem of how revenue should be shared horizontally among the states and among the local councils. All these put together have far-reaching implications for the harmonious co-existence of the component units and hence of the system as a geo-political entity (Elaigwu, 1994). The success of a federal system depends on an acceptable distribution of resources and functions among the different tiers of government so that efficiency in the use of scarce resources is encouraged towards achieving macroeconomic stability. All these are the issues of concern in this study.

**1.3 Research Questions**

Given the sensitivity and dynamics of the issues involved in this study the study seeks to provide answers to the following research questions;

(i) Could fiscal federalism challenges be responsible for poor macroeconomic performance in

Nigeria?

(ii) What are the factors inhibiting or promoting the principles and practice of fiscal federalism

in Nigeria?

**1.4 Objectives of the Study**

The overall objective of this study is to investigate the relationship between fiscal decentralization and macroeconomic performance in Nigeria. The specific objectives are to:

1. Examine the evolution, structure and practices of fiscal federalism in Nigeria;
2. Investigate the underlying factors promoting or inhibiting the true practice of fiscal federalism in Nigeria;
3. Determine the extent of fiscal decentralization in Nigeria;
4. Analyze the empirical effects of fiscal decentralization on some selected indicators of macroeconomic performance: economic growth, inflation rate, interest rate and exchange rate.

**1.5 Statement of Research Hypotheses**

The following testable hypotheses which are drawn from the research questions are considered appropriate for this study and are therefore subjected to empirical investigation. These hypotheses are stated in their null context as follows:

H0: There is no significant decentralization in Nigeria

H0: Fiscal decentralization does not significantly influence economic growth in Nigeria

H0: Fiscal decentralization does not significantly influence inflation rate in Nigeria

H0: Fiscal decentralization does not significantly influence exchange rate in Nigeria

H0: Fiscal decentralization does not significantly influence interest rate in Nigeria

H0: The true practice of fiscal federalism has not been inhibited by any factors in Nigeria.

**1.6 Scope of the Study**

The study examines the relationship between fiscal federalism and macroeconomic performance in Nigeria and employs data covering a period of thirty eight year (1970-2007). The choice of this period is explained by the availability of data. Also 2007 is taken as the cut off year as it marked the end of the first eight year dispensation in the third republic. This period is also crucial given the years of military rule and the relative centralization within a federal framework, leading to a greater homogenization or uniformity than it is federally desirable. From three regions in 1960, the country grew to four regions in 1963. During the Civil War of 1967 to 1970, the country was carved into twelve states. By 1976, the states had increased to nineteen and it remained that way until 1987 when it was increased to 21. In August, 1991, the number of states increased to 30 and a separate Federal Capital Territory was carved out in place of the old capital in Lagos. By October 1996, six additional states were created, thus bringing the total number to 36, excluding the Federal Capital Territory and 774 local governments. These changes have very serious implications on revenue transfers to states and local governments. This increasing number of units at the lower tiers has raised the issue of the viability of these components units of government with far reaching implications for a stable fiscal federalism and political economy. Also the dominance of oil as major source of government revenue during this period posed serious challenge to fiscal federalism

Focusing on Nigeria, provides an in-depth analysis of the determinants of a stable fiscal federalism in a plural society and how fiscal federalism can transform an organic union into a flourishing, strong and virile economy, and becoming one of the top twenty economies in the world. The study also reviewed fiscal federalism in developed countries, LDCs and transition economies.

**1.7 Justification for the Study**

There has been a resurgence of interest in many parts of the world in problems of multi-level government finance. While there are several reasons that fiscal decentralization has been adopted around the world, the common reason motivating much of the research on fiscal decentralization is its potential to improve the performance of the public sector and thereby enhance prospects for higher growth. Established federations in developed countries have been the traditional focus of economic research on fiscal federalism. Theoretically, fiscal decentralization is expected to foster growth by transferring spending power to the levels of government that are best equipped to meet local demand adequately. However the role of decentralization as a means to foster growth and development has been questioned in recent literature. Much of the new literature points out that decentralization can be dangerous, especially in developing countries. Above all, skeptics point out the challenges of macroeconomic management, adjustment, and reform in decentralized system especially when they feature formally federal constitutions that empower states with veto authority over central government decisions (Treisman, 1999; Wibbels, 2006; Davoodi and Zou, 1998; Tanzi, 1995; Prud’homme, 1995).

There are several ways that fiscal decentralization may affect macroeconomic performance in theory. On the one hand, decentralization may provide a useful restraint on central profligacy. On the other hand, it may create dangerous incentives for local fiscal free-riding. Or it may lock in current patterns of fiscal and monetary policy, whether profligate or conservative, by increasing the number of actors with a veto over changing the system of macroeconomic governance. Both the theoretical and empirical literature reveals that the relationship between fiscal decentralization and macroeconomic stability is somewhat complex. Also the impact of fiscal decentralization on growth and development is an empirical issue that needs to be resolved.

This study is therefore, important for a number of reasons. First, though the literature on fiscal federalism has blossomed over the years, yet these studies have focused more on developed countries (Agiobenebo, 1999; Olowonini, 1999; Anyanwu, 1999). Secondly, the study establishes a foundation for policy-makers for sequencing reforms of government in developing countries. Finally the formalized theory (i.e. theoretical model) provides applied economists with a meaningful specification for estimating the impact of fiscal federalism on macroeconomic performance.

**1.8 Structure of the Study**

The study is divided into six chapters. The first chapter deals with the introduction, and the second chapter reviews the theoretical literature, the empirical literature, and methodological issues in the literature. The third chapter focuses on the evolution, practices, and profile of fiscal federalism in Nigeria. The fourth chapter comprises of the theoretical framework and methodology. The fifth chapter is model estimation and analysis of results. Chapter six comprises of the summary of findings, recommendations, conclusions, as well as limitations of the study and suggestions for further research.

CHAPTER TWO

REVIEW OF THE LITERATURE

**2.0 Introduction**

One of the fundamental precepts of economic theory is that the unit of decision making should be the lowest level possible in consonance with the objective of allocative efficiency. This is the primary motive behind decentralization. The institutions of fiscal federalism vary widely across the world, because each country’s fiscal institutions are dependent on local circumstances, political and economic factors. It is therefore necessary to undertake a comparison of the divergent experiences of different countries. Also the theoretical, methodological, and empirical literature on the subject of fiscal federalism is quite vast and extensive. This chapter attempts to provide insightful and copious review of the concepts, methodology, and empirical issues on fiscal federalism

**2.1 The Concept of Federalism**.

The concept of federalism implies that each tier of government is coordinate and independent in its delimited sphere of authority and should also have appropriate taxing powers to exploit its independent sources of revenue (Vincent, 2001). Wheare (1963) believed that each level of government should have adequate resources to perform its function without appealing to the other level of government for financial assistance. He emphatically argued that:

*“If state authorities, for example, find that the services allotted them are too expensive for them to perform, and if they call upon the federal authority for grants and subsidies to assist them, they are no longer coordinate with the federal government but subordinate to it. Financial subordination makes an end of federalism in fact, no matter how carefully the legal forms may be preserved. It follows therefore that both state and federal authorities in a federation must be given the power in the constitution each to have access to and to control, its own sufficient financial resources. Each must have a power to tax and to borrow for the financing of its own services by itself.”*

In reality, however, the economic facts demonstrate that a country in international economic and political relations is regarded as one unit. Within the country itself, the functions of each tier and the means of fulfilling them are interrelated and interdependent. In view of this fact, whilst the coordinate and independent stance would continue to be maintained legally and politically, the enormous advance in technology would indicate that these independent taxing powers should be regarded as agency functions. The revenues concerned belong to the community and the taxing-cum-collecting agency is acting on behalf of the community (Vincent, 2001).

The rights of both the federal government and the constituent state governments in a federal structure are enshrined in the constitution. Modern federal countries have sub-levels of government each distinguished by the scope of the geographical areas over which their respective jurisdictions extend. The jurisdiction of the federal (central) government covers the entire country in some subject-matters. Other (state/province and local/municipal) government’s jurisdictions cover sub-sections of the country. Local governments exercise responsibility over non over-lapping areas within a state. Federalism is a standard concept of government based on multilevel area/jurisdiction to cater for racial, religious, linguistic and other differences (Olowononi, 1998; Taiwo, 1999). Ideally a system of multi-level government should be structured from the point of view of ensuring an efficient supply of public services.

**2.2 The Concept of Fiscal Federalism**

For any federation to be sustained there must be fiscal decentralization and financial autonomy. Fiscal decentralization means delegating decision-making to lower levels of government instead of concentrating it at the centre. Each level of government, therefore, should be free to take decisions and allocate resources according to its own priorities in its own area of jurisdiction. In addition, the federating units should be able to act independently on matters within their own jurisdiction.

Fiscal federalism refers to the allocation of tax powers and expenditure responsibilities between the levels of government. Thus under fiscal federalism, any one individual is subject to the influence of the fiscal operations of different tiers of government. This is akin to what Boadway (1979) referred to as economics of multilevel or federal systems of government when he opined that the public sector is stratified into more than one level of government, each having a different set of expenditure responsibilities and taxing powers. The term “fiscal federalism” itself is rooted in a political arrangement called federalism. Wheare (1963) describes federalism as “the method of dividing powers so that general and regional governments are each, within a sphere, coordinate and independent.

The fiscal relationships between and among the constituents of the federation is explained in terms of three main theories, namely, the theory of fiscal relation which concerns the functions expected to be performed by each level of government in the fiscal allocation; the theory of interjurisdictional cooperation which refers to areas of shared responsibility by the national, state and local governments, and the theory of multijurisdictional community (Tella, 1999). In this case, each jurisdiction (state, region or zone) will provide services whose benefits will accrue to people within its boundaries, and so, should use only such sources of finance as will internalize the costs.

**2.3 The Rationale for Multilevel/Multiunit Government system and Division of Responsibilities**

The case for federalism is identical with that for partial decentralization of government. The fact that a unitary government is stratified generalizes the federal principle and also poses the vital questions regarding why there should be multilevel governments as well as what the optimal level of decentralization should be. The question then is: why is it desirable to have more than one level of government as is the case in Nigeria, Australia and the USA? Federalism is justified on political, economic and socio-cultural grounds. Politically, federalism could arise as a dynamic application of constitutional development in the process of nation building, emerging as a functional arrangement among states or more accurately among communities (Ramphal, 1979). Viewed in this broad sense, federalism is a process of unifying power within a cluster of states and decentralizing power within the unified state, given the philosophy of unity in diversity in a spectrum beyond the extremes. The extremes refer to; on the one hand, a cluster of states without any systematic arrangements for unified action and, on the other, the fully unified state in which sovereignty is indivisible. But, once decentralization is involved, fiscal federalism is derived.

The economic reason for the existence of multilevel/multiunit government is the existence of public goods and services with differing geographical spread of benefits. Because of this, the functions of government are classified into the provision of national, regional (state) and local public goods and services. This is a consequence of the spatial limitation of benefit incidence of public goods and services, a conception that justifies the definition of public goods as non-excludable and/or non-rival in consumption, subject to capacity constraint. Some social goods are national in that their benefits spread across the entire nation (examples are national defence, medical research findings, macroeconomic stability, national pride, among others), while others are geographically limited (example are local fire service or street light). For the latter, clearly, the benefits are limited to residents within the radius of the benefits circle in which the facility is located. Some other commodities have spillover effects such that a larger unit of authority is required to coordinate their supply such as interstate and interlocal government roads and bridges. For analytical purpose and with reference to federalism, this distinction is fundamental. The theoretical case for fiscal federalism can now be couched a little more specifically as follows: is it optimal for one level of government to provide for national and local public goods and, at the same time, be responsible for the distribution and stabilization functions of government? Thus, the rational for multilevel/multiunit government is the existence of benefit regions of diverse geographical sizes. This directly raises the issue of optimal community size. Once this is settled the assignment problem and the allocation function become much easier (Musgrave and Musgrave, 1989; Taiwo, 1999).

Musgrave (1959) divides government activity into allocation, distribution and stabilization functions. By this classification, stabilization and distribution functions should be under the jurisdiction of the central government 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 of these functions will be inefficiently performed at the local government level for two interrelated reasons- difficulty in appropriating the full social benefits of the programme undertaken at that level, and the tendency towards the free rider problem. With regard to the former, the local government tends to take into consideration only its own marginal costs and benefits when deciding on its level of provision, and ignores the benefits conferred on other local governments. Consequently, the locality insofar as it confers benefits on other localities, will tend to operate at a level which is lower than the nationally desired level. This problem is unlikely to arise if the decision is taken by the central government, as all the associated costs and benefits would be internalized and national marginal costs and benefits taken into consideration. The same argument prevails if it is external costs that are imposed on other localities. However, in this case, the locality’s level of operation will be more, rather than less, than what is nationally acceptable. Another related problem is the free rider problem which occurs when other localities cannot be excluded from enjoying the service provided. (Layard and Walters, 1978).

The locality that is responsible for providing the national public good has the option of continuing with the provision of the good, and if this is done, given the fact that we are dealing with a public good, the locality’s level of operation will be suboptimal. It will be at such a level where the marginal cost is equal to the sum of the marginal values placed on the additional unit of the good by local residents. The benefits that are conferred on the other localities will be ignored in the decision making process since such benefits cannot be appropriated. The desire for efficiency then compels one to turn to the central government, which is in a suitable position to appropriate all social benefits (Taiwo, 1999; Chete, 1998).

The same argument can be applied to the stabilization function. If we assume that a particular locality wants to boost its level of economic activity, which is measured by an increase in the volume of goods and services produced, such an objective can be achieved through an increase in the level of public expenditure since it has to be financed somehow. If the increase is financed by printing more money at the local government level, other localities would simply print more money and buy up the extra goods and services made possible by the programme since the printing of money is not the prerogative of only one locality. If, instead, the activity is financed by raising taxes and people are mobile, other residents would migrate to the locality that initiated the programme and share in the benefits provided. And if it is goods that are mobile, the economy would become an open one in which serious economic leakages are bound to occur. According to Oates (1972):

…small local economies are, in general, highly open economies, as their constituency typically purchase a large portion of the goods and services they consume from other localities. This implies that the leakage from a marginal dollar of private spending is likely to be quite large.

The programme could also be financed by borrowing, either internally from local residents and institutions, or externally from other localities, or both. But, according to the Ricardian equivalence principle, the choice between tax finance and debt finance boils down to a choice about the timing of those taxes (Buchanan, 1960).

The question of how to resolve these problems is also simplified by the concept of the optimal population with respect to public goods consumption. The concept allows for the same quantity and quality of public goods to be enjoyed by all members of the society and not just by the members of one community alone. This is because it does not allow congestion to develop. Thus, it satisfies the equity criterion. Both the efficiency and equity requirements are met by a modified Samuelson’s condition for the optimal provision of public goods, which states that the sum of the marginal benefits generated by a facility be equal to the average cost of its provision. If equality between marginal cost and benefit is to be used, then, each consumer of the public good must consume it up to the point of zero marginal benefit. First, this is not a practicable proposition, if individuals are allowed their freedom to choose. Second, when marginal benefits are zero, the basis for extracting bids and quotations have been removed. So, the equilibrium condition is the sum of the marginal benefits equal to average cost. This condition also implicitly defines the optimal population too (Agiobenebo, 1999; Tella, 1999)).

The conclusion from the foregoing is that the central government is in a more suitable position than the subnational governments to perform the distribution and stabilization functions and to provide national public goods. It is, therefore, imperative to have these tiers of government, which should be responsible for performing the three functions. For local public goods whose preferences vary geographically and for which there are no substantial economies of scale, it will be more efficient if provisions are made by local jurisdictions rather than by the central government. Consequently, all that is required to rationalize the institution of local jurisdictions, especially at the theoretical level, is the assumption that there is at least one of such goods.

The traditional economic case for fiscal decentralization runs in terms of an improved allocation of resources in the public sector. Regional or local governments are in a position to adapt outputs of public services to the preferences and particular circumstances of their constituencies, as compared to a central solution that presumes one size fits all. Moreover, in a setting of mobile households, individual can seek out jurisdictions that provide outputs well suited to their tastes, thereby increasing the potential gains from the decentralized provision of public services (Tiebout, 1956; Oates, 2006).

At the practical level, there are also a number of arguments in favour of fiscal decentralization (Gboyega, 1994; Shaw and Qureshi, 1994; Tanzi, 1995 and Amuwo, 1998; Oates, 2006). First, decentralization promotes competition among localities, by encouraging each and every one of them to provide a different menu of public goods. Second, it encourages experimentation and innovation since the various localities are unlikely to adopt the same techniques of production and since other localities will want to share in the gains of development. Decentralization is also capable of promoting accountability and responsibility as localities, in taking their decisions, would be driven into matching their costs with their benefits. When local activities are funded by the central government, the tendency would be to over provide and over consume since a substantial part of the burden would be borne by other localities. It is the same free rider problem that would be at work here. Finally, decentralization provides the political glue for countries with regional ethnic, racial, linguistic or cultural diversity as in Ethiopia and Nigeria; and also serves as a mechanism for democracy.

Having established a rationale for the institution of the central and local governments individually, the case for federalism or multilevel government is made. From the arguments adduced, the division of responsibilities between the different tiers of government appears relatively straightforward. The central government has comparative advantage in the provision of national public goods and in performing the distribution and stabilization functions. On the other hand, local governments have comparative advantage in the provision of local public goods, especially those whose preferences vary geographically and for which there are no substantial economies of scale. To reap these advantages, both tiers of government should coexist and be assigned functions in which each has comparative advantage.

Nevertheless, experience has shown that these strategies alone do not guarantee effective control of sub national governments. As a result, many federal systems which operate fiscal decentralization tend to set up institutions for fiscal coordination. Such coordinated approach attempts to utilize the principle of moral suasion, through joint meetings, to include a consensus on fiscal matters affecting economic management. The strategies that are usually negotiated include the preservation of an internal common market, tax harmonization and coordination, as well as the coordination of budget preparation and implementation. Boadway (1992) has suggested that constitutional guarantee for free domestic flow of goods and services may be the best alternative to assigning fiscal responsibility in a multilevel system of government.

**2.4 Conceptual Basis for Tax and Revenue Sharing Arrangements**

The two main issues of fiscal federalism are tax assignment and revenue sharing. We shall assume that the allocation of resources between the two sectors has been concluded and that the concern is with how to raise a given sum of revenue and shared the proceeds between the various tiers of government.

An important question the study seeks to address from the onset is whether revenue generation should be centralized or decentralized? For convenience, let us assume that all revenues are generated from taxes. There are three distinct options here, namely, to collect all taxes centrally; to allow subnational governments to collect the taxes; or to assign taxing powers to each and every tier of government (Tanzi, 1995; Taiwo, 1999). Central collection of taxes tends to be consistent with the pursuit of the 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 also likely 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. The system is also desirable when considerable weight is attached to tax uniformity across jurisdictions. 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 can also encourage fiscal autonomy and tax competition among localities. Neither of these alternative systems is capable of reaping both sets of advantages. Consequently, like the allocation of government functions to the various tiers of government, revenue or tax collection should be shared between all tiers of government. Put differently, decentralization of functions should be matched by decentralization of revenue collection. In fact, 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)

Tax assignment considers the levels of government that should tax what and how, thereby providing various levels of government with revenue they can control. Tax assignment has four main attributes, namely, power to legislate and set rates, fiscal authority over tax bases, the administration of the tax, and the right to revenue collected (McClure, 1995; Vincent, 2001). It is hardly the case that all of these aspects are treated the same way, in terms of the degree of decentralization.

It is also important to ask: given the collection system, which sources of funds should be shared and how is the sharing supposed to be done? The choice here is largely between tax base sharing and revenue sharing. Let us consider first, the issue of tax sharing. Which tax bases should be shared to subnational governments? A good tax should have certain qualities like efficiency, equity, revenue adequacy, low administration cost and is able to promote economic stability (World Bank, 2006). However, at the grassroots level where attention is focused on the provision of local goods, only three of these attributes are really important. They are efficiency, revenue adequacy and administration cost. Virtually all taxes are based on either the ability-to-pay principle or the benefit principle. A meaningful comparison of these principles would require that we hold the tax yield or revenue constant. Since the ability-to-pay principle is geared toward equity issues and the benefit principle towards efficiency issues, it appears that the benefit principle has an edge over and above the ability-to-pay principle in the provision of local goods. This is particularly so if the administration cost is the same for both principles. Charges that are based on the benefit principle can take the form of benefit taxes or user charges. The former would be more appropriate for the provision of public goods, and the latter for the provision of publicly-provided private goods. If such taxes and user charges exist, tax sharing then has the advantage of enhancing the efficient allocation of resources in a locality.

For fiscal federalism to succeed there must be fiscal authority over changing the tax bases allocated the different tiers of government. In practice, however, limited autonomy is given to the lower tiers of government in this area so that a uniform rate of taxation can be maintained across the country (Vincent, 2001; Aigbokhan, 1999). As a guide, equity (consistency of revenue means with expenditure needs) and efficiency (minimizing resources cost) criteria suggest that the following principles be used for the assignment of tax bases:

* progressive and redistributive taxes should be centralized, such as personal income tax and corporate income tax;
* taxes suitable for economic stabilization, such as import duties, should also be centralized;
* taxes on mobile factors of production such as gains taxes should be centralized;
* residence-based taxes, such as sales/excise and retail taxes are best suited for states;
* benefit taxes/user charges are usually assigned to the level of government that provides the services such as toll gate levies, hospital and education fees, and motor licences;
* taxes on immobile factors of production, such as land and buildings (property taxes) are assigned to local governments; and
* taxes on natural resources should be assigned to the central government, for the sake of administrative efficiency and uniform practice since the major projects in this field often involve big transnational corporations.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 2.4.1. Conceptual Basis of Expenditure Assignment** | | | |
| Expenditure Category | Service Responsibility | Provision of Service | Comments |
| Defence | F | F | Benefits/costs are national |
| Foreign affairs | F | F | Benefits/costs are national |
| International trade | F | F | Benefits/costs are national |
| Environment | F | F | Benefits/costs are national |
| Banking and currency | F | F | Benefits/costs are national |
| Internal commerce | F | F | Benefits/costs are national |
| Immigration | F | F | Benefits/costs are national |
| Airways/railways | F | F | Benefits/costs are national |
| Industry and agriculture | F,S,L | S,L | Significant interstate spillover |
| Education | F,S,L | S,L | Transfers in kind |
| Health | F,S,L | S,L | Transfers in kind |
| Social welfare | F,S,L | S,L | Transfers in kind |
| Police | S,L | S,L | Primary local benefits |
| Highways | F,S,L | S,L | Some roads have interstate spillover, others are primarily local |
| Natural resources | F,S,L | S,L | Promotes a common market |
| *Notes:* F = federal, S = state, L = local  *Source:*  Adapted from Anwar Shah, 1994. | | | |

Table 2.4.2 presents a summary view, based on the above principles, of how specific taxes should be assigned.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 2. 4. 2. Conceptual Basis of Tax Assignment** | | | | |
| Tax type | Determination of | | Collection & Administration | Comments |
| Base | Rate |
| Customs | F | F | F | International trade taxes |
| Corporate income | F | F | F | Mobile factor |
| Resources taxes | F | F | F | Unequally distributed |
| Personal income | F | F,S,L | F | Redistribution, mobility, stabilization |
| Wealth taxes | F | F,S | F | Redistributive |
| Payroll | F,S | F,S | F,S | Social programme |
| Value added tax | F | F | F,S | Admin. Costs, stabilization |
| Sales tax | S | S,L | S,L | Higher compliance costs |
| “sin” taxes  Alcohol, tobacco | F,S | F,S | F,S | Health care shared responsibility |
| Gambling, lotteries | S,L | S,L | S,L | State and local responsibility |
| Taxation on “Bads” Carbon | F | F | F | Global/national pollution |
| Motor fuels, effluent charges | F,S,L | F,S,L | F,S,L | Tolls on road use/by extent of pollution |
| Congestion toll | F,S,L | F,S,L | F,S,L | Tolls on road use |
| Parking fees | L | L | L | Local congestion |
| Motor vehicles Registration, driver’s licenses | S | S | S | State revenue sources |
| Business taxes | S | S | S | Benefit tax |
| Excises | S | S | S | Immobile base |
| Poverty | S | L | L | Benefit tax, immobile |
| Land | S | L | L | Benefit tax, immobile |
| Frontage/betterment | S,L | L | L | Cost recovery |
| Poll tax | S,L | S,L | S,L | Non-distorting |
| User charges | F,S,L | F,S,L | F,S,L | Payment for services |
| Source : Adapted from Boadway, Roberts and Shah, 1994. | | | | |

**2.5 Intergovernmental Transfers**

As indicated earlier, there may not necessarily be correspondence between expenditure assignment and tax assignment. Revenue sharing, otherwise called intergovernmental transfers from higher to lower level governments have, therefore, formed a part of fiscal arrangements in multilevel governments. For example, central transfers account for 85 per cent of subnational expenditures in South Africa, 72 per cent and 85 per cent of provincial and local expenditures in Indonesia, 67 per cent to 95 per cent of state-local expenditures in Nigeria, and 70 per cent to 90 per cent of expenditure in less prosperous states in Mexico (Shah, 1994). The design of these transfers is equally important for efficiency and equity in local public service provision. Such transfers could be used to ameliorate the imbalance that may arise from expenditure and tax assignments.

Intergovernmental transfers or grants fall into two broad categories, namely, matching and non-matching grants. Matching or conditional grants require that the recipient uses the grant for a specific purpose as well as provide a specific proportion of the total programme cost to supplement the amount granted. Non-matching grants, which may either be conditional or unconditional, do not require the recipient to provide a matching or supplementary amount. Where conditional, such a grant would, nonetheless, need to be spent on specific programme. Such grants are usually spent where it may be necessary to subsidize programme considered to be of high priority by a higher level government but lower priority by a lower government (Aigbokhan, 1999).

Market failure may derive from the presence of public goods, externalities, increasing returns to scale as well as risk and uncertainty. The oil revenue is more akin to a public good with its properties of “non-rivalry in consumption and non-excludable consumption”. Since the market mechanism fails to allocate “public goods” efficiently to various uses, recourse is made to the political process to perform this function through the design of efficient transfers.

Economists have proposed some theoretical justification for inter- governmental transfers- usually from the federal to state and local government levels, and they rest largely on vertical and horizontal imbalances. Vertical imbalance occurs in the form of an imbalance of revenues and expenditures between levels of government. Horizontal imbalances referred to as the problem of equalization occur as a result of differences in revenue generating abilities of units of government at the same level of government in a federation.

One of such criteria is the interjurisdictional spillover theory. The proponents of this view argue that more resources should be allocated (perhaps via matching or conditional grants) to states or regions that undertake public expenditure which benefits residents of other regions. A second criterion is the “differences in taxing powers or fiscal imbalance”. The proponents of this argue that efficiency in revenue sharing will be achieved by taking into consideration the needs or fiscal capacities of the various recipients. The third criterion is that of “equity”. It is argued that different regions (states) will have different “fiscal residual” where the latter is defined as the difference between benefits and taxes due to public sector activity. In the light of this, if residents are found to be immobile, fiscal residual attainable over regions should be equalized through a system of unconditional grants or revenue allocation. In other to achieve this, it is proposed that the federal government should take into consideration the taxing capacity of the region and its needs in determining the size of the grant or allocation. For instance, the federal government could base its revenue allocation on an objective of enabling all states to be able to attain a certain level of public expenditures with reasonable tax rates by correcting for per capita differences in state tax bases (Boadway, 1979; Boadway, 1992; Heber, 1979). Of these criteria, the equity rationale seems to be the most appealing and more appropriate for Nigeria. Thus, the principles which should guide intergovernmental transfers are:

* fiscal imbalance or fiscal gap;
* redistributive role of the public sector which would sometimes require the central government to redress regional disparity;
* preservation of internal common market, which may require the federal government to ensure a common minimum level for public services;
* stabilization objectives; and
* interjurisdictional spillovers which may otherwise lead to under- or overproduction of public services.

Efficiency in resource allocation contributes to macroeconomic performance. The concept of economic efficiency is derived directly from the Pareto principle, central to an understanding of modern welfare economics. Pareto optimality is defined as a state of affairs such that no one can be made better off without, at the same time, making at least one person worse off. In the same way, a gain in economic efficiency is equivalent to Pareto improvement. Any judgment on whether a change improves society’s economic welfare involves making interpersonal comparisons between gainers and losers in any change in resource allocation. This interpersonal comparison would involve value judgment, and this is an important problem for welfare economists. Rather than making interpersonal comparison, economists have attempted to extend the use of the Pareto principle to such circumstances in a variety of ways. According to Boadway (1979), one of such ways is to judge a move not according to whether a “potential Pareto improvement occurs”. Hypothetically, the gainers from the change must be able to compensate the losers and still be better off. The change is potentially an improvement since, if the gainers actually did compensate the losers, everyone would be better off. Again, the notion of a hypothetical compensation is fraught with ambiguities. Under perfect competitive conditions, allocation of resources, resulting from competitive markets under laissez faire condition, will be Pareto-optimal. In real life, however, conditions of perfect competition will not always be satisfied, which leads to market failure and provides the rationale for government involvement in resource allocation (Okoh and Egbon, 1999; Taiwo, 1999)

**2.6 Review of Theoretical Issues**

The basic foundations for the initial theory of Fiscal Federalism were laid by Kenneth Arrow, Richard Musgrave and Paul Sadweh 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. These were the roles of government in correcting for various forms of market failure, ensuring an equitable distribution of income and seeking to maintain stability in the macro-economy at full employment and stable prices.

The theoretical framework in question was basically a Keynesian one which canvassed for an activist role of the state in economic affairs. Thus the government was expected to step in where the market mechanism failed due to various types of public goods characteristics. Economics teaches us that public goods will be under-provided if left to private market mechanism since the private provider would under invest in their provision because the benefits accruable to the provider would be far lower than the total benefit to society. Government and their officials were seen as the custodians of public interest who would seek to maximize social welfare based on their benevolence or need to ensure electoral success in democracies.

Once a multi-level government setting is in place, this role of the state in maximizing social welfare then provides the basic ingredients for the theory of fiscal federalism. Each tier of government is then seen as seeking to maximize the social welfare of the citizens within its jurisdiction. This multi-layered quest becomes very important where public goods exists, the consumption of which is not national in character, but localized. In such circumstances, local outputs targeted at local demands by respective local jurisdictions clearly provide higher social welfare than central provision. This principle, which Oates (1972) has formalized into the “Decentralization Theorem” constitutes the basic foundation for what may be referred to as the first generation theory of fiscal decentralization (Oates, 2006a). The theory focuses on situations where different levels of government provide efficient levels of outputs of public goods “for those goods whose special patterns of benefits are encompassed by the geographical scope of jurisdictions” (Oates, 2006b). Such situation came to be known as “perfect mapping” or “fiscal equivalence” (Ma, 1995).

Nevertheless, it was also recognized that, given the multiplicity of local goods with varying geographical patterns of consumption, there was hardly any level of government that could produce a perfecting mapping for all public goods. Thus, it is recognized that there would be local public goods with inter-jurisdictional spill-overs. For example, a road may confer public goods characteristics, the benefits of which are enjoyed beyond the local jurisdiction. The local authority may then under-provide for such a good. To avoid this, the theory then resort to traditional Pigouvian subsidies, requiring the central government to provide matching grants to the lower level government so that it can internalize the full benefits.

Based on the following, the role of government in maximizing social welfare through public goods provision is assigned to the lower tiers of government. The other two roles of income distribution and stabilization are regarded as suitable for the central government. To understand the rationale for assignment of the redistribution function to the central government, there is the need to examine what the implications of assigning this responsibility to the lower tier would imply. Given that citizens are freely mobile across local or regional jurisdictions, a lower level jurisdiction that embarks on a programme of redistribution from the rich to the poor is faced with the out-migration of the rich to non-redistributing jurisdictions and in-migration of the poor from such jurisdictions to the redistributing one. If on the other hand, the powers to redistribute are vested in the central government, a redistribution policy would apply equally to citizens resident in all jurisdictions. There would therefore be no induced migration.

The assignment of the stabilization function also follows from the chaos that would ensue if sub-central governments are assigned the responsibility. Subnational policies will lead to sub-optimal policies from the point of view of national welfare. Moreover, given the openness that characterizes the relationship between the regional governments, they are grossly constrained in carrying out effective stabilization policies. This is because these lower tiers of government have very limited capacity to influence local employment levels and inflation (Bonfim and Shah, 2007).

From the foregoing, the role assignment which flows from the basic theory of fiscal federalism is summarized as follows: The central government is expected to ensure equitable distribution of income, maintain macroeconomic stability and provide public goods that are national in character. Decentralized levels of government on the other hand are expected to concentrate on the provision of local public good with the central government providing targeted grants in cases where there are jurisdictional spill-overs associated with local public goods.

Once the assignment of roles had been carried out, the next step in the theoretical framework is to determine the appropriate taxing framework. In addressing this tax assignment problem, attention is paid to the need to avoid distortions resulting from decentralized taxation of mobile tax bases. Gordon (1983) emphasizes that the extensive application of non-benefit taxes on mobile factors at decentralized levels of government could result in distortions in the location of economic activity.

Following from the assignment of functions, taxes that matched more effectively the assigned functions are also assigned to the relevant tier or level of government. For example, progressive income tax is suited to the functions of income redistribution and macro-economic stabilization and is therefore assigned to the central government. On the other hand, property taxes and user fees were deemed more appropriate for local governments. Benefits taxes are also prescribed for decentralized government based on the conclusion that such taxes promote economic efficiency when dealing with mobile economic units, be they individual or firms (Olson, 1982).

The final element of this basic theory is the need for fiscal equalization. This is in the form of lump sum transfers from the central government to decentralized governments. The arguments for equalization are mainly two. The first which is on efficiency grounds sees equalization as a way of correcting for distorted migration patterns. The second is to provide assistance to poorer regions or jurisdictions. Equalization is important in a number of federations. For example, Canada has an elaborate equalization scheme built into her inter-governmental fiscal arrangements (Boadway and Hobson 2009)

It necessary to point out that recent literature emphasizes the importance of reliance on own revenues for financing local budgets. A number of authors (Weingast, 1997; Mckinnon, 1997) draw attention to the dangers of decentralized levels of government relying too heavily on intergovernmental transfers for financing their budgets. These are lessons that Nigeria’s fiscal system should draw from in order to ensure macroeconomic stability.

There are theoretical arguments which explain why decentralization might impair growth. Prud’homme (1995), Tanzi (1995), Nelson (2006) and Kwon (2003), for example, argue that corruption may be more common at the local level than at the national level, especially in developing countries. This, according to them, is because the absence of arms length relationships is assumed to be more pronounced at the local level. However, as Wildasin (1995) notes, “ by virtue of their more limited powers, it is difficult for local officials to engage in enormous corruption schemes, whereas a corrupt minister of a central government may be able to do massive harm. It seems impossible to say a priori which dominate the other. Wildasin’s observation would be relevant to Nigeria where, as a result of their limited fiscal assignments, local governments have limited resources at their disposal as to be able to engage in massive corrupt practices as to have a noticeable impact on growth. Aigbokhan (1999) notes that other factors may, however, explain the negative impact of decentralization on growth. One is the quality of local bureaucracies. Central or federal bureaucracies attract more qualified manpower as they offer better careers and remunerations. The scarcity of local high skilled manpower may, thus, constrain the positive effects of decentralization. This also explains the weakness in public expenditure management systems. Budget offices lack facilities and skilled manpower that is capable of forecasting expected revenue and spending as well as budgetary classifications which allow the controlling authorities to determine whether fund is actually being spent as budgeted or not.

The experience of many developing countries suggest that subnational 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, subnational governments tend to accumulate debt.

**2.7 Review of Methodological and Empirical Issues**

Fiscal federalism, under which provision of public goods is decentralized to subnational governments, allows public-good levels to be tailored to suit the preferences of a non-homogenous population. This beneficial outcome, first emphasized in a classic paper by Tiebout (1956), is achieved via sorting of individuals into demand-homogeneous jurisdictions, each of which provides a different amount of public good. The drawbacks of federalism, which have also been noted in the literature, include the sacrifice of scale economies due to smaller jurisdictive sizes (Oates, 1972; Alesina and Spoalore, 1997), losses from interjurisdictional tax competition when government revenue comes from taxation of a mobile tax base (Bruecker, 2004), and failure to properly account for public-good spillovers across jurisdictions (Oates, 1972, and Besley and Coate, 2006).

In his seminal work about the theory of public finance, Musgrave (1959) separates the functions of government into three categories: macroeconomic stabilization, income redistribution, and resource allocation. There seems to be a consensus about assigning the first two functions, stabilization and redistribution, to central government. However, there is an ongoing debate about assigning resource allocation function. Some argue that subnational level fiscal policy-making jeopardizes macroeconomic stability (Prud’homme, 1995; Tanzi, 1996,). On the contrary, there are studies demonstrating potential gains from fiscal decentralization in the literature on fiscal federalism literature (Huther and Shah, 1998).

The argument in favor 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.

Musgrave (1959) argues that policies of subnational branches of governments should be permitted to differ in order to reflect the preferences of their residents. In Musgrave’s analysis, local governments have better information about their residents needs therefore they can use public resources more effectively than central government. A decentralized system is expected to respond better to local preferences and needs and also to promote competition among local units in the provision of public goods and services. Efficiency improves as supply adjusts to demand. Oates (1977) shows how the decentralized provision of public services can minimize the efficiency loss from the centralized provision of public services. Oates and Schwab (1999) also show that interjurisdictional competition fosters efficiency.

Tiebout (1956) found that if greater decentralization increases number of alternative fiscal jurisdictions, any attempt to increase tax rates in one jurisdiction would result in migration of its residents to another jurisdiction. Taxpayers migrate to alternative jurisdictions in order to avoid higher taxes and interjurisdictional competition limits excessive taxing power of the governments. Along with the lines of Tiebout, Brennan and Buchanan (1980) developed the “Leviathan” hypothesis where they argue that fiscal decentralization serves as a constraint on the behavior of the revenue-maximizing government.

This view of government decentralization and competition is opposite to the traditional one. The classic administrative view of government fragmentation is that it would cause uncoordinated service delivery, loss of economies of scale, deterioration of accessibility and accountability, and private interests making key public decisions. Also, the literature on intergovernmental relations pays attention to cooperation among levels of government. Traditionally, public economists also argue that interjurisdictional competition to retain and attract residents and businesses is at best a zero-sum game (Kwon, 2008).

According to Wantchekon and Asadurian (2002) decentralization in practice appears to have a mixed track record, and countries such as Brazil, Argentina, and Nigeria are cases in point. For example, they argue that decentralization can increase interregional disparities because national policies designed to correct disparities will be limited, or decentralization might lead to the under provision of fiscally induced stabilization policies.

Further, empirical papers show a link between federalism and poor economic performance- Wibbles (2006), Treisman (2000), Grossman and West (1994) stress the collective action problems and/or veto player policy stability effect that federalism may engender in implementing macroeconomic policies that are viewed as (national) public goods. The collective action problem (especially in the developing world context) emphasizes that federalism increases the number of veto players in a political system, it also intensifies the divergence of interests and the potential inability to implement economic adjustment policies. Oates (1972) recognizes this problem and states that central government is in a better position to carry out the function of stabilization. If stabilization was left up to the decentralized units, there will be an incentive to increase the money supply to finance expenditures rather than through taxation. Thus, there would be a likely propensity toward inflation.

Similarly, Davoodi and Zou (1998) examine the effects of fiscal decentralization on growth. This inquiry is inspired in part by the work of Oates (1993), who contends that better targeting of growth-enhancing infrastructure investment under federalism could raise an economy’s growth rate. They measured fiscal decentralization as spending by subnational governments as a fraction of total government spending. They separated their full sample of 46 countries over the 1970-1989 period 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 favor, may not materialize for developing countries since revenue collection and expenditure decisions by local governments may still be constrained by the central government. Therefore, the measure may not reflect subnational government’s autonomy in expenditure decision-making. Subnational governments that act as administrative agents of national governments do not necessarily reflect true expenditure decentralization. Hence, if the system is de facto centralized, the potential efficiency gains will not be realized.

However, like previous studies on fiscal decentralization Davoodi and Zou (1998) ignore differences in governance systems by using a pooled data set of federal and unitary countries. In federalism, division of power between central government and its component units of the federation is constitutionally designed and guaranteed, whereas in most of the unitary countries the relationship between central government and local governments is not well defined. Measuring fiscal decentralization as a ratio of subcentral government expenditure in total government expenditure in pooled data set of unitary and federal countries results in misspecification of model. In unitary systems, decentralization means devolving power to subnational governments, therefore fiscal decentralization variable is represented as the ratio of local government expenditure to total government expenditure. However, in federal systems, two different scenarios can characterize decentralization. First, decentralization is devolving more power to government units below federal government. Secondly, decentralization means giving more power to lowest level of governmental units. These two different definitions of decentralization variable represent two different scenarios, none of which is compatible with decentralization variable in unitary systems. Therefore, in order to avoid conceptual and statistical problems, analysis must be done by using two separate data sets. Even though one might argue that using dummy variables mitigate the potential impacts of statistical problems, combining two different types of governmental structure in the same data set is a difficult conceptual undertaking.

Also contribution to the empirical literature by Zhang and Zou (1998), and Xie, Zou and Davoodi (1999), did not confirm Oates’ conjecture but report a negative connection between fiscal decentralization and growth. However, the papers by Lin and Liu (2000), Akai and Sakata (2002), Stansel (2005) and Iimi (2005) all find a positive relationship between decentralization and growth, suggesting that Oates may have been right after all.

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.

More relevant to the Nigerian case, literature has established that without “meaningful accountability...the decentralizing resources to local governments may simply lead to “local capture”- or in stark terms, corruption (Rodden, Eskelan, and Litvack, 2001 as cited in Wantchekon and Asadurian, 2002). Rodden et al. explore factors that influence budget constraints, and found that one way of increasing accountability is the role that subnational hard budget constraints can play in breeding fiscal prudence.

Evidence from empirical literature shows 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 byproduct 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 faired 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 subnational 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” (Rodden and Wibbles 2001). Accordingly, Rodden, Eskeland and Litvack (2001 as cited in Wantchekon and Asadurin 2002) discuss the necessity of hard budget constraints for the facilitation of fiscal decentralization positive benefits. As, such, the fiscal structure between national and subnational units (as well as the horizontal allocation of revenue) should be taken seriously.

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. Consequently, for reasons of efficiency, it may be necessary to decentralize (Aighokhan, 1999; Olowononi, 1999). Other studies which propose a similar line of action include Grossman (1989), Tanzi (1995), Agiobenebo (1999), Eberts and Grongberg (2006), among others.

In the empirical literature on the relationship between government decentralization and government size, whether and how fiscal decentralization affects government size mainly relies on comparisons of aggregate levels of overall government spending without any knowledge about the distribution of the power to tax between the different levels of government (Feld et al. 2003).

According to Brennan and Buchanan, emigration imposes a serious restriction on the ability of government to exploit tax bases. If emigration is possible at low cost, tax bases can avoid excessive taxation by leaving the jurisdiction that levies taxes. In their decentralization hypothesis Brennan and Buchanan (1980) conclude: “total government intrusion into the economy should be smaller, ceteris paribus, the greater the extent to which taxes and expenditures are decentralized”. Similarly Oates (1972) argues that political agents have a better knowledge of the preferences of their constituency if the fiscal power is decentralized, such that the provision of public goods can be tailored more efficiently to their needs. According to Oates (1972) the Wicksellian connection favors a smaller size of government. On the other hand, Oates (1985) argues that, if local governments have more information about the preferences of citizens than central governments that enables them to tailor public services to the needs of voters, this might increase their demand for public spending, leading to a larger share of government. In a somewhat different analysis, Persson and Tabellini (2006) theoretically show the importance of decentralization in restricting government discretion to exploit the fiscal commons. Wildasin (1997) follows a similar line of thought and concludes that fiscal indiscipline of sub-federal government as a result of bailouts by the central government is of minor relevance in a fragmented federalism where sub-federal units are not considered as being too big to fail.

Numerous researchers have been concerned with the impact of fiscal decentralization on the size of government, yet the empirical results are inconclusive. One explanation points to a problem of measurement for many studies. Sub-federal spending and revenue data do not always give a good picture of the true distribution of spending and taxing powers (Ebel and Yilmaz, 2003).

Ubogu (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” hypothesis that fiscal decentralization serves as a constraint on the behavior of the revenue-maximizing government. The Leviathan model predicts that the overall size of the public sector should inversely vary with decentralization. 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.

Empirical studies have tested the Brennan and Buchanan model of the “Leviathan” government and their findings are contradictory. Oates (1985) and Nelson (1986) find no supporting evidence for the leviathan hypothesis, whereas Marlow (1988), Grossman (1989), Joulfanian and Marlow (1990) and Grossman and West (1994) report a strong correlation between the increase in the subnational government expenditure in total government expenditure and reduction in total public sector size.

Ojo and Okunrounmu (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 fueled 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.

**2.8 Fiscal Federalism in Developed Countries**

While the theoretical justification for fiscal federalism is sound, its practicability differs in federal systems, based on historical antecedents and culture. This section provides a selective review of policy issues and recent trends in a number of different countries and regions. The aim is to highlight a few of the issues of fiscal federalism, intergovernmental fiscal relations, and fiscal decentralization that have emerged throughout the world in recent years.

Problems of fiscal centralization and decentralization by their nature tend to have important institutional and economic dimensions that vary from one country or region to another. Shifting the locus of fiscal responsibility among levels of government may occur relatively incrementally, as in stable federation like the US, or they may occur wit dramatic speed, as in the disintegration of the Soviet Union or the unification of Germany.

In all cases, however, there are specific historical and institutional factors that channel the process of fiscal adjustment within the broader context of overall economic and political change. Widely varying political and economic systems, levels of economic development, and legal, constitutional, and fiscal traditions form the milieu within which the responsibilities of different levels of government are determined. The institutions of fiscal federalism vary widely across the world, and it is worthwhile to undertake a comparison of the divergent experiences of different countries.

**2.8.1 Australia**

The practice in Australia is to concentrate financial resources at the centre and then redistribute them to states in order to minimize disparities in the provision of goods and services. The power to levy customs and excise duties is exclusively reserved for the central government which also has monopoly over income tax. Two bodies administer and regulate intergovernmental fiscal relations, namely, the loan Council (LC) and the Commonwealth Grants Commission (CGC). The Loan Council, on the other hand, is the body that authorizes both internal and external borrowing by the government. This body is dominated by the central government which has two votes as casting votes against one vote each for the seven states in the federation. The Commonwealth Grant Commission, on the other hand, has sole responsibility to manage intergovernmental fiscal relations in Australia. It investigates and applies for special grants for the states whenever the need arises. It also reviews the relative share of income tax revenue to states to ensure equitable distribution so that tax revenue sharing arrangements could take into account the differences in the amounts required to be spent by each state in providing comparable public goods and services (www.cgc.gov.au).

There is a constitutional provision that requires the central parliament to grant financial assistance to any state on such terms and conditions as the parliament thinks fit. Grants are made by the central government to the state and local authorities as a matter of policy. However, grants made to local authorities are paid to the states and the states are required to distribute the grants to the local authorities in a prescribed manner. Two types of grants are normally made, namely, unconditional grants in the form of tax reimbursement, and conditional grants which are financial assistance made upon conditions set by the central government. The conditional grants are usually used to implement nationwide policies in education, urban development, community health and urban transportation. The objective of this policy is to achieve a measure of reform and uniformity throughout the states and local governments.

A fixed revenue-sharing formula was fashioned out in the late 1970s in respect of revenue by the commonwealth Grants Commission. This formula allows the central government to take 64.78 per cent of the personal income tax receipts, while the state and local authorities are given 33.6 and 1.52 per cent, respectively. This relatively high concentration of finances at the centre requires considerable level of coordination and cooperation between the central and lower levels of government in the implementation of stabilization policies. Although the central government has financial power to exert considerable influence on the lower levels of government, voluntary cooperation has been achieved through sub national involvement in national policies (CGC, 2001)

**2.8.2 Germany**

The German federal system is known as an administrative fiscal federalism, and, again is highly centralized, although in 1949, primary functions were given to the states (landers). Over the years, the federal government has encroached on these functions through the establishment of the concurrent legislative list. Therefore, the powers of the landers have diminished to ordinary implementation of federal government programmes. The financial arrangement is highly centralized in terms of legislation, administration and right to collect revenue. All important revenue sources are centrally collected and shared among the levels of government (Spahn and Fottinger, 1997).

The Constitution defines revenue sharing (vertical and horizontal) and allows for negotiated changes. The distribution of income taxes (personal and corporation) is based on derivation principle. The distribution of VAT is based on population and equalization payments to the poor landers. Furthermore, several grants are made to the sub national governments for co-financing of specific programmes. The grants are largely influenced by the principle of uniformity-of-living conditions among the citizens.

The government is prohibited from borrowing from the Central bank and whatever borrowing it makes is restricted to the amount for capital budget. The stringent borrowing criteria laid down by the federal government appears to restrict national debt. Likewise, the restrictions transcend other levels of government thereby providing a good platform for monitoring macroeconomic targets (Watts and Hobson 2009, Vincent 2001).

**2.8.3 The United States of America**

The major feature of the federal system in the United States is the major role played by subnational governments in shaping the political life of the country. The U.S. federal constitution “confers on the state governments reserved or residual powers, that is, powers not delegated to the federal government nor denied to the states”. Local governments holds no constitutionally guaranteed sovereign powers on their own but are subunits and administrative agencies of the states and may perform only such functions and levy such taxes as are specifically delegated to them. This constitutional arrangement, more or less, determines the intergovernmental fiscal relations among the tiers of government in the country. In practice, the U.S. combines aspects of the financial concentration of Australia with Canada’s ad hoc arrangements. While the federal government enjoys some latitude or power, as a lender of funds to state and local governments, the powers of the lower levels of government are highly restricted (Musgrave and Musgrave 1989).

Financial resources are transferred from the federal government to the lower levels of government in three ways, that is, through loans, grants-in-aid, and revenue sharing. Revenue sharing in particular is used to implement certain policies usually aimed at promoting equality among the states or jurisdictions, providing incentives for the recipient government to behave in certain ways, and making recipients adhere strictly to any conditions attached to the use of funds. Funds are first allocated among states and then within each state, using population, relative income, tax effort, urbanized population, and personal income tax collections as indices for the revenue sharing. Within the states, two-thirds of the general revenue sharing funds are passed on to the local governments and whatever remains is retained by the state governments. The indices used in allocating funds to local governments in each state are population, per capita income and tax effort. Also, it is a condition that no municipal or local government may receive more than 145 per cent or less than 20 per cent of the average state per capita entitlement, and none may receive more than 50 per cent of the sum of its taxes and intergovernmental transfers. The relationship between the state and the local government varies from state to state. Some states play a dominant role in expenditure and revenue control while others play a lesser role. The state and the local governments are largely responsible for the provision of public education, health, fire services, transportation, public works and public welfare. The responsibilities of the federal government are mainly national defence and public welfare (social security). States and local governments are required to adhere strictly to all condition stipulated for the use of revenue sharing funds. The conditions are that:

* local governments cannot use the funds for education, cash payments to welfare recipients, or for general administration;
* they cannot use the funds as matching share for a federal grant (that is counterpart fund);
* states cannot reduce net aid to local governments below a given level as may be set by the federal government;
* the recipient government of revenue sharing fund should not discriminate in employment or in the provision of services financed by the fund so received; and
* revenue sharing funds must be used within twenty-four months of collection.

The federal government may assist the lower levels of government financially through what is termed “tax expenditure”. This is done by encouraging the people to buy debt instruments issued by the lower levels of government or by making taxpayers (or debt instrument holders) forgo the interest earned on such instruments from their personal income tax base. Also, the federal tax system allows individuals to deduct certain state and local taxes from taxable income while computing their income tax liabilities. These include income, sales, property, and gasoline taxes.

Consequent upon the fiscal relationship detailed above, tax administration is also decentralized. Both federal and state governments derive their taxing powers from the Constitution. Tax sharing and surcharges are not features of the federal system. The local governments derive their taxing powers from state laws. Taxes assigned to the federal government are individual income tax, corporation/income tax, sales, gross receipts and custom duties and other charges. Similarly, states and local councils are generally assigned sales tax, gross receipts, corporation tax, charges and fees, and utilities and liquor licences.

Laws, which vary from one state to another, restrict state and local governments. Macroeconomic management rests largely on the federal government’s use of its budget to effect changes. Restrictions are, however, imposed on states and local governments not to run a deficit on a current budget. Their deficits are largely financed by draw downs on reserves except for few long-term borrowings to finance large capital projects that are self-financing.

Shifts in the balance of fiscal authority between the Federal, state, and local governments tend to mirror basic changes in domestic policy. The division of fiscal responsibilities between state and local governments has also been the subject of continuing reassessment in the US. The provision of primary and secondary education has been a principal function of local governments in the US throughout the last century, and the persistence of significant variations in levels of provision among localities testifies to substantial differences in demand for education within the population. The American intergovernmental fiscal arrangement is not static, but designed to accommodate changes in social and economic circumstances. For instance, state governments in recent years are required to take up additional responsibility especially in public education funding and social welfare payments. In return, they are granted more tax power as well as financial grants to carry out the added responsibilities, thus shifting budgetary pressures from federal to lower levels of government (Musgrave and Musgrave 1989).

**2.8.4 Canada**

The Canadian federal system represents a highly decentralized model of fiscal federalism. The current relationship between the central, the provincial and the municipal council governments dates back to the British North American Act of 1867. The objective of intergovernmental fiscal relations in Canada, especially since the 1960s, has been in the direction of reducing financial concentration at the centre (Moore, Harvey and Beach 1985). Equalization of fiscal status has been a longstanding goal of Canada’s fiscal system

Public sector financing is highly decentralized and this has facilitated the attainment of some degree of autonomy of the provinces. The major tax revenue sources are the personal income tax, the corporate income tax and the value-added tax (introduced in 1991 to replace manufacturers’ sales tax) for the federal government, retail sales tax and resources tax at the provincial level, and property tax at the municipal level. Important features of tax assignments include the system of tax sharing and tax surcharges between the federal government and some provinces. The personal and corporate income taxes are collected by the national government but remitted in part to the provinces as agreed. Each province can set its own rate above or below the national rate while the province of Quebec collects its own personal income tax. Also, the federal government collects corporate income taxes, but the provinces set their own rates based on previous agreement.

The federal government has little access to natural resources taxes as the provinces collect them. The resources tax revenue has accounted largely for the differences in revenue per capita of the provinces and is the major problem of interprovincial relationship. Overall, the amount of money transferred from the federal government to the provincial governments is small, although increasing attention is paid to financial redistribution among the provinces. There is no permanent institution to manage intergovernmental fiscal relations in Canada as is the case in Australia. This task is done through ad hoc decisions reached at administrative conferences (France St- Hilaire, 2007).

Although a high degree of decentralization is evident in Canada, this may conflict with distributional objectives, given the size and large income disparities among the provinces. Intergovernmental grants equalize the ability to pay for public services and correct imbalances.

**2.9 Fiscal Federalism in LDCs and Transition Economies**

While much of the controversy in the US over the proper roles of different levels of government has revolved around issues of equity and allocative efficiency, recent trends toward fiscal decentralization in many third-world and transition economies have focused new attention on macroeconomic stability. When Musgrave (1959) identified macroeconomic stabilization as one of the three principal branches of the public finance, in addition to the allocative and distributional branches, many economists were convinced that fiscal policy could play an important and perhaps decisive role in managing short-run aggregate-demand fluctuations so as to achieve both price stability and full employment. From the traditional Keynesian perspective, the conventional wisdom has been that the manipulation of fiscal policy for short-run demand-management purposes should be left to the central government rather than to local governments (Oates, 1968). This conventional wisdom remains relatively intact, at least in so far as Keynesian views on short-run macroeconomic policy survive at all.

Nevertheless, new concern has arisen about the macroeconomic effects of fiscal decentralization, not because of new views about the effects of local or provincial government fiscal policy on the business cycle but rather because of worries that fiscal decentralization may contribute to structural deficits and fiscal imbalance. Even in the absence of moves toward fiscal decentralization, it has proven difficult in many countries to control aggregate public sector borrowing; in turn, heavy public borrowing has increased the pressure on central banks to engage in inflationary finance. The question is whether fiscal decentralization tends to accentuate or to mitigate these sorts of problems. Where traditions of state and local government fiscal responsibility are weak, where the institutions of political control and accountability are immature, and where administrative professionalism and control are poorly developed, there may be a risk that lower-level governments may abuse or mismanage their borrowing authority, leading to aggregate fiscal imbalance with accompanying adverse macroeconomic consequences (Bird et al, 2005; Prud’homme, 1995; Tanzi 1996).

A discussion of some important LDCs and transition economies will illustrate how fiscal federalism issues have become entangled in problems of overall macroeconomic performance and policy management. The following discussion outline some of the policy issues that have arisen recently in several important countries, including India, Argentina, Brazil, China, and Russia.

**2.9.1 India**

India has an established federal system and highly elaborate programmes of intergovernmental revenue sharing and fiscal transfers. Both the Planning Commission and the Finance Commission provide extensive grants to state governments in order to promote development and fiscal equalization. The system has come under criticism for creating perverse and conflicting incentives for state governments and for failing to promote equity objectives (Rao and Agarwal, 2004; Murty and Nayak, 2006). State government borrowing from the central government has created serious fiscal stress for a number of states (World Bank 2009). In part, this seems to be the consequence of increases in the interest rates at which state government are allowed to borrow from the central government. Like any reduction in central government transfers to states, this has the immediate effect of reducing the central government deficit while raising deficit at the state level. As a result state governments are compelled to strengthen their revenues and cut expenditures. One consequence has been a push toward privatization of public enterprise in the electricity, water, and transportation sectors, a move which typically allows these enterprises to restructure employment and other aspects of their operations more freely than could occur in the public sector and which allows them to raise capital more easily from market sources.

The states of India, however, continue to face many demands for public expenditures for economic development and poverty reduction. The attempt to meet these demands was a principal motivation for the establishment of the system of grants and loans to the states in the first place. While many states have strengthened their own-source revenues, substantial disparities among the states still persist. Some states face fiscal crises as they attempt to undertake expenditures in excess of their revenues, which have prompted fiscal and regulatory interventions by the central government. Other states, in cutting expenditures, for example, for basic health and education, may also produce significant political pressures for assistance from the center. In such circumstances, the question arises as to how intergovernmental transfers and borrowing arrangements can be structured so as to provide states with adequate fiscal resources without weakening their incentives for fiscal discipline? A sufficiently high level of transfers from the center to the states would obviate any need for state borrowing, but this might just shift fiscal imbalances back to the center. The resolution of these and related issues are likely to occupy a prominent place in discussions of overall macroeconomic performance, management, development, and income distribution in India for some time to come.

**2.9.2 Argentina**

Macroeconomic considerations have also figured prominently in discussions of fiscal federalism in several countries in Latin America. A number of Latin American countries have undergone significant changes in the structure of intergovernmental fiscal relations and in the comparative roles of different levels of government. Broadly speaking, one might characterize the region as a whole as moving toward increased reliance on lower-level governments to manage public expenditure; in some cases, this shift has been accompanied by increases in local government revenue capacity, but in other cases the increased spending by lower-level governments has been financed mainly by transfers (either through grants or through shared taxes) from higher-level governments.

In the case of Argentina, problems of fiscal federalism are closely intertwined with the country’s problems of macroeconomic and monetary stability. Throughout the 1980s the central government resorted to deficit financing of public expenditures, and the central bank, in monetizing these deficits, increased inflationary pressures to extraordinary levels. Resolution of the fiscal crisis of the central government and the establishment of effective controls on monetary growth have thus been critical issues for recent economic policy in Argentina, and indeed the country has made substantial progress on these problems (World Bank 2006). In this environment of macroeconomic instability, there has been a significant shift of revenue and expenditures to the provincial and local governments. This shift resulted in part from reforms in the late 1980s that mandated that large fractions (over 50%) of the revenues from major central government taxes be passed along to the provinces, while discretionary grants from the center to the provinces were reduced (World Bank 2006).

Improved management of Argentina’s fiscal and monetary crises has thus coincided with substantial fiscal decentralization. There is concern, however, that transfers to provincial governments have grown too quickly and that there is insufficient reliance on own-source financing to encourage accountable and responsible spending at the provincial level (World Bank 2006). In addition, provincial government deficits have been financed in part by provincial banks, many of which have gone bankrupt. The central bank’s policy of managing these banks and absorbing their losses provided governments with a circuitous mechanism of inflationary finance, weakening incentives for fiscal discipline at the provincial level. Recent reforms of the financial sector and of central bank policymaking are designed in part to avoid these pitfalls. Argentina presents an interesting example of a country where financial sector and monetary reform, central government fiscal adjustment, and the restructuring of intergovernmental fiscal relations have been closely interrelated.

**2.9.3 Brazil**

Brazil is another country where problems of deficit finance by subnational governments have come to the fore recently. Brazil is a federation in which both state and local governments have traditionally played an important fiscal role. Substantial fiscal responsibilities are assigned to state and local governments by a 1988 constitution, which also provides for fiscal transfers from the center to the state and local governments (Prud’homme, 2009). A significant fiscal role for lower-level governments antedates the new constitution, however, state and local government own-revenue have typically accounted for 40-50% of total government revenue since the late 1950s (Shah 2007), and a substantial share of central government revenue has been transferred to lower-level governments through grant and revenue-sharing programmes throughout this period. Interestingly, state governments in Brazil have utilized a value-added tax as a major source of own-revenue.

The recent evolution of fiscal federalism in Brazil cannot be properly assessed, however, without taking into account the relationship between lower-level governments, public enterprise, and the banking sector. Like Argentina, Brazil has experienced extraordinarily high rates of inflation in recent past. During this highly inflationary period, state governments have engaged in deficit financing while relying on the state-owned banks to purchase state debt. The Brazilian situation seems to exemplify a breakdown of fiscal incentives and constraints in the structure of intergovernmental fiscal relations, arising at least in part from the close connections between lower-level governments and key financial institutions and from the mismanagement of monetary and fiscal policy at the central government level that has contributed to a highly inflationary environment. The de facto structure of intergovernmental fiscal relations includes the use of state banks, and their relationship to the central bank through the financial regulatory system, to shift implicit liabilities for state deficits to the central bank, a structure that distributes resources and alters incentives in ways very different from the de jure structure embodied in established programmes of intergovernmental grants and revenue sharing.

**2.9.4 China**

China presents a fascinating case where overall economic reform, macroeconomic and monetary policy, and problems of interregional imbalance interact with intergovernmental fiscal relations. One fundamental aspect of Chinese reform has of course been the reduction of the role of state planning and control in the operation of the economy. The fiscal arrangements that evolved during the Mao period proved to be poorly adapted to a more market-oriented economic system. A series of reforms involving changes in tax bases, tax administration, and the division of revenues between lower and higher level governments has occurred in the past decade (Bahl and Wallich, 2008; Agarwala, 2004).

Regional inequalities, uneven regional development, and internal population movements all create demands for regionally-differentiated public service provision and redistributive transfers. The central government has relied in substantial part on lower-level governments to collect taxes and to transfer resources to it while at the same time it attempts to distribute funds to lower-level governments to promote central government investment and other programmes. The weak revenue base of the center has created on the People’s bank of China (PBC) to offer credit to lower level governments which can be used to finance expenditures in areas deemed important to the central government. Establishing a structure of tax sharing and intergovernmental fiscal transfers between different levels of government is thus a complex problem (Laffont, 2005) but one that appears to be quite important for macroeconomic stability in China’s fiscal re-engineering and restructuring.

**2.10 Relevant Issues and Challenges**

A couple of decades ago fiscal federalism used to be a topic of marginal importance in most countries and in economic literature. The world was broadly divided into federal states and unitary states and there were hardly any countries that planned to move from one to the other of these categories. In recent years, however, perhaps as a result of globalization and deepening democratization, combined with rising incomes, centrifugal forces seem to have been put into action in many countries. These forces have generated growing demands for increasing degree of fiscal decentralization. **From the analysis so far it can be hypothesized that decentralization is a superior good, the demand for which is likely to grow with a stable democratic and macroeconomic environment.** This sub-section addresses the relevant and emerging issues and the challenges they pose.

**2.10.1 Decentralization and the Assignment of Revenue from Natural Resources**

Petroleum a major natural resource in Nigeria has accounted and still accounts for more than seventy percent of government revenue base which has remained undiversified since the Nigerian state attained independence in 1960. The prominent position of petroleum in fiscal revenue has made fiscal federalism a volatile issue with serious implications for macroeconomic stability. Consequently there is increasing pressure for recognizing the right of subnational government and, in some cases, indigenous communities, to a share of natural resources (Brosio, 2006).

Nigeria which is the focus of this thesis is a peculiar example. Rents from natural resources form an important share of subnational budgets in countries where such resources are found. The assignment of revenue from natural resources to subnational levels of government tends to generate rivalries between the constituent units of the same nation, In developing countries like Nigeria with large and unevenly distributed endowment of natural resources, the sharing of natural resource revenue often puts considerable strains on national unity. There are two reasons

for this. First, the rent can be very substantial, as in the case of petroleum, natural gas, diamond and other valuable minerals. Second, decentralization expands the role of subnational governments and makes them more vocal in pressing for a share of the rents originating within their jurisdiction.

Ideally, all rents collecting instruments are available to any level of government. However, the central government is viewed as better equipped to use most of them than subnational government units. According to theory, natural resource taxes should be assigned to central government and (partly) reallocated to subnational government. In other words, revenue sharing or transfers are to be preferred over assignment of own taxes to subnational government and concurrence of taxes (sharing of tax bases). There are two reasons against assignment of own taxes to subnational government. The first is administration. The principle is that, if a tax is collected by the more efficient government, its net revenue will be higher. Usually, the central government has more personnel and better organization. This can be particularly true for developing countries like Nigeria, where professional skills and organization resources are generally scarce. Due to the complexity of administration, the resource rent tax, the most efficient tax for natural resource extraction, is out of reach for most subnational government tax administration offices.

Also natural resource tailored profit/income taxes present huge problems. The information required for taxing profits from natural resources is no more complex than that required for standard corporate taxation, but profit/income taxes are not recommended in general for subnational government. The more so as subnational governments, particularly in developing countries, do not have the sophisticated tax administration required for dealing with big petroleum, or mineral international companies,[[1]](#footnote-2) while the size and variability of potential revenue presents additional problems.

Consideration of administrative problems restricts the range of tax instruments that might be assigned by subnational governments to production-based taxes, such as the royalties. Royalties are, in fact, the most common tax used in isolation by subnational government, or shared with the centre (Otto, 2001). The weight of the administration argument is somewhat reduced when one considers that all governments can contract other governments and private firms, or can join efforts to acquire the capabilities that are required to use efficient/sophisticated rent extraction instruments. One can observe an increase in outsourcing of tax administration in the real world.[[2]](#footnote-3)

The second reason advanced against local taxation of natural resources is delays and variability in revenue. This argument holds for cash flow taxes. As seen, their use implies that liabilities will be negative at the start of new projects and that collections will flow only after the project is operational. This is a burden that subnational administrations may find difficult to bear (particularly, after considering their need to build infrastructure before the start of production). In fact, the frequent use of royalties by central government as in the case of Nigeria is also explained by the fact that they ensure steadier revenue flows. On the other hand, it has to be recognized that subnational governments may be ready to trade off less and/or delayed revenue with other advantages stemming from direct control and administration of their taxes, such as availability of taxing powers and control of revenue. In fact, in many (especially developing) countries, allocation to subnational governments of tax revenue collected on their behalf by the centre is often delayed and uncertain (McLure, 2003).

The main reason against concurrency of natural resource taxes is vertical externalities. That is, the overall burden of a tax assigned concurrently to different layers of government is greater than the burden that would arise, if the tax instrument is assigned to one level of government only.[[3]](#footnote-4) The argument is valid mostly for royalties, which are levied jointly by the central and the sub national governments in a huge number of cases (see Otto 2001). It has less weight in the case of the resource rent tax, because of its neutrality and its structure.

Revenue sharing is one of the most frequent systems for sharing natural resource revenue between layers of government[[4]](#footnote-5) (see also Ahmad and Mottu, 2003). To be precise, revenue sharing is not an attractive general instrument for financing subnational governments, since it reduces their accountability, responsibility for the burden they impose on their citizens (as with revenue sharing, there is determination neither of tax rates, nor of the tax base). When applied to taxes on natural resources, the drawbacks of revenue sharing lose most of their weight. In fact, most of the taxes on natural resources are exported, while tax rate setting and tax base determination are better left to the central government, considering the national dimension of most natural resource extraction policies.

The ownership of natural resources is determined by constitutions, mining laws and customs. In countries with civil law tradition, the ownership of natural resources is vested in the state (so-called ‘regalian system’). Countries with a common law tradition recognize (partly) private ownership. In this case, the owner of the land is at the same time the owner of the subsoil. In practically all countries, non-iron minerals of lesser value, such as sand and gravel, are left to private ownership. Offshore fields and mines are everywhere publicly owned.

In confederations natural resources are, on a strict legal basis, property of the members of the confederation and not the confederation. The reason is that nothing is due to the confederation, which does not derive from a decision of each distinct confederated state. Federal and non-federal states offer a great variety of constitutional solutions concerning the level of government to which ownership of natural resources is recognized. However, a somewhat clear historical pattern emerges. When subnational governments are institutionally strong, or are independent units within a federation or confederation and the existence of large quantities of natural resources is common knowledge, then constitution assigns full or partial ownership of natural resources to subnational levels of government.

The Canadian constitution (the British North America Act) states that ownership of minerals and other natural resources belongs to the provinces. Constitutional agreements have extended the same rights to the provinces, which later joined the federation. Mineral resources were already important in Australia at the time of the federation, but the constitution makes no specific reference to them. Since the Australian constitution specifies only the powers of the federal government and leaves every other responsibility to the states, the latter have retained the ownership on natural resources they had before the federation.

There is also no mention of natural resources in the recently written and still to be adopted EU constitution. The new European entity is, in fact, closer to a confederation than to a federation. It would have been quite unlikely that member states would have agreed to confer their property rights on natural resources to the European institutions. Latin America constitutions provide interesting examples of the evolution of constitutional assignments concerning natural resources, in particular petroleum. When the huge potentialities associated with new discoveries became common knowledge, but the actual distribution among regions remained unknown since no exploration had yet been made, constitutional provisions vested ownership and control of natural resources in the central government. However, when the veil of ignorance about the effective location of petroleum disappeared, as happened in the early 1990s, a shift took place towards the explicit recognition of subnational government entitlement to petroleum revenue. This is the case of the constitutions of Argentina and Colombia. Resource-rich jurisdictions exerted increasing pressures on the writers of those constitutions to see their property rights recognized.

Ownership may also be determined by constitutional interpretation. Canada and Nigeria provide a good illustrating example of the latitude of possible interpretations of constitutional arrangements and of the conflicting views about possible amendments. In the case of Nigeria in the 1960s ownership on natural resources was vested in the regions but this arrangement changed with the emergence of petroleum as the major earner of foreign exchanged. In contrast Canadian non-petroleum-producing provinces have traditionally adhered to the principle that Canada is a single nation and a single community. If so, natural resources belong to the federal government and should be shared among all provinces, and/or used for country-building purposes. Petroleum-producing provinces held the opposite view, stressing the primacy of provincial communities and that national majorities are not entitled to take natural resources away from where they area produced. Provinces situated on the Atlantic coast shifted gradually from the nation-to the province-building approach, when the prospects of off-shore petroleum discoveries became brighter (Simeon, 1980; McMillan, 1981).

Interregional conflicts regarding access to petroleum, for example, in Nigeria, have generated secession, civil war and the frequent demise of democracy. Petroleum-producing federated states have traditionally taken the view that ‘equitable fiscal federalism’ implies the adoption of the derivation principle (resources stay where they are produced). Non-producing states have brought forward the principle that equitable fiscal federalism means redistribution (Ikein and Briggs-Anigboh, 1998).

The influence of resource-rich subnational jurisdictions evidenced by recent trend in the allocation of revenue from off-shore petroleum. This resource, which is generally the property of the central government, is presently shared among neighbouring subnational governments in a number of countries, such as Canada, Australia, Brazil and Italy. Since there are much lower infrastructure costs and almost no externalities from offshore exploration and production, the sharing with subnational government shows the intensity of their pressures and the difficulty of resisting them (Brosio, 2006).

Clearly, political economy considerations play an important role in the decision on whether or not to share natural resource revenues with subnational governments, and the form that these arrangements might take. However, it should be recognized that disparities in revenues from natural resources, and problems arising from them, can be alleviated through equalization mechanisms. This is what central governments do, especially when the constitution, or previous agreements that are not easily renegotiable, grant a large share of revenues to producing jurisdictions. Equalization can be done for efficiency reasons, and also for equity reasons. Clearly, present-day political orientations and redistribution policies are in most countries in favour of redistribution of wealth, but not total equalization. This translates into equalization transfers that reduce the gap, ceteris paribus, between natural resource-rich and natural resource-poor jurisdictions. In addition to efficiency and equity reasons, the intensity of the equalization may be dictated by political convenience, and for keeping countries together and for nation building.

**2.10.2 Decentralization and Corruption**

Another issue of potential importance with far reaching implication for macroeconomic performance relates to governance and corruption. A greater percentage of economic woes that has bedeviled the Nigerian economy are attributable largely to public sector corruption. Corruption is defined as the exercise of official powers against public interest or the abuse of public office for private gains. Public sector corruption is a symptom of failed governance. Existing literature on fiscal federalism identifies potential connection between fiscal federalism and corruption. Others have attempted to refute the existence of such a connection or even to argue that decentralization reduces corruption.

In recent years, concerns about corruption have mounted in tandem with growing evidence of its detrimental impact on growth and development (World Bank, 2004). Corruption is shown to adversely affect GDP growth (Mauro, 1995; Abed and Davoodi, 2000), to lower the quality of public infrastructure (Gupta et al, 2000; Tanzi and Davoodi, 1997) and health services (Tomaszewska and Shah, 2000; Triesman, 2000), and to adversely affect capital accumulation. It reduces the effectiveness of development aid and increases income inequality and poverty (Gupta et al. 1998). Bribery, often the most visible manifestation of public sector corruption, harms the reputation of and erodes trust in the state. As well, poor governance and corruption have made it more difficult for the poor and other disadvantaged groups, such as women and minorities to obtain public services. Macroeconomic stability may also suffer when, for example, the allocation of debt guarantees based on cronyism, or fraud in financial institutions, leads to a loss of confidence by savers, investors and foreign exchange markets. For example, the corrupt practices in the Nigerian banking and finance sector in the late1980s and early 1990s led to the demise of a number of finance house and banks, and loss of confidence in the national banking system in Nigeria. Similarly the Bank of Credit and Commerce International (BCCI) scandal, uncovered in 1991, led to the financial ruin of Gabon’s pension system.

Although statistics on corruption are questionable, the available data suggest that it accounts for significant proportion of economic activity. For example, in Nigeria, ‘questionable’ public expenditures at the local government level between 1999 and 2007 quoted by the Executive Chairman of Economic and financial Crime Commission (EFCC) in 2008 amounted to 300 billion naira. In Tanzania, service delivery survey data suggests that bribes paid to officials in the police, courts, tax services, and land offices amounted to 62 per cent of official public expenditures in these areas. In the Philippines, the Audit Commission estimates that $4 billion is diverted annually because of public sector corruption. Moreover a study by Tomaszewska and Shah (2000) on decentralization, corruption and service delivery, concludes that an improvement of one standard deviation in the ICRG corruption index leads to a 29 per cent decrease in infant mortality rates, a 52 per cent increase in satisfaction among recipient of public health care, and a 30-60 per cent increase in public satisfaction stemming from improved road conditions.

As a result of this growing concern, there has been universal condemnation of corrupt practices in Nigeria, leading to the trial and removal of public officers and political office holders. Moreover the Nigerian government and development agencies have devoted substantial resources and energy to fighting corruption in the last political dispensation (1999-2007) and in recent years. Even so, it is not yet clear if the incidence of corruption has declined perceptibly. The lack of significant progress particularly during the Obasanjo led democratic government can be attributed to the fact that the strategies are simply folk remedies or ‘one-size-fits-all’ approaches and offer little chance of success. For strategies to work, they must identify the type of corruption they are targeting and tackle the underlying, country-specific causes, or ‘drivers’, of dysfunctional governance. In Nigeria, public sector corruption, is a symptom of failed governance, depends on a multitude of factors such as the quality of public sector management, the nature of accountability relations between the government and citizens, the legal framework and the degree to which public sector processes are accompanied by transparency and dissemination of information. Efforts to address corruptions that fail to adequately account for these underlying ‘drivers’ are unlikely to generate profound and sustainable results.

Huther and Shah (1998), using international cross-section and time series data, find that fiscal decentralization is associated with enhanced quality of governance as measured by citizen participation, political and bureaucratic accountability, social justice, improved economic management and reduced corruption. Arikan (2004) reconfirms the same result. De Mello and Barenstein (2001), based upon cross-country data, conclude that tax decentralization is positively associated with improved quality of governance. Fisman and Gatti (2002) find a negative relationship between fiscal decentralization and corruption. Gurgur and Shah (2002) provide a comprehensive theoretical and empirical framework on the root causes of corruption. They identify major drivers of corruption in order to isolate the effect of decentralization. In a sample of industrial and non-industrial countries, lack of service orientation in the public sector, weak democratic institutions, economic isolation (closed economy), colonial past, internal bureaucratic controls and centralized decision making are identified as the major causes of corruption. For a non industrial sample that included Nigeria, drivers for corruption are lack of service orientation in the public sector, weak democratic institutions and closed economy. Decentralization reduces corruption but has a greater negative impact on corruption in unitary countries than in federal countries. Gurgur and Shah (2002) conclude that decentralization is confirmed to support greater accountability in the public sector and reduced corruption.

The reason for hypothesizing the existence of a relationship between decentralization and corruption is that, in many countries, local institutions are less developed than national ones. Many reasons account for this; for example, the brightest people tend to join the central government where their long run career prospects are better. Furthermore, national governments are likely to be able to create more transparent and more accountable public administration. For example, foreign technical assistance is generally directed towards the central government and not the local governments. These considerations have to be qualified, of course. In countries such as Australia, Canada, Germany, and the United States the educational level of the population is so high that highly trained people are available for all levels of government and thus, good institutions can be created by all. However, in many countries the best and most talented people join the national government while the quality of the local government institutions tends to be lower particularly in developing countries like Nigeria.

Power corrupts and absolute power corrupts absolutely. Localization helps to break the monopoly of power at the national level by bringing decision making closer to the people. Localization strengthens government accountability to citizens by involving citizens in monitoring government performance and demanding corrective actions. Localization as a means

of making government responsive and accountable to the people can help reduce corruption and improve service delivery. In Nigeria for example efforts to improve service delivery has forced the authorities to address corruption and its causes. However there is still the need to pay attention to the institutional environment and the risk of local capture by elites. In the institutional environments typical of some developing countries, when in a geographical area, feudal industrial interests dominate and institutions of participation and accountability are weak or ineffective and political interference in local affairs is rampant, thus localization may increase opportunities for corruption. Thus rule of law and citizen empowerment should be the first priority in any reform efforts. Localization in the absence of rule of law may not prove to be potent remedy for combating corruption.

In all, a small yet growing body of theoretical and empirical literature confirms that localization offers significant potential in bringing greater accountability and responsiveness to the public sector at the local level and reducing the incidence of grand corruption.

**2.10.3 Decentralization Regional Disparities and National Unity**

Nigeria, Canada, United States of America, Germany, India, Sudan, Spain, Switzerland- what can this diverse set of countries possibly have in common? One important answer is that each contains within its boundaries a significant territorially-based group of people who are, or who consider themselves to be, distinct and different in ethnicity, in language, in religion, or just in history (ancient or recent) from the majority of the population. Indeed, contrary to the common view-one might say mythology-that the most ‘natural’ nation state is a unified and homogeneous entity, such ‘fragmented’ countries (Bird and Stauffer, 2001)[[5]](#footnote-6)- are found throughout the world. Homogenous nations are more the exception than the rule. Indeed, heterogeneity, whether ethnic or economic, is a more common feature of most countries than homogeneity.[[6]](#footnote-7) A second important characteristic of many countries is that they exhibit, to greater or lesser degrees, some ‘asymmetry’ in the way in which different regions/states is treated by their intergovernmental fiscal systems. While such asymmetry is often most obvious in formal federal countries, it comes up, sometimes in surprising ways, in almost every instance. The way and manner asymmetry is managed could help or hinder the maintenance of an effective nation state. The Nigerian experience in this regards clearly illustrates this with respect to an effective nation state.

‘Effectiveness’ in this context may be understood in two ways. The first relates to the normal focus of economic analysis of public sector activities: how effectively, efficiently, and perhaps equitably are public services provided throughout the national territory? The second meaning however lies well outside the normal field of expertise of economist: what are the connections between how a country’s public finances are structured and how a nation state that is fragmented holds together in the first place? This question has risen to the forefront of public policy analysis in an especially important way when it comes to creating ‘new’ countries out of regions torn by civil conflicts, such as those in Bosnia-Herzegovina and Sudan. But it is also much on the minds of those concerned with public policy in such long-established countries as Canada, Spain and Belgium.

In many fragmented countries like Nigeria, it is not surprising that the majority group dominates politically. Sometimes, a particular minority exerts more influence, perhaps because of its wealth and power, perhaps owing to historical factors. The rising influence of Oil producing region in Nigeria is a typical case in point. The recent creation of the Ministry of Niger-Delta by the Yar’adua administration at the federal level is recognition of this rising influence in the political landscape. Occasionally, as may be argued to be the case, even in such large federal countries as the United States and Brazil, important overriding factors may suppress much or all of the potential political influence of ethnicity.[[7]](#footnote-8) Even in countries such as Germany, Brazil and

Argentina, in which most people are ethnically and linguistically homogeneous, the economic situation of different regions may be extreme, ranging from large, rich metropolitan areas to remote, impoverished settlements, or to regions rich in petroleum or other highly-valued natural resources versus other with little but an expanse of barren lands. Such problems may become more pronounced when regions are dominated by people of a different ethnicity from the majority of the population, and may become bitterly contested when ethnic and economic factors combine, but such problems are by no means confined to countries with this combination of characteristics.

Some potentially fragmented countries have often through a prolonged historical process, sometimes including civil wars reached an equilibrium in which their political, fiscal and institutional structure balances the diverse forces and sustains the maintenance of an effective national state.[[8]](#footnote-9) Switzerland, the UK and US in different ways provide examples. Others, however, remained in turmoil and then fell apart under such pressures, for example, the ‘former’-Czechoslovakia, Yugoslavia and the Union of Soviet Socialist Republics. And the integrity and effectiveness of other countries, even such long-established and prosperous countries as Belgium, Canada and Spain, remain under constant threat. In recent years such pressures have increased in many such countries, in part because of globalization and the related (but not fully consistent) phenomenon of new regional economic unions- the European Union (EU) and North American Free Trade Agreement (NAFTA) - that have upset the established balance of wealth and power and hence called into question the desirability and sustainability of some established nation states.

In a decentralized setting, and especially when ethnic differences characterize the population and these differences are characteristics of different parts of the country, the various regions of a country may begin to see themselves as different from the rest of the country thus putting in motion centrifugal forces. This problem tends to have serious implications for countries with important natural resources located in particular regions. In a centralized country, such as France if, for example, large oil deposits were found, it would not matter where in the country they were located. The government would be able to exploit or tax them and use the money to finance its national activities.

In highly decentralized countries, such as Nigeria, Indonesia, or Russia if natural resources are discovered in one region, problems often arise because that region will attempt to claim for its own use the revenue from the resources discovered. This leads to political problems and occasionally, even to conflicts and wars between regions. It also creates problems for the income redistribution role of the government. One of the major functions of a national government is precisely to redistribute income from richer regions and individuals to poorer regions and individuals through the broadly uniform provision of public goods and services.

When the income levels of regions within a country are relatively equal, and when important natural resources are not concentrated in one region, it is easier to have a well functioning decentralized system. However, when income levels are vastly different among regions, so that one region has to subsidize another on a significant scale, it becomes much more difficult to pursue an effective policy of income redistribution. When the difference in income is due to the concentration of natural resources in one region, in a decentralized environment the difficulty in pursuing such a policy can become particularly great.

Whatever one thinks of, whether decentralization in any of its myriad forms helps or hurts macroeconomic and political stability is clearly a key question in many countries. It seems unlikely, however that anyone can answer that question in the abstract. As in the case of the economic arguments for and against decentralization, something like the Nigerian legal decision of ‘Littoral States’ is perhaps the best that can be offered at present with respect to such political arguments. None the less, it is clearly political factors that are leading even long-centralized countries like the United Kingdom to decentralize (particularly with respect to Scotland).

Similar decentralization to varying degrees can be seen in many countries- for example, Italy (South Tyrol), Finland (Aland Islands) and even France (Corsica). Ethnic groups in countries as different as Nigeria (Ogoni), China (Tibetans and Uighurs), Iraq (Kurds), Turkey (Kurds), and Georgia (Abkhaz and Ossetians) are seeking similar (or greater) territorial autonomy. In part in response to such factors, decentralization is on the leading edge of policy. Developed countries, developing countries, transitional countries, federal countries and unitary countries wherever one looks some kind of decentralization is taking place, or is at least being discussed.

Given the issues the study has examined, the study concludes that, if decentralization is an important economic objective for a particular country; if the country can establish the institutions that will make decentralization work with a reasonable degree of efficiency- institutions related to tax policy, tax administration, expenditure management systems, budgets and so forth, especially institutions that allow the central government to transfer resources to local government with some assurance that the resources will be used effectively and for the purpose for which they are passed on, then decentralization can be a good policy.

CHAPTER THREE

EVOLUTION PRACTICES AND PROFILE OF FISCAL FEDERALISM IN NIGERIA

**3.0 Introduction**

This chapter provides background information on the evolution of Nigeria’s federal structure and fiscal federalism, trend and structure of revenue and expenditure, as well as their macroeconomic implications. Such characterization helps in identifying the trends and behavior of macroeconomic variables given the stance of fiscal variables employed.

**3.1 Evolution of the Federal Structure and Fiscal Federalism in Nigeria**

Nigeria’s fiscal federalism is anchored on economic, political, constitutional, social and cultural developments. As the country progressed from a unitary government to a federal one and governance became more decentralized, there were also changes in fiscal arrangements (Ekpo, 1994, 1999).

The process towards a federal structure was not that smooth. Before the amalgamation of the Northern and Southern Protectorate in 1914, the component units- the Protectorate of Northern Nigeria, the Protectorate of Southern Nigeria and the Colony of Lagos- each enjoyed complete fiscal independence. Also, before the amalgamation, a unified fiscal system had already been in place while a centralized budgeting system was introduced in 1926. However, with the adoption of regionalism in 1946, a decentralized fiscal structure was evolved. The first revenue commission, called the Phillipson Commission, was set up in 1946. By 1951 a quasi-federal structure was introduced, followed by self-government in the regions in 1954. During the colonial period, four revenue commissions were established, including the Hicks-Phillipson Commission of 1951 and the Chicks Commission of 1954. The Phillipson Commission recommended three principles of sharing revenues among the regions, namely, derivation, even development and continuity of government services. The Hicks-Phillipson Commission, in turn, recommended derivation, need and national interest as the main principles of revenue sharing. The principles, criteria and allocation formulas recommended by the commissions are well documented in the literature (Ekpo, 1994; Ike, 1981).

Following the attainment of independence in 1960, the Mid-Western Region was created, bringing the number of regions to four. In 1967, twelve states were carved out of the four regions and these later increased to nineteen in 1976 and it remained that way until 1987 when it was increased to 21. In August, 1991, the number of states increased to 30 and a separate Federal Capital Territory was carved out in place of the old capital in Lagos. By October, 1996, the number of states had increased to thirty-six, excluding the Federal Capital Territory (Abuja) and 774 local governments.

|  |
| --- |
| **Table 3.1.1 Evolution of Nigeria’s Federal Structure, 1960-1996** |
| Date Federal Regions/states Local Enabling Laws  government government |
| 1960 1 3(regions) N.A  1963 1 4(regions) N.A Transitional Provincial Act No. 19,  1963  1967 1 12 N.A State (Creation and Transitional  Provisional) Decree 14, 1967  1970 1 12 300  1976 1 19 300 State (Creation and Transitional  Provisional) Decree 14, 1976  1979 1 19 301  1981 1 19 781  1984 1 19 301  1987 1 21 448 State (Creation and Transitional  Provisional) Decree 1987 & 1989  1991 1 30 593 State (Creation and Transitional  Provisional) Decree 37, 1991  1996 1 36 774 State (Creation and Transitional  Provisional) Decree 36, 1996. |
| Sources: Adapted from Ekpo (1999) |

Since 1960, several revenue commissions have been established by the government with the mandate to work out an acceptable statutory allocation formula for the country. These included the Binns Commission (1964), the Aboyade Technical Commission (1977), and the Okigbo Presidential Revenue Allocation Commission (1979), among others. The principles, criteria and allocation formulas recommended by these commissions have been extensively discussed in the literature (Ehwarieme, 1999; Akpan, 1999; Anyanwu, 1999; Ekpo, 1999). However, it needs be pointed out that none of the commissions’ recommendations were completely accepted by government.

The important features of Nigerian nation state are that; (1) it is made up of more than 50 ethnic groups, and (2) there are over 250 linguistic groups with overlapping languages. Furthermore, military rule set in as early as 1966, leading to the creation of twelve states the following year. As observed by some scholars, the creation of more states and local governments was a deliberate ploy by the military to create dependency on the federal government. At present, there are 36 states, a federal capital territory with a near status of a state.

The history of local governments in Nigeria, from the pre-colonial and colonial periods to the present day, reveals a pattern of oscillation between centralization and decentralization. The concentration of power in the native authorities was the preferred mode of local government in pre-colonial times. In the early 1950s, as a result of agitations for more participation in governance by the citizenry, there was a remarkable attempt at decentralization which was reversed by the incursion of the military and its centrist tendencies into governance in Nigeria in 1966. However, this trend was again reversed in 1976 as a result of the local government reforms which introduced elected representatives at the local government councils. The number of local governments increased to 452 by 1989, with the creation of 148 new councils by the Federal Military Government. The number increased further to 774 by 1999, reflecting an additional 322 councils between 1989 and 1999, and an apparent further dilution of the impact of local governments.

Regrettably, the proliferation of local governments has continued under the new democratic dispensation. The relevance of this trend becomes clear when one realizes that a key reason for the agitations for, and subsequent creation of, local councils was the need to bring government closer to the people and thereby enhance development and improve participation in planning and programme implementation. The exercise was heralded as a bold attempt to devolve power from the federal and state governments to the people at the grassroots. However, the proliferation has raised major issues of fiscal prudence and macroeconomic management as the reckless expenditure profile of the local government councils leaves much to be desired. Specifically, the proliferation has brought about a phenomenal increase in the administrative costs of the councils, leaving little or nothing for investment and growth (Ekpo, 1999; Roberts, 1999).

Successive Nigerian federal constitutions have, over the years, stipulated expenditure and tax assignments as well as the revenue sharing formulae among the federating units. Before the military intervention in governance, such arrangements had been enshrined in the constitution and strictly adhered to. However, this had not been the case under successive military regimes from 1966 to 1999 as the constitutional provisions were simply ousted by decree and revenue transferred from the Federation Account to the Federal Military Government, to the detriment and impoverishment of the state and local governments. Consequently, the federal government had much more money than it was constitutionally entitled to, while the states and local governments received far less than their statutory entitlements. As a result, the state and local governments were incapacitated from performing their constitutional responsibilities.

Thus, the Federal Government has, for more than five 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.

Before military rule became entrenched, the following fiscal arrangements were already in place:

* the regions were assigned the proceeds from export and excise taxes derived from their regions;
* marketing boards were regionalized and the respective regions retained their operational surpluses;
* regions were empowered to fix producer prices and also impose sales tax on the produce of the marketing boards;
* regions were assigned the full retention of mining rents and royalties with a federal tax of 30 per cent payable to distributable pool account (DPA). This was later adjusted to 35 per cent in 1957;
* regions were allowed to administer and retain income tax on incomes not above 700.00 pounds per annum;
* the federal government collected import duties and corporate income tax; and
* the regional governments determined the relationship between the regions and the provinces.

The implications of these measures were an increase in regional revenue and a decrease in the share of the federal government between 1945/49 to 1966/67 (Vincent 2001).

The military intervention in 1966 brought new changes as the federal constitution of 1963 was suspended. First, in most instances, the federal government took over state and local government functions for a variety of reasons. Consequently, new tax measures were introduced as follows;

* the transfer of legislation and administration of mining rent and royalties to the federal
* government;
* centralization of the marketing boards and administration of all taxes, surpluses and fixing of producers prices by the federal government;
* the vesting of rights to revenue emanating from company income tax, import, export, petroleum profit tax (PPT), excise taxes and mining royalties and rents in the centre;
* introduction of uniform rates in personal income and sales taxes while the states were to administer the taxes; and
* replacement of sales tax with value added tax (VAT) in 1994 and its subsequent transfer to federal government for purpose of regulation and administration while the proceeds are paid into VAT account for distribution among the tiers of government.

Subsequently, the revenue potentials of the state governments were eroded, as their sources of revenue between 2001 and 2004 averaged 12.1 per cent of total revenue while that of the local councils between 2001 and 2004 averaged 4.9 per cent of total revenue (CBN 2007). It can be said that Nigeria stopped operating a truly federal system of government in January 1966.

**3.2 Profile and Challenges of Fiscal Federalism in Nigerian**

The legal basis of fiscal federalism is derived from the past constitutional arrangements and, hence, in any true federalism the fiscal powers of all tiers of government must be related to the functions and responsibilities assigned to them by the Constitution. Fiscal federalism means the sharing of tax powers, retention of revenue and method adopted in sharing centrally collected revenue in accordance with the constitutional responsibilities of all the levels of government. It also covers the principles and formulae of sharing the centrally collected revenue among the individual states and local government.

Constitutionally, Nigeria is a federation, but in practice, and with the assumption of power by successive military administrations, the constitution has always been suspended and the country ruled more or less like a unitary state. The imposition of a centralized unitary system on a federal structure under the military administration partly explains our experience of poor fiscal management and low economic performance which, over the years, had adversely inhibited the true practice of fiscal federalism. The establishment of the federal system in Nigeria was based on rounds of constitutional conferences in England prior to the grant of independence by the British government. Constitutions delineated the functions to be performed by each tier of government. The importance of these constitutional arrangements was to ensure that the statutory fiscal functions and the financial resources to be applied for effective performance of these functions by each tier of government was explicitly stated under the constitution and were to be enforced judiciously. Unfortunately, the statutory shares of state and local governments were reduced through ad hoc fiscal measures such as the stabilization fund, dedication of crude petroleum for expenditure on special federal projects, Petroleum (Special) Trust Fund (PTF), upfront deduction of external debt obligations among others. The overall effect of this on the nation was that the disguised movement towards a unitary state under military administration did not advance the practice of fiscal federalism as the federal system was replaced by an ineffective unitary state.

Under military administrations, issues of statutory functions to be performed by each level of administration and the allocation of revenue in support of effective delivery of public goods and services were bypassed. Observing this trend of substantial deviation from fiscal federalism, the Aboyade Presidential Commission on Revenue Allocation (1977) stated as follows:

The defacto federal superiority vis-à-vis the states and the huge autonomous increases in revenue accruing to the Federal Military Government resulted in arbitrary aggregation of functions on the part of the centre which normally are matters of constitutional debates and agreement. In addition to legislative measures, executive actions over a number of matters such as the universal primary education, agriculture, higher education, roads, the setting up of ministries of water resources, housing, urban development, environment, and social development youths and sports illustrate the development of this system.

Concluding, the Aboyade Commission observed that these measures had tended to detract from true fiscal federalism in Nigeria. This trend, which was first observed in the 1970s, has continued into the 2000s, thus resulting in bloated federal budgets while the fiscal operations for many years resulted in overall deficits. The level of the budget deficits became unsustainable as the federal government assumed fiscal responsibilities which, under the federal constitution, should be performed by the lower tiers of government. The deficit gaps were met largely through credit from the Central Bank with its implications for high rate inflation and low economic growth (Okunrounmu 1999).

Another dimension of the military rule that has hindered the practice of true federalism is the incessant and unsystematic creation of new states. The outcome of this was an excessively bloated fiscally structure and many of the states created were not financially viable as they lacked the fiscal capacity to achieve any meaningful development. This is even more so with the local governments some of which do not generate more than forty thousand naira (#40,000.00) in a month (Ehwarieme 1999).

Another issue is the dominance of the federal government in the sharing of national resources from the common purse popularly known as the Federation Account. The federal government has always had more than what the revenue-sharing formula stipulated. In relative terms, the share of the federal government from the common purse had declined from 70.0 per cent in 1960 to 65.0 per cent in 1963, 55.0 per cent in 1980, 50.0 per cent in 1990 and 48.5 per cent in 1993, and had remained at that level until 2002 when it went up to about 52 per cent. In absolute terms, however, the average share of the federal government has remained at between 60 to 65 per cent in most cases of the years (Sarah et al, 2003)

Fiscal federalism, from the very beginning, raised several fundamental issues. The assignment of responsibilities among federating units in Nigeria has also created problems. First, there was the question of how each level of government would be given adequate fiscal powers to enable it maximize its revenue and discharge its constitutional duties and still preserve its fiscal autonomy. While a reduction of fiscal independence through central administration of a particular tax may conflict with the principle of fiscal independence of states and local government the hard choice might be between more fiscal powers and less revenue, or less fiscal powers and more revenue. The introduction of value added tax (VAT) which replaces states’ sales tax and administered by the federal government is an example of one of such conflicts.

Second, there were problems of allocating the centrally collected revenue equitably among all the levels of governments. In order to resolve this problem, various principles had been tried by different fiscal commissions and, so far, there are yet to be fully acceptable principles for sharing revenue. Very often, lack of adequate data for objective analysis had exacerbated, rather than ameliorated, the revenue sharing problem among states and local governments. Also, some

states might prefer the application of certain principles for revenue sharing at the expense of other states and this type of self-interest had generally created some sort of conflict among states in the revenue sharing exercise.

Third, fiscal federalism had been encumbered in the past by non-jurisdictional problems such as imbalance in population, size of land area, resource endowments and levels of development. Consequently, there has been a growing gap between the requirements of individual states and local government and the revenues they are able to raise on their own. This sharp difference between the very rich and the very poor levels of government tended to influence the principles applied in favour of poorer states, and sometimes at the expense of the richer ones.

Fourth, while the creation of states and local governments by the military government was to produce a balanced federation, the emergence and proliferation of states and local governments have continued to pose new problems for intergovernmental fiscal relations. Under the 1993 Constitution the new states created in 1976 have all the powers and functions of the former regions. The creation of the new states in 1967 raised a host of problems, some of which were (1) how to share the distributable pool account (DPA); (2) how the state governments were to meet the substantial and immediate capital requirements of establishing their administrative and political machinery; and (3) how the newly created states would share the assets of the regions from which they were created. The problems highlighted above still continue to recur with each state and local government creation exercise. Although, a major objective of the military government in creating states in 1967 and 1976 was to reduce the political powers of the regions and play down regional/ethnic politics that was already cracking the new federal structure, unfortunately, it also saw it as an opportunity to use its military might to assert the “supremacy” of federal government fiscal powers over the states.

The Nigerian fiscal structure involves the allocation of expenditure responsibilities and taxing powers among the federal, state and local governments as embodied in the Constitution. The present allocation of functions is based on the 1999 Constitution, which divided government functions into three categories of legislative powers. The exclusive list, on which only the federal government can act; the concurrent list, which contains responsibilities shared by both federal and state governments; and the residual list, which is reserved for state governments. The federal government has responsibility for functions whose benefits extend nationwide, such as, defence, foreign trade, immigration, currency among others. It also has responsibility for important business undertakings through parastatals, for example, railways, electricity among others, while functions whose benefits have the possibility of spilling over state boundaries were placed on the concurrent list. Local governments, on the other hand, have responsibility for functions whose benefits accrue to a limited geographical area such as markets, primary education, and cemeteries among others.

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 constitution. 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”. 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 look into the allocation formula. The practice is to allocate certain revenues to the regions or states, that is independent revenue sources for the regions or states. 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. It is currently shared out vertically in the following percentages; 48.5: 24.0 and 20.0 per cent to federal, state and local governments, respectively while the balance of 7.5 per cent is allocated to special funds. The horizontal revenue allocation is based on various principles including equality, population, internal revenue effort, and geographical size among others. The bulk of the revenue made available to the regional and state governments was on the basis of derivation between 1954 and 1974. These bases of revenue allocation reflect the demands of federalism. The tendency towards the equalization principle began, however, in 1975 when government said that the existing revenue allocation formula accentuated disparities in the level of development among the states. Over time, more resources were made available to the states, but the bulk of federally collected revenue continued to be retained by the federal government.

Revenues accruing to the three levels of government consist 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

**3.3 Assignment of Revenue (Taxing) Powers in Nigeria**

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. The latter refers to revenues that are subject to intergovernmental sharing which currently make up the federation account. Thus, Table 3.3.1 shows the assignment of tax powers in the Nigerian federal system, corresponding fairly closely to the theoretical imperative/executions. Table 3.3.2 also shows Nigeria’s major taxes and the accompanying jurisdiction and right to revenue.

Table 3.3.1. Clearly 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) whose potentials are yet to be fully tapped, the state and local governments have jurisdiction over minor and poor yielding revenue sources, This has led to serious overdependence of lower levels of government on the federal level’s finances. Olomola (1999) observes that:

*“The control of legislative and administrative powers by the federal government is not merely in terms of numerical coverage of taxes, but also in terms of revenue-yielding potentials of the taxes concerned. Thus, by retaining enormous powers for revenue generation, the federal government has laid a solid basis for receiving a large allocation out of the federation revenue. Therefore, any modification in the pattern of revenue distribution in the country to ensure balanced development across the tiers of government should begin from power and responsibility restructuring within the fiscal system”.*

As a result of the concentration of revenue rights and jurisdiction at the national level, subnational 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. However Olomola (1999) submits that the apparent reduction of state dependence reflects an increasing share of states in value added tax (VAT) revenues which should not be mistaken for any increased state power or responsibility.

Non-correspondence has always followed a clearly discernible pattern in the country, with the federal government being in a superior position. That is, 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 1954 and 1966, the financial strength of the regions was enhanced by the following measures:

- Full sharing of the proceeds from export taxes, import and excise duties, while the

Federal Government received the share attributable to Lagos;

- The regionalization of marketing boards and the appropriation and retention of their

surpluses by the regional governments. The regions were free to fix producer prices and

to impose sales tax on the produce of the marketing boards; and

- Allowing the regions full control of personal income tax, following the

recommendations of the Raisman Revenue Commission in 1957. This provision resulted

in a phenomenal increase of revenue to the regional governments, from 12.7 percent in

1954 to over 70.0 percent in the 1965/66 fiscal year (Alade et al, 2003).

**Table 3.3.1: 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 3.3.2: Nigeria’s Major Tax Jurisdictions and Right to Revenue (1999)**

|  |  |  |  |
| --- | --- | --- | --- |
| Types of tax | Jurisdiction | | Right to Revenue |
| Law | Admin. And  Collection |
| 1. Import duties  2. Excise duties  3. Export duties  4. Mining rents and  royalties  5.Petroleum profit tax  6. Companies income  tax  7. Capital gains tax  8.Personal income tax  (other than those  listed in 9)  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  11. Stamp duties  12.Capital transfer tax  (CCT)  13. Value added tax  14. Pools betting and  other betting taxes  15. Motor vehicle and  drivers’ licenses  16. Entertainment tax  17. Land registration  and survey fees  18. Property taxes and  rating  19.Market and trading  licence and fees | Federal  Federal  Federal  Federal  Federal  Federal  Federal  Federal  Federal  Federal  Federal  Federal  Federal  State  State  State  State  State  State | Federal  Federal  Federal  Federal  Federal  Federal  Federal/States  States  Federal  Local  Federal/States  States  Federal/States  States  States  States  States  Local  Local | federation account  federation account  federation account  federation account  federation account  federation account  States  Federal  Federal  Local  States  States  Federal/States/Local  States  States  States  States/Local  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 | | | |

Between 1966 and 1999, however, this fiscal arrangement changed remarkably, following the intervention of the military. The Federal Military Government introduced some measures which systematically eroded the revenue potentials of the lower tiers of government (Table 3.3.1). Such measures included the following:

- The promulgation of Decree No. 9 of 1971, transferring mining and royalties to the

Federal Government;

- The centralization of marketing boards, and their eventual dissolution;

- The 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.

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 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 3.3.3 presents figures on total revenues collected by different tiers of government. The table reveals that from 1980 to 2007 between 90 and 98 per cent of the total Nigerian government revenues are collected by the federal government. The Federal government continues to achieve this feat by tinkering with the rights of tiers of government to collect revenues. For instance, as mining rights and royalties became a significant source of government revenue, it became collectible by the Federal government rather than by the regions. Similarly, VAT ( a sales tax) that is now the second largest source of government revenues, second to mining related revenues, is collectible by the Federal government rather than by the states. It is worth noting that the collection of about 93.9 per cent of the total Nigerian government revenues by the federal government which implies that the local and state governments put together, collect less than 7 per cent of Nigerian government revenues has implications for the fiscal autonomy of lower tiers of government. The Nigerian revenue collection decentralization ratio compares unfavourably with a revenue decentralization ratio of 15 per cent reported for local governments (excluding states) for industrial countries and 6.9 per cent for developing countries (Lijeron, 1996).

From the above analysis it is evident that state and local governments depend heavily on the federation account for more than 80 per cent 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.

**Table 3.3.3: Collected Government Revenues by Tiers of Government**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PERIOD AVERAGE | | | | | | |
| DESCRIPTION | 1980-84  (# million) | 1985-1989  (# million) | 1990-1994  (#million) | 1995-1999  (#million) | | 2000-2007  (# million) |
| **1.**Total Federally collected Revenue | 12,344 | 26,899 | 156,845 | | 595,157 | 1,906,160 |
| **2.**States Internally Gen. Revenues | 1,289 | 1,836 | 5,724 | | 25,113 | 37,789 |
| **3.**Total Nigerian Govt. Revenues (1+2) | 13,633 | 28,735 | 162,570 | | 620,270 | 1,943,948 |
| **4.**Fed. Collected Rev. as % of Total | 90 | 92 | 97 | | 96 | 98 |
| **5.**% of States collected revenue | 10 | 8 | 3 | | 4 | 2 |
| **6.** Number of Regions/States | 19 | 20 | 28 | | 34 | 36 |

SOURCE: Central bank of Nigeria, Annual Report & Statement of Accounts (Various Issues).

**3.4 Assignment of Expenditure Powers/Responsibilities in Nigeria**

Since Nigeria became independent in 1960, the assignment of government functions among tiers of government, have not changed significantly except for few exceptions during the military regimes. The current assignment of responsibilities among the various units of the Nigerian federal system is set out in Section 4 (Second Schedule) of the 1999 Constitution of the Federal Republic of Nigeria. Section 7 (Fourth Schedule) of the Constitution makes provision for the establishment of local government councils, in accordance with the responsibilities set out in the Fourth Schedule of the Constitution. Also, the Fourth Schedule, Section 7 (part 1) of the same Constitution articulates the mandatory and concurrent functions on which local governments may legislate. There is also the provision that the federal law supersedes any state or local government law, in the event of any inconsistency of a sub-national law with the provisions of a federal law (see Table 3.4.1).

While there are no stated underlying principles behind the assignment of constitutional functions in Nigeria, it is reasonable to infer that considerations of the extent of geographic range of externalities and economies of scale must have weighed heavily in the decision to assign certain responsibilities to the federal government. Indeed, some government responsibilities are such that the incidence of their benefits is nationwide while, for others the various components may call for differential scale of operation. Responsibilities which can be more efficiently undertaken by the federal government than the lower tiers of government, or where the benefit regions cover the entire country include national defence; banking, currency, coinage and legal tender; citizenship; weights and measures; nuclear energy; traffic on federal trunk roads; and external relations (including borrowing and foreign trade).

Responsibilities whose benefit areas are more local than national, but with the possibility of spillover effects beyond regional boundaries are placed in the concurrent legislative list. Examples of such activities include industrial, commercial and agricultural development; post-primary education; and secondary health care. On the hand, responsibilities which are purely local in character, in the sense that the benefits accrue in the main to a limited geographic area within the federation, are usually assigned to local government councils. Such responsibilities include the establishment and maintenance of cemeteries, markets, motor parks, public conveniences and refuse disposal; construction and maintenance of local roads, streets and public parks; provision and maintenance of primary education and primary health care; and the development of agriculture and natural resources. Table 3.4.1 shows the assignment of expenditure responsibilities in the Nigerian federal system.

**Table 3.4.1: Assignment of Responsibilities in the 1999 Federal Constitution**

|  |  |  |
| --- | --- | --- |
| **Exclusive Legislative List** | **Concurrent List** | **Residual List\*** |
| **Federal Government**   * Accounts of the Federation * Arms, Ammunition, Defence and National Security * Aviation, Railways, Federal Trunk Roads and Maritime Matters * Immigration & Internal Affairs * Financial Laws, and Currency Issue & Exchange Control * Census, National Honour & Citizenship, Foreign Affairs and International Treaties * Creation of States & regulation of political parties National and State elections * Labour, and Public service of the Federation * Patents & Trademarks * Legal Proceedings between governments in the federation * Establishment of federal agencies * Telecommunications * Public debt of the Federation * Management of territorial waters * Weights and Measures International trade and commerce * Formulation, annulment and dissolution of marriage * Nuclear Energy * Stamp Duties | **State Governments**   * Allocation of revenue * Antiquities and monuments * Archives * Collection of taxes * Electoral Law * Electric power * Exhibition of cinematograph films * Industrial, commercial or agricultural development * Scientific and Technological Research Statistics Trigonometrical, cadastral and topographical surveys * University, Technological and Post-Primary Education | **Local Government**   * Sewage Disposal * Environmental Sanitation * Maintenance of Feeder Earth Roads * Primary Education * Payment of Salaries * Market Stalls * Rural Health * Crafts and Small Scale Industries |

Source: Nigerian 1999 Constitution

**TABLE 3.4.2**

**Assignment of Expenditure Responsibilities in the 1999 Federal Constitution.**

**Level of Government Expenditure Category**

Federal Only Defence,

Foreign affairs,

International trade including export marketing,

Currency, banking, borrowing, exchange control,

Use of water resources,

Shipping, federal trunk roads,

Elections,

Aviation, railways, postal service,

Police and other security services,

Regulation of labour, inter-state commerce

Telecommunications, immigration,

Mines and minerals, nuclear energy, citizenship and

Naturalization rights,

Social Security, insurance, national statistical system

(Census, births, deaths, etc.)

Guidelines and basis for minimum education,

Business registration,

Price control.

Federal-State (Shared) Health, Social welfare,

Education (post primary/technology),

Culture,

Antiquities,

Monuments, archives,

Statistics, stamp duties,

Commerce, industry,

Electricity (generation, transmission, distribution),

Research surveys.

State Only Residual power, i.e. any subject not assigned to federal

local government level by the constitution.

Local Government Economic planning and development

Health services

Land use

Control and regulation of advertisement, pets, small

businesses

Markets, public conveniences

Social welfare, sewage and refuse disposal, registration

of births, death, Marriages

Primary, adult and vocational education

Development of agriculture and natural resources

Source: Nigerian 1999 Constitution

As can be seen from these tables, matters of national interest for example defense, foreign affairs, currency, aviation, and price control among others are assigned to the Federal government only. Also, local matters for example marriages, markets, and refuse among others are assigned to local governments. Though Economic planning and development is assigned to local government, this function over the years has been performed by federal and state governments. Overall, this structure of assignment of responsibilities agrees with the patterns in most federal states in the world today.

From the analysis above, the constitutionally assigned responsibilities to the three tiers of government have not changed much from what they were at independence. For example the federal government had to take over the running of all universities ostensibly to ensure minimum standards and reduce cost. Also, in response to the crisis in the primary education sector, the federal government had to intervene through the establishment of the National Primary Education Commission. As in most federal systems, the federal government is responsible for economic planning and for policies and programmes geared towards redistribution and stabilization objectives.

The structure of government expenditure has changed significantly in recent years, reflecting the increasing responsibility of the federal government. In other words, the overwhelming presence of the federal government is reflected in its increasing shares of total expenditure. The depreciation of the naira has contributed to the observed significant increases in the expenditure of the federal government in recent years, while extra budgetary expenditure also contributed significantly to the large outlays. In essence, by creating dedicated or special accounts and access to extra budgetary finance from the Central Bank of Nigeria, the federal government has denied the other levels of government the needed funds for the provision of local goods and services. In addition, the situation contributed to the macroeconomic imbalances that plagued the country until recently.

**3.5 Revenue Structure and Fiscal Dependence**

This section attempts to examine the revenue structure from the point of view of its source or revenue base and the structure of intergovernmental fiscal relations. In achieving this, some fiscal ratios are used to demonstrate the undependable level of revenue generation and fiscal relations among various tiers of government, which is crisis-oriented and capable of crippling development efforts at all levels, and affecting macroeconomic performance.

**3.5.1 Revenue Source Dependence**

One major characteristic of Nigerian fiscal federalism has been the monolithic source of its revenue at every point in time. After the pre-independence era of massive dependence on agricultural produce, export duties and marketing board surplus funds, there was a worse oil revenue dependence syndrome which destroyed other sectors. Between 1980 and 2004, revenue from oil sources, comprising petroleum profit tax, oil royalty, rent, NNPC joint-venture profit, and licence fees, jointly accounted for 74.1 per cent of the average share of total federally collected revenue. Revenue from these sources also accounted for 64.6 per cent during 1970-1979 (not shown in the table due to space). Furthermore, the same sources maintained the average share of 74.8 per cent between 1990 and 1996. Since the introduction of value added tax (VAT) in 1994, the share of oil revenue in the total federally collected revenue, apart from 1996 and 1998 which recorded reductions, remains relatively high accounting for 80.6 and 86.0 per cent in 2006 and 2007 respectively. The non-oil revenue, comprising proceeds from income (personal and company) taxes, import duties and fees, export duties, excise duties, stamp duties, casino tax, airport tax and penalties, is merely supplementary to oil revenue. Between 1980 and 2007**,** non-oil revenue only accounted for 24.6 per cent of the total revenue. This is a very low ratio. It shows that the governments’ revenue diversification capacity is as low as 25 per cent while its dependence on oil is about 75 per cent.

This high dependency ratio is dangerous to the economy for some important reasons. First, the oil industry, though a dynamic sector in the Nigerian economy with an average GDP share of 33.5 per cent from 1980 to 2007, sustains about 1.00 per cent of total employment in Nigeria during the period. Again the sector has very low linkage effect on the rest of the economy because its output is mostly exported as crude oil without any manufacturing linkage. As a result, petroleum activities have generated low linkage revenue for government from other sectors. Second, consequent upon the exportation of crude oil, with a small margin (only 18.9 per cent of crude oil produced between 1980 and 2007) reserved for domestic use, the economy has continued to suffer from shocks from the international oil market. This has been demonstrated by several market shocks and policy changes following oil price falls. The structural adjustment programme (SAP: 1986-1993) and the 1998/1999 upward and downward revision of public sector salaries are examples of policies based on oil price performance. The simple lesson is that unstable oil prices make fiscal policies unstable, especially in a monoculture economy like Nigeria.

Low export earnings due to unfavorable terms of trade against primary products in the world market are the direct results of the exportation of crude petroleum and other primary products. This has serious implications for the purchasing power of the economy and, therefore, the size of market for manufactures. At the moment, workers’ average monthly income is still lower than #8000. Low income and weak demand are part of the causes of slow pace of indigenous industrial development-occurring, first due to the resulting weak market and. Second, due to the vicious circle of low savings and low investment. Government ultimately loses the internal revenue that such manufacturing activities would have generated through importation of manufactures.

The way out of high dependence on petroleum revenue is to diversify economic activities. Federal and state governments have made some frantic efforts to enhance the variegation of economic activities in their jurisdictions. Government went into direct production of manufactures in the mid 1970s, but these have not yielded positive results because of the mode of its participation. Government’s direct investments, Akpan (1999) observes, are infected by inefficiency and ineffectiveness. The most efficient way by which government can increase and diversify the size of economic activities is by supplying and maintaining pure public goods like roads, and commercializing/privatizing production and distribution of infrastructure industries. Revenue from a growing sector like oil should be used as incentives to provide infrastructure for other sectors. Private participation in the market should also be encouraged by law to minimize waste.

**Table 3.5.1**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Ratio of Fiscal Relationship between Sectors and Tiers of Government (1)- (7) in million** | | | | | |
|  | 1980 | 1982 | 1984 | 1986 | 1988 |
| Oil Revenue(1) | 12353.8 | 7814.9 | 8269.2 | 8107.3 | 20933.8 |
| Non-Oil revenue (2) | 2880.2 | 3949.5 | 2922.0 | 4194.7 | 6377.0 |
| Total federally collected revenue (3) | 15234.0 | 11764.4 | 11191.2 | 12302.0 | 27310.8 |
| Fed. govt. independent revenue (4) | na | na | 503.1 | 1364.0 | 540.5 |
| Fed. statutory revenue to states (5) | 4128.6 | 3245.7 | 2799.0 | 2843.8 | 8181.3 |
| States’ total internally generated revenue (6) | 1327.7 | 1315.8 | 1381.3 | 1587.4 | 2178.8 |
| States’ total current revenue (7) | 5456.3 | 4335.4 | 4180.3 | 4431.2 | 10360.1 |
| Oil dependency ratio: (1)/(3) | 0.811 | 0.664 | 0.739 | 0.659 | 0.767 |
| Share of non-oil rev. in total rev. (2)/(3) | 0.189 | 0.336 | 0.261 | 0.341 | 0.233 |
| Ratio of independent rev. to total revenue (3)/(4) | na | na | 0.045 | 0.111 | 0.020 |
| States’ dependence on fed. rev. (5)/(7) | 0.757 | 0.749 | 0.670 | 0.642 | 0.790 |
| States’ internal rev. to state total revenue (6)/(7 | 0.243 | 0.304 | 0.330 | 0.358 | 0.210 |
| States’ internal rev. to total fed. rev. (6)/(3) | 0.087 | 0.112 | 0.123 | 0.129 | 0.080 |

**Table 3.5.1 (Continuation)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Ratio of Fiscal Relationship between Sectors and Tiers of Government (1)-(7) in million** | | | | | |
|  | 1990 | 1992 | 1994 | 1996 | 1998 |
| Oil revenue (1) | 54713.2 | 164078.1 | 160192.4 | 266000.0 | 324123.3 |
| Non-Oil revenue (2) | 12182.2 | 26375.1 | 41718.4 | 151000.0 | 139211.3 |
| Total federally collected revenue (3) | 66895.4 | 190453.2 | 201910.8 | 417000.0 | 463334.6 |
| Fed. govt. independent revenue (4) | 1724.0 | 4903.1 | 3888.2 | 3407.0 | 1112.1 |
| Fed. statutory revenue to states (5) | 15943.8 | 24497.3 | 29006.8 | 40619.1 | 66067.1 |
| States’ total internally generated revenue (6) | 2726.2 | 5244.7 | 10929.8 | 18817.2 | 29213.9 |
| States’ total current revenue (7) | 18670.0 | 29742.0 | 39936.6 | 59436.3 | 95281.0 |
| Oil dependency ratio: (1)/(3) | 0.818 | 0.862 | 0.793 | 0.511 | 0.699 |
| Share of non-oil rev. in total rev. (2)/(3) | 0.182 | 0.138 | 0.207 | 0.290 | 0.300 |
| Ratio of independent rev. to total revenue (4)/(3) | 0.026 | 0.026 | 0.019 | 0.007 | 0.002 |
| States’ dependence on fed. rev. (5)/(7) | 0.834 | 0.750 | 0.586 | 0.457 | 0.693 |
| States’ internal rev. to state total revenue (6)/(7) | 0.143 | 0.161 | 0.221 | 0.212 | 0.307 |
| States’ internal rev. to total fed. rev. (6)/(3) | 0.041 | 0.028 | 0.054 | 0.036 | 0.063 |

**Table 3.5.1 (Continuation)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Ratio of Fiscal Relationship between Sectors and Tiers of Government (1)-(7) in billion** | | | | | | |
|  | 2000 | 2001 | 2002 | 2003 | 2004 | Average 2005-2007 |
| Oil revenue(1) | 1,591.7 | 1,707.6 | 1,230.9 | 2,074.3 | 3,354.8 | 4,678.8 |
| Non-oil revenue (2) | 314.5 | 524.0 | 1,105.1 | 500.8 | 546.6 | 698.9 |
| Total federally collected revenue (3) | 1,906.2 | 2,231.6 | 2,336.0 | 2,575.1 | 3,901.4 | 4,673.9 |
| Fed. govt. independent revenue (4) | 38.1 | 44.4 | 68.1 | 54.2 | 39.9 | 67.9 |
| Fed. statutory rev to states (5) | 251.5 | 404.9 | 388.3 | 535.2 | 777.2 | 876.8 |
| States’ total internally generated revenue (6) | 37.8 | 59.4 | 89.6 | 118.7 | 134.2 | 167.7 |
| States’ total current revenue (7) | 289.3 | 464.3 | 477.9 | 653.9 | 911.4 | 975.5 |
| Oil dependency ratio: (1)/(3) | 0.835 | 0.765 | 0.527 | 0.806 | 0.860 | 0.741 |
| Share of non-oil rev. in total rev. (2)/(3) | 0.165 | 0.235 | 0.473 | 0.194 | 0.140 | 0.246 |
| Ratio of independent rev. to total rev. (4)/(3) | 0.020 | 0.020 | 0.029 | 0.021 | 0.010 | 0.028 |
| States’ dependence on fed. rev. (5)/(7) | 0.869 | 0.872 | 0.813 | 0.818 | 0.853 | 0.743 |
| States’ internal rev to state total rev. (6)/(7) | 0.131 | 0.127 | 0.187 | 0.182 | 0.147 | 0.218 |
| States’ internal rev. to total fed rev. (6)/(3) | 0.020 | 0.027 | 0.038 | 0.046 | 0.034 | 0.061 |

Source: Author’s calculation based on data from Central Bank of Nigeria

**3.5.2 Intergovernmental Fiscal Relations Dependence**

Another scale of dependence is traceable to fiscal relations among different tiers of government. Fiscal laws in Nigeria seem to give more tax powers to the federal government than the two lower tiers of government. The outcome of this concentration of revenue-generation power in the centre is decrease in internally generated revenue by the lower governments in a way that compels dependence on higher government. The lower-level governments depend on the federal government for larger proportion of their budgeted revenue. The ratio of states’ statutory allocation to states’ total current revenue is used to measure the states’ dependence on the federal government. The ratio depicts the value of states’ annual current revenue contributed by the federal account. Between 1980 and 2007, the states depended on the federal government for their recurrent revenue to 74.3 per cent on the average. The dependence at 71.8 per cent during the 1980s, was a little below the 1980-2007 average, which increased to 74.7 per cent between 1990 and 2007. The fall in the ratio of dependence in the 1990s is apparently due to the exclusion of VAT and other grants as components of statutory revenue, which, if added, will make the ratio as high as ever.

These fiscal relations can also be supported by using the states internal revenue generation ratio to measure self-reliance capacity. This is done by using the internally generated revenue of states as a proportion of their total revenue, which gives an overall average. For the 1980s, this ratio stood at an average of 28.9 per cent, falling to an average of 18.2 per cent between 1990 and 2007. This demonstrates an increased dependence of the states on the federal government for their revenue because whatever revenue that is not generated in the state comes from the federal allocation.

Another interesting coefficient that can be used to measure the allocation and exploitation of tax power between the two lower tiers of government and also to demonstrate fiscal independence of the states is the ratio of state internal revenue to the total federally collected revenue. The internal revenue capability of all the states compared to federal tax performance is very weak at

an average of 6.1 per cent during the period under review. This performance index has never risen beyond the 12.9 per cent of 1986, though it fell to 2.0 and 2.7 per cent in 2000 and 2001.

Between 2000 and 2007, the ratio did not rise above the 4.6 per cent recorded in 2003. At least two inferences can be drawn from this poor performance. One is that tax powers are concentrated in the federal government to the detriment of states. In other words, state governments are not given any strong fiscal incentive to generate revenue internally; they tend to rely on the federal government for their fiscal needs. Another conclusion is that internal capacity to raise revenue is never considered when creating states; hence, the higher the number of states created, the less their performance in internal revenue generation.

Akpan (1999) used five ratios to show the level of fiscal dependence of the states on the federal government. The magnitude of dependence becomes very clear when the ratio of internal revenue to recurrent expenditure is analyzed. This simply measures the internal ability of the state to pay the cost of its daily administration (namely, workers salaries and wages, and overhead costs). Some states on the high dependence side like Yobe and Niger can only pay 5.4 and 6.5 per centof their current costs from their internal revenue. In all the ratios, Lagos, Rivers, Delta, and Kaduna States, on the one hand, and Yobe, Niger, Jigawa and Kogi states on the other, are the best and worst performing states. Using internal revenue generation capability and other ratios, states in the southern part of the country are relatively more self-reliant than their northern counterparts. The picture would not be different for local government-state-federal fiscal relations. Ekpo and Ndebbio (1998) also observe a high dependence of the local governments on the federal government. Consequently, since many federal policy makers come from states that have very low internal revenue, the federal tax power has been continually reinforced and the federal revenue allocation formulas have been constantly modified to give strength to equality, population and development needs. The weak fiscal base of states cannot strengthen federalism; it can only activate discontentment and agitation for self-reliance from the richer states while the poorer ones continue to insist on acquisition of political power at the centre.

Using the ratio of states’ statutory revenue to their total current revenue, it can be argued that the downward trend in their share of revenue from the federation account can reduce their fiscal dependence on the federal government. Akpan (1999) observes that between 1984 and 1997, when the revenue allocation to states began to reduce drastically, the magnitude of states’ dependence on the federal government was reduced marginally on the average. In 1990, however, there was a spurious negative correlation between the fall in the ratio of allocation to the states from the federally collectable revenue and the increase in dependency ratio for states. The conclusion that the fiscal dependence of states on federal government tends to improve with a reduction in their share of the federation account is also collaborated by the enhanced internal revenue generation capacity of states, given the downward trend in the ratio of federal revenue allocated to the states between 1984 and 2004. Again, there is an inconsistent relationship recorded between 1984 and 1990 when the allocation formula was reviewed downward from 32.5 to 30 per cent against the states, while the aggregate self-dependency ratio also reduced from 0.267 to 0.137. This is attributable to various extra budgetary grants given to the states by the federal government and the extravagant expenditure of the Babangida administration’s aborted transition programme.

Attempts at explaining the impact of the downward review of the revenue allocation formula on the federal government’s independent revenue sources and non-oil revenue performance suggests that the current revenue allocation formula does not influence the revenue drive of the federal government**.** This is due to the federal governments reserved ability to adopt monetary policies, including sales of treasury bills and certificates, and issuing of fiduciary notes to finance its programmes. Evidently, the growth in budget deficits and money supply, and the rapid depreciation rate of the naira all explain the neutrality of the federal government in the revenue allocation formula.

Table 3.5.2 presents Nigerian government expenditures and revenues by tiers of government between 1960 and 2007, together with a well-known measure of fiscal autonomy (UNDP, 1993)-ratio of locally generated revenues to local expenditures. The table indicates that Federal Government Retained Revenues covered its total expenditures between 1970 and 1979 and was in excess of its expenditure between 1995 and 1999. Indeed, in 1971, Federal Retained Revenues was 17 percent in excess of its total expenditures. On the contrary, State Governments’ internally generated revenues could only cover an average of 17 percent of their total expenditures between 1980 and 2007. Similarly, local government internally generated revenues could only cover an average of 6.7 per cent of their expenditures between 1990 and 2007. This contrasts unfavourably with corresponding average figures of 80.3 and 67.9 per cent respectively that were reported by Lijeon (1996) for local governments in industrial countries and developing countries respectively.

**TABLE 3.5.2: GOVERNMENT EXPENDITURES AND REVENUE BY TIERS OF**

**GOVERNMENT**

Period-Average

DESCRIPTION (#’ Million or %) 1960-69 1970-79 1980-89 1990-94 1995-99 2007

1. Total Federal Expenditures 2,984 4,566 17,784 131,212 408,862 701,059

2. States Expenditures 1,798 9,071 36,418 109,489 342,942

3. Local Govt. Expenditure 19,221 36,918 131,216

4. Total Nig. Govt. Expend(1+2+3) 6,365 26,855 186,851 555,269 1175217

5.Share of Total Govts. Expend. (%)

(a) Federal 71.7 66.2 70.2 73.6 59.7

(b) States 28.3 33.8 19.5 19.7 29.2

(c) Local 10.3 6.6 11.2

6. Fed. Ret.Rev. as % of its Exp. (%) 99.4 70.5 80.0 100.7 85.2

7. States’ Int. Rev. as % of Exp. (%) 18.8 15.0 23.4 11.0

8. L.Govts. Int. Rev. as % of Exp. (%) 5.8 8.9 5.4

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

**3.6 Implication of Current Fiscal Arrangement**

The present fiscal arrangement has resulted in weak fiscal capacity of state and local governments. An assessment of the current expenditure assignment, tax assignment and revenue sharing formula points to the need for policy reforms. The existing expenditure assignment appropriated all the essentially economic and financially viable functions to the federal government while the state and local governments are given functions with high investment outlay and low returns.

For each tier of government to execute the responsibilities assigned to it, it has to secure funds through assigned tax bases. The internally-generated revenue of state and local government is very low compared with their shared revenue. For instance, between 1991 and 2007, internally-generated revenue of state governments averaged 17.6 per cent; that of local governments averaged 6.8 per cent. The low internal revenue base resulted from the types of taxes assigned to these levels of government- minor taxes which, unfortunately, have low yields and high cost of administration. The governments, therefore, depended largely on the Federation Account and value added tax revenue to execute their programmes. For instance, between 1991 and 2007, the revenue received from these sources by state governments accounted for 80.8 per cent on the average, while the local governments’ share was 93.2 per cent for the same period (Vincent, 2001, CBN 2010). Therefore, the amount of revenue available to them explains their inability to provide and maintain social services.

In the context of the focus of this study, it would be interesting to find out how the pattern of fiscal assignments and transfers translate to macroeconomic performance implications. A channel for this is the resultant degree of fiscal decentralization (Aigbokhan 1999). The most common measure of the extent to which a system is decentralized (or centralized) is the concentration ratio, the proportion of total direct government expenditures made by the central government. Another measure is the extent of vertical fiscal imbalance, which shows the extent of expenditure-revenue mismatch among the various levels of government. Table 3.6.1 reports both measures.

**Table 3.6.1. Vertical Fiscal Imbalance in Nigeria, 1990-2007**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | Revenue Share | | | Expenditure Share | | | Surplus/Deficiency | | |
| Federal | State | Local | Federal | State | Local | Federal | State | Local |
| 1990 | 95.6 | 4.1 | 0.3 | 77.3 | 16.1 | 6.6 | 22.6 | -15.4 | -8.7 |
| 1991 | 94.3 | 5.5 | 0.2 | 76.8 | 15.7 | 7.5 | 24.6 | -17.8 | -7.45 |
|  | 1992 | 95.8 | 3.9 | 0.3 | 75.7 | 16.4 | 7.9 | 23.8 | -16.7 | -6.45 |
| 1993 | 96.6 | 2.87 | 0.53 | 75.0 | 17.3 | 7.7 | 21.6 | -14.3 | -7.12 |
| 1994 | 94.3 | 5.1 | 0.6 | 68.2 | 23.7 | 8.1 | 26.1 | -18.6 | -7.5 |
| 1995 | 95.9 | 3.6 | 0.5 | 70.9 | 22.7 | 6.4 | 25.0 | -19.1 | -5.96 |
| 1996 | 96.0 | 3.6 | 0.4 | 72.7 | 21.2 | 6.1 | 23.3 | -17.6 | -5.7 |
| 1997 | 95.2 | 4.4 | 0.4 | 74.3 | 19.3 | 6.4 | 20.9 | -14.9 | -6.02 |
| 1999 | 94.7 | 4.8 | 0.5 | 77.7 | 15.6 | 6.7 | 22.1 | -15.6 | -5.12 |
| 2000 | 93.2 | 6.3 | 0.5 | 76.5 | 16.6 | 6.9 | 21.2 | -13.2 | -6.3 |
| 2001 | 95.6 | 3.9 | 0.5 | 76.8 | 15.7 | 7.5 | 20.7 | -14.1 | -6.4 |
| 2002 | 96.4 | 3.2 | 0.4 | 73.6 | 19.8 | 6.6 | 23.7 | -15.3 | -5.8 |
| 2003 | 95.3 | 4.1 | 0.6 | 75.7 | 17.6 | 6.7 | 22.2 | -14.2 | -5.9 |
| 2004 | 95.7 | 3.8 | 0.5 | 79.8 | 13.8 | 6.4 | 21.3 | -13.6 | -6.5 |
| 2005  2006  2007 | 95.9  95.8  95.5 | 3.9  4.0  4.2 | 0.2  0.2  0.3 | 79.6  78.4  78.6 | 14.2  14.4  14.6 | 6.2  7.2  6.8 | 20.2  21.8  21.9 | -14.7  -14.4  -15.3 | -6.7  -6.9  -7.8 |

Source: Computed from CBN Annual Reports and Statistical Bulletin Various Issues

As shown in Table 3.6.1 in the period 1990-2007, the concentration ratio ranged between (68 and 79 per cent for expenditure and 94 to 96 per cent for revenue. The table also shows that both state and local government revenues significantly fell short of their expenditure needs and this was more pronounced for states. Only the federal government had enough to meet its expenditure needs. The degree of decentralization of expenditure is higher than the degree of decentralization of revenues. The consequence of this is that subnational governments are usually dependent on central financial allocation for their expenditure needs. This has resulted in what Herber (1979) calls the problems of non-correspondence or vertical imbalance. This means considerable divergence between the sources of revenue and functional expenditure obligations in the states and local governments (Anyanwu 1999). These figures should not be interpreted to mean that the federal government runs a budget surplus; it merely means that the revenue share of the federal government exceeded its expenditure share, unlike the state and local governments. Two observations may be made here. First, states may face harder constraints in the future if the present pattern of assignment continues. And, second, on the grounds of allocative efficiency argument, which recommends lower level provision of services unless intergovernmental transfers are regular and adequate, growth and stable macroeconomic performance may be constrained. Arising from the mismatch and irregular flow of transfers at the moment, lower level governments often delay the payment of workers’ salaries and contractors’ fees for months. These have tended to negatively affect efficiency of workers and of service delivery and, invariably, macro economic performance, particularly economic growth.

A third measure of decentralization is a class of coefficients of vertical imbalance proposed by Hunter (1977) and applied by Shah (1991). These measures attempt to measure the degree of control exercised by the federal over the lower levels of government. A value of zero indicates absolute federal control, while a value of unity indicates absolute autonomy of lower levels of government in their decision-making. A value closer to unity is considered to be consistent with the assignment principles discussed above. The coefficients are V1, V2, and V3, calculated as follows:

V1 = 1- (SC + B)/E ----------------------------------------------------------------------------------(1)

V2 = 1- (SC + SU + B)/E ----------------------------------------------------------------------------(2)

V3 = 1- (SC + SU + TS + B)/E ----------------------------------------------------------------------(3)

Where:

SC = federal conditional transfers to state

SU = federal unconditional transfers to state

B = net borrowing by state

TS = shared taxes, and

E = states expenditure

Table 3.6.2. Shows the results from applying these measures to Nigerian data. It should be stressed that the quality of the data will not permit strong conclusions to be drawn from the results. It was difficult isolating conditional and unconditional grants from published data. On the assumption that conditional grants constitute a small proportion of federal grants to state and local governments, the bulk of the grants are treated as unconditional grants. The results are, however, sufficiently illustrative to permit inferences to be drawn.

As Table 3.6.2 shows, V1 and V2 are very close to unity, suggesting a high degree of autonomy for lower levels of government in their spending decisions. This shows that unconditional grants usually account for the bulk of intergovernmental transfers in Nigeria. Indeed, Ubogu (1982) notes that “the experience in Nigeria shows that unconditional grants are favoured since conditional grants do not respect the sovereignty of the spender but of the grantor”. The results also seem to be consistent with the finding by Ekpo (1994) that: “all evidence confirms revenue concentration while there were certain episodes of expenditure decentralization” in the period 1960-90.

The low value of V3 reflects the fact that lower levels of government depend to a very high degree on shared revenue from the federation account to finance their expenditure. Introduction of the variable into the formula, therefore, throws up results which tend to suggest a high degree of federal control (centralization of revenue).

Theoretically, efficient local provision of services promotes a stable macroeconomic performance. However discussion in this section shows that the existing structure of fiscal federalism is less likely to ensure efficient fiscal operations of lower tiers of government.

**Table 3.6.2. Coefficients of Fiscal Balance in Nigeria, 1980-2007**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Year | V1 | | V2 | | V3 | |
| a | b | a | b | a | b |
| 1980 | 0.977 | 0.972 | 0.877 | 0.854 | 0.118 | 0.179 |
| 1981 | 0.963 | 0.959 | 0.865 | 0.843 | 0.277 | 0.199 |
| 1982 | 0.953 | 0.948 | 0.878 | 0.864 | 0.344 | 0.189 |
| 1983 | 0.978 | 0.969 | 0.871 | 0.856 | 0.211 | 0.134 |
| 1984 | 0.967 | 0.971 | 0.869 | 0.842 | 0.244 | 0.119 |
| 1985 | 0.954 | 0.943 | 0.875 | 0.867 | 0.318 | 0.117 |
| 1986 | 0.966 | 0.954 | 0.848 | 0.876 | 0.311 | 0.198 |
| 1987 | 0.968 | 0.947 | 0.858 | 0.866 | 0.257 | 0.221 |
| 1988 | 0.967 | 0.956 | 0.879 | 0.869 | 0.243 | 0.113 |
| 1989 | 0.954 | 0.943 | 0.868 | 0.874 | 0.258 | 0.116 |
| 1990 | 0.946 | 0.935 | 0.866 | 0.873 | 0.265 | 0.176 |
| 1991 | 0.944 | 0.926 | 0.873 | 0.888 | 0.311 | 0.118 |
| 1992 | 0.931 | 0.943 | 0.864 | 0.884 | 0.321 | 0.213 |
| 1993 | 0.922 | 0.939 | 0.860 | 0.893 | 0.234 | 0.171 |
| 1994 | 0.893 | 0.913 | 0.831 | 0.863 | 0.222 | 0.177 |
| 1995 | 0.934 | 0.989 | 0.867 | 0.888 | 0.302 | 0.236 |
| 1996 | 0.940 | 0.743 | 0.743 | 0.793 | 0.114 | 0.110 |
| 1997 | 0.991 | 0.991 | 0.952 | 0.956 | 0.747 | 0.208 |
| 1998 | 0.953 | 0.885 | 0.941 | 0.867 | 0.712 | 0.213 |
| 1999 | 0.921 | 0.934 | 0.923 | 0.934 | 0.654 | 0.244 |
| 2000 | 0.911 | 0.912 | 0.967 | 0.922 | 0.625 | 0.211 |
| 2001 | 0.932 | 0.954 | 0.911 | 0.914 | 0.612 | 0.233 |
| 2002 | 0.922 | 0.933 | 0.923 | 0.933 | 0.711 | 0.287 |
| 2003 | 0.941 | 0.981 | 0.943 | 0.913 | 0.645 | 0.224 |
| 2004  2005  2006  2007 | 0.952  0.961  0.968  0.965 | 0.953  0.962  0.969  0.972 | 0.962  0.967  0.958  0.959 | 0.943  0.954  0.957  0.967 | 0.657  0.668  0.659  0.665 | 0.213  0.243  0.251  0.271 |

Note: (a) is for states alone, (b) is for states plus local governments

Source: Computed from CBN Annual Reports and Statistical Bulletin Various Issues

**3.7 Review of Revenue Allocation Experience in Nigeria**

The history of revenue allocation in Nigeria will be considered below under three phases.

**3.7.1 The First Phase of Revenue Allocation, 1946-1967.**

The first phase of revenue allocation was characterized by reports and recommendations of ad-hoc fiscal commissions which, in turn depended on the nature and form of past constitutional arrangements. The task of the early fiscal commissions, from Phillipson Commission of 1946 to Sir Louis Chicks Commission of 1954 was limited to allocating equitably to the regional governments total “non-declared” revenue (consisting mainly of import and export duties and excise and company taxes) which, under the Constitution, was determined by the central government. All the commissions generally chose derivation as a major/single criterion for allocating block grants from “non-declared” central revenues. According to the Phillipson Commission, each region’s share was strictly calculated in accordance with its contribution to such revenue and their respective shares were as follows: North, 46 per cent; west, 30 per cent and East, 24 per cent.

The Hick-Phillipson Commission (1950) shared non-declared revenue on the basis of derivation just like the Phillipson Commission, except that 50 per cent of revenue from tobacco was shared to the regions on the basis of consumption. In addition, the central government’s grants were made to each region on the basis of the number of male tax-payers in its population. The Sir Louis Chicks Commission (1954) slightly modified the earlier positions in two respects, that is, excise tax and 100 per cent import duties on motor spirit were added to the revenue to be shared on the basis of derivation.

As a result of the dissatisfaction with the system of revenue allocation developed so far, particularly the Chick Commission Report and the 1951 Constitutional Conference, another Commission was appointed in 1958 under the Chairmanship of Sir Jeremy Raisman. The Report of this Commission, which was accepted by government, laid a solid foundation for the present tax and revenue allocation policies until the creation of the federation account (FA) in 1979. The main features of Raisman’s Report were as follows:

a. creation of the distributable pool account (DPA) which consisted of the following statutory payments – 30 per cent of general import revenue and 30 per cent of mining rents and royalties

The DPA, so composed, was shared among the regions as follows: North, 40 per cent; East, 31 per cent; West, 24 per cent and South Cameroons, 5 per cent. In 1961, South Cameroons left the federation, and the DPA was redistributed as follows: North, 40/95; East, 31/95; and West, 24/95. In 1963, when the Mid-West was created the share of the then Western Region was divided between it and the new region in the ratio of 3:1;

b. the remaining mining rent and royalties were allocated as follows: 50 per cent to the region of origin and 20 per cent to the federal government which was also allocated 70 per cent of general revenue;

c. the federal government was given exclusive jurisdiction over customs and excise duties, sales tax (except on produce, hides and skins, and motor fuel), rents and royalties and Lagos income tax; and

d. the regions were given control over personal (individual) income tax, produce sales tax,

marketing boards and sales tax on motor fuel.

The 1964 Binns Commission increased mining rents and royalties paid into the DPA from 30 per cent to 35 per cent. The DPA, so composed, was distributed as follows: North, 42 per cent; East, 30 per cent; West, 20 per cent and Mid-West, 8 per cent.

**3.7.2 The Second Phase of Revenue Allocation, 1967-1979**

Following the creation of 12 states in May, 1967 the Constitutional (Financial Provisions) Decree No. 15 of 1967 was promulgated to share the revenue in the Distributable Pool Account (DPA) among the new states as follows: East Central, 17.5 per cent; Lagos, 2 per cent; Mid-West, 8 per cent; the six Northern, states 7 per cent; South Eastern, 7.5 per cent; Rivers, 5 per cent; West, 18 per cent. The decree did not apply any uniform principle to all states. In particular, it failed to take cognizance of the key elements which formed the basis of the previous allocations of revenue among the regions, namely, population, derivation, consumption, among others.

Subsequent decrees between 1970 and 1975 aimed at correcting the anomalies of Decree No. 15 of 1967, by reallocating revenue to states on a more equitable basis. Decree no. 13 of 1970 (which took effect retroactively from April, 1969), Decree No. 9 of 1971 and the revenue allocation arrangement which took effect from 1ST April, 1975, had the following features:

a. the newly enlarged Distributable Pool Account (DPA), which consisted of 80 per cent of onshore mining rents and royalties, was shared on the basis of consumption (customs and excise duties) including all offshore mining royalties previously enjoyed only by the federal government;

b. the derivation principle, as applied to sharing of oil and non-oil revenue, was de-emphasized. For example, by 1975, revenue payable to states on the basis of derivation, such as mining rents and royalties, was reduced from 45 per cent to 20 per cent;

c. a simplified system of revenue sharing among the states was introduced in 1969 and used

up to 1980. These principles were; equality of states, 50 per cent; and population (which also

subsumed the principle of basic needs), 50 per cent; and

d. from 1975 the military government abolished constitutional arrangements as the basis for

revenue allocation. Instead, the federal government vested itself with the power to determine a

logical time frame for reviewing and sharing of revenues among the various tiers of government in the federation.

Thus, between 1976 and 1979, revenue allocation was streamlined as follows:

a. the federal government retained all the revenue from petroleum profit tax and company tax, 65 per cent of import duties (excluding tobacco, alcohol, motor spirit and diesel) and 50 per cent excise tax; while

b. the Distributable Pool Account (DPA), which consisted of the remaining import and excise taxes, offshore royalties and 80 per cent onshore royalties, was shared on the basis of population, 50 per cent and equality of states, 50 per cent; while 20 per cent of royalties (onshore) was paid to states on the basis of derivation.

**3.7.3 The Third Phase of Revenue Allocation, 1979-1999**

Following the provisions of Section 149-150 of the 1999 Constitution, revenue sharing once more became a constitutional issue. Section 149(i) specifically created the “federation account” into which all revenues collected by the government of the federation was paid, except the proceeds of personal income tax of the armed forces, the Nigerian Police, staff of the Ministry of External Affairs and residents of the Federal Capital Territory (FCT). Section 149 (ii) states that the revenue in the federation account (FA) should be shared among the federal, state and local governments in a manner to be determined by the National Assembly.

In 1979, the federal government set up a six-man Revenue Allocation Commission under the chairmanship of Dr. P.N.C Okigbo. The Report of the Commission, which took into account the provisions of the 1979 Constitution, became the new basis for sharing. The Commission recommended among other things, that:

a. all revenue collected by the federal government should be paid into the federation account (FA);

b. such revenue should be shared as follows: federal government, 55 per cent; state governments, 34.5 per cent; local governments, 8 per cent and FCT, 2.5 per cent; and

c. out of the 34.5 per cent allocated to states, 2 per cent should be paid on the basis of derivation, 1.5 per cent should go to the oil mineral producing areas, and the balance should be shared amongst the states on the basis of:

* responsibility or equality of states, 40 per cent;
* population (1963 Census), 40 per cent;
* social development factor, 15 per cent; and
* internal revenue effort, 5 per cent.

Although the Okigbo Report was passed by a slim majority of the Joint Finance Committee of the National Assembly, unfortunately, the enabling Act-the allocation of Revenue (Federation Account, etc.) Act of 1982- which gave it credence was declared void by the Supreme Court in the same year. Therefore, the revenue sharing formula reverted back to the one used in 1978/79. However, the 1981 Allocation of Revenue Act, which slightly modified an earlier Act, was passed into law with effect from January 22, 1982. The revenue allocation principles and formula (as set out in the 1982 Act) is fully presented below, as they formed the basis for all future revenue allocations and subsequent modifications. The allocation of the federation account was as follows: federal, 55 per cent; states, 35 per cent and local governments, 10 per cent. Out of the states’ shares of 35 per cent, 30.5 per cent was allocated to all states on the basis of the criteria established by the Okigbo Commission. The same principles were also applied in sharing revenue among all the local governments. The balance of states’ share was allocated as follows:

a. federal fund for ecological problems, 1.0 per cent;

b. mineral producing areas in proportion of the minerals extracted, 2.0 per cent; and

c. federal fund for the development of mineral producing areas, 1.5 per cent.

Thus, the 1979 Constitution had four important consequences on revenue sharing. First, the federal government ceased to monopolize the retention of fast growing revenues such as company income tax and petroleum profit tax. Second, the proportionate share of each level of government was fixed and made more certain. Third, the local governments hitherto regarded as arms of their respective state governments were recognized as an independent revenue sharing unit in the federation. Finally, the derivation criterion almost disappeared as an important principle for revenue sharing.

The 1984 Allocation of Revenue Act further modified the sharing formula as follows: federal, 50 per cent; states, 30 per cent; local governments, 15 per cent and “others”, that is, oil producing areas and ecological fund, 5.0 per cent. In 1985, the federal government merely redefined the basis for allocating revenue to mineral producing areas with no significant shift in the percentage allocation. The sharing formula to date still remains the one established in 1992 and it is as follows: federal, 48.5 per cent; states, 24 per cent; local governments, 20 per cent and “others” 7.5 per cent shared between mineral producing areas and ecological fund called special funds.The provision of special funds was meant to cover the expenses of the Federal Capital Territory, derivation, and development of mineral-producing areas, general ecology and statutory stabilization. Between 1980 and 2000, intra-state and local government allocations of revenue were based on the principles and weights of equality of states/local councils (40 per cent), population (30 per cent), social development factor (10 per cent), land mass/terrain (10 per cent), and internal revenue effort (10 per cent). The state governments are required by provisions of the 1999 constitution, like all other previous constitutions, to allocate 10 per cent of their internally-generated revenue to the local councils and, in addition, set up a Joint Revenue Sharing Board for the local governments.

In a bid to boost the revenue of government the value added tax (VAT) was introduced in Nigeria on January 1, 1994, following the recommendations of a Study Group set up by government on the reform of indirect taxation in Nigeria. VAT was introduced to wholly replace sales tax, which hitherto was a state government tax. VAT is aimed primarily at enhancing the revenue of all tiers of government since it is more broadly based than the original sales tax and also covers more categories of goods and services. It has a single rate of 5 percent for all goods and services.

The sharing formula for VAT revenue has changed nearly every year since its introduction. In 1994, the federal share was 20 per cent and states, 80 per cent. In 1995, the federal share increased to 50 per cent while those of states and local governments were 25 per cent each. Following the agitation by states for more revenue from VAT, however, the formula was changed in April of the same year (1995) to federal, 40 per cent; states, 35 per cent and local governments, 25 per cent. In 1996, the rates were again changed as follows: federal, 35 per cent; states, 40 per cent and local governments, 25 per cent. In 1999, the rates were: federal, 15 per cent; states, 50 per cent; and local governments, 35 per cent. These rates are still in use till date.

VAT revenue accruing to states and local governments are shared on the basis of states/local governments of origin, 30 per cent; consumption and destination, 30 per cent and equality of states/local governments, 40 per cent. The analysis, so far, clearly shows that between 1970 and 1999, the principle of derivation played an insignificant role in the horizontal distribution of federal revenue. For example, only 1.5 per cent was allocated on the basis of derivation in 1990. However, the figure was adjusted to 13 per cent in the 1999 constitution.

The revenue sharing formula has always been in favour of the Federal government, compared with its expenditure requirements. Moreover, the persistent refusal of the state governments to honour their own obligation as regards the expected allocation of 10 per cent of their internally-generated revenue to the councils constitutes a new challenge for macroeconomic governance in Nigeria.

Also, experience has shown that revenue allocation presents the most intractable problem in Nigeria’s fiscal federalism. There is no generally acceptable formula for both vertical and horizontal distribution of revenue. The issue is that the federal government takes the lion’s share of centrally collected revenue based on the current formula and other retained revenue, leaving state and local governments with small shares compared to their assigned functions.

**Table 3.7.1 Distribution of Allocation to 3 Levels of Government from the Federation Account: 1988-2007**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Federal** | **State** | **Local** | **Special Fund** |
| 1988 | 55.40 | 32.60 | 10.20 | 1.20 |
| 1989 | 55.00 | 32.40 | 10.10 | 2.50 |
| 1990 | 50.90 | 26.80 | 13.30 | 0.90 |
| 1991 | 50.50 | 30.00 | 15.00 | 4.50 |
| 1992 | 49.10 | 24.90 | 19.50 | 6.50 |
| 1993 | 48.50 | 24.00 | 20.00 | 7.50 |
| 1994 | 48.50 | 24.00 | 20.00 | 7.50 |
| 1995 | 48.50 | 24.00 | 20.00 | 7.50 |
| 1996 | 48.50 | 23.31 | 18.95 | 5.48 |
| 1997 | 45.66 | 24.60 | 20.04 | 6.14 |
| 1998 | 48.56 | 22.34 | 18.62 | 5.56 |
| 1999 | 48.41 | 24.24 | 20.20 | 6.54 |
| 2000 | 49.02 | 23.64 | 19.70 | 8.90 |
| 2001 | 47.76 | 30.14 | 18.90 | 10.08 |
| 2002 | 50.74 | 23.51 | 19.72 | 5.97 |
| 2003 | 50.36 | 23.05 | 19.05 | 0.00 |
| 2004 | 47.07 | 23.87 | 18.41 | 3.20 |
| 2005 | 46.80 | 23.74 | 18.30 | 3.69 |
| 2006 | 46.75 | 23.72 | 18.28 | 3.39 |
| 2007 | 46.99 | 23.83 | 18.37 | 9.07 |

Sources: CBN Annual Reports and Statement of Accounts and Statistical Bulletin (various Issues)

**Table 3.7.2 Summary of State and Local Sources of Revenue in Nigeria**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Local Government** | | | **State Government** | |
| **Federal**  **(%)** | **State (%)** | **Internal (%)** | **Federal**  **(%)** | **Internal**  **(%)** |
| 1993 | 92.16 | 1.27 | 5.21 | 73.29 | 15.17 |
| 1994 | 90.11 | 2.43 | 6.27 | 58.59 | 22.08 |
| 1995 | 73.22 | 2.56 | 8.65 | 55.53 | 24.40 |
| 1996 | 73.93 | 2.88 | 9.29 | 46.35 | 21.74 |
| 1997 | 65.41 | 1.85 | 8.02 | 52.50 | 28.23 |
| 1998 | 68.08 | 1.67 | 7.41 | 46.14 | 20.40 |
| 1999 | 72.15 | 0.69 | 7.70 | 61.34 | 20.18 |
| 2000 | 78.08 | 1.27 | 4.71 | 70.06 | 10.52 |
| 2001 | 74.92 | 0.93 | 3.51 | 70.46 | 10.36 |
| 2002 | 74.87 | 0.97 | 6.05 | 57.97 | 13.38 |
| 2003 | 78.72 | 0.57 | 5.45 | 62.59 | 13.89 |
| 2004 | 80.22 | 0.77 | 4.78 | 69.77 | 12.05 |
| 2005 | 80.88 | 0.65 | 4.00 | 64.87 | 8.65 |
| 2006 | 81.69 | 0.51 | 3.44 | 65.82 | 8.11 |
| 2007 | 68.28 | 0.36 | 2.56 | 53.71 | 14.80 |

**Source:** CBN Annual Reports and Statement of Accounts and Statistical Bulletin (various

issues)

Tables 3.7.1 and 3.7.2 elucidate the reasons why local and state governments excessively depend on the Federation Account to meet their obligations. While state governments depend on the average for 70% of their revenue from federal government, the proportion is as high as 88% or more for local governments. This is in addition to the fact that the ‘revenue sharing formula’ has already put the federal government at a domineering position. However it is observed in Table 3.7.1, the statutory allocations have relatively been changing in favour of local governments. Statutory allocations to federal government similarly have fallen from 55.4% in 1988 to 46.99% in 2007. The Statutory allocations to the state governments similarly fell from 32.6% in 1988 to 24% in 1995, which has further fallen to 23.72% in 2006 and 23.83% in 2007. But in the case of local governments, the allocations have increased from 10.2% in 1988 to the highest values of 20.20% in 1999 and it has decreased to 18.28% in 2006 and 18.37% in 2007.

More importantly, the horizontal distribution principles have remained contentious and have been described as unfair by some political zones. The emphasis on population is the most important issue, resulting from complaints that population figures were manipulated in favour of some states. Furthermore, the progressive decline of weights on derivation principle for revenue sharing has also been criticized. The basis of emphasis on derivation was to make the units maximize the yield from available tax sources as well as promote fiscal discipline among the sub national governments. The issue of landmass and terrain undermines the interest of the states with small landmass. The trend of progressive opinion is that this criterion of landmass should be excluded from the revenue allocation system (Vincent, 2001).

**Table 3.7.3: REVENUE ALLOCATION FORMULAE-1952-2007**

**WEIGHT/PERIOD, Year: 19’ & 20’**

**Principles** 52-53 54-58 64-67 68-69 69-76 77-81 82-88 89-98 99-07

Derivation + + + + +(1%)

Even progress

Need + +

National interest unity + + +

Fiscal independence + +(40%) +(40%)

Equality of states ++(50%) ++(50%) + +(30%) +(30%)

Population ++(50%) ++(50%)

Equal access to Dev. Opportunities +(25%)

Na’nal min.standard for Na’nal Integration +(22%)

Absorptive capability +(20%)

Independence Revenue efforts +(18%) + +(10%)+(20%)

Fiscal efficiency +(15%)

Land mass and Terrain +(10%)

Minimum responsibility +

Social Development +(10%)+(10%)

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

Table 3.7.3 presents a summary of principles (formulae) that guided the horizontal allocation of revenues for some selected years. In the table, a “ +” sign indicates that the concerned principle was in use while “ + +” sign indicates that the principle was emphasized.

**3.8 Patterns and Trends of Government Revenue**

The non-oil revenue sources dominated government revenue in 1960s, averaging 91.3 per cent of total revenue or 9.0 per cent of GDP (Table 3.8.1). This consisted mainly of customs and excise duties, companies’ income tax and miscellaneous receipts from other licenses.

**Table 3.8.1: Revenue Accruing to Government, 1960-2007**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Oil**  (% of Total) | **Revenue**  (% of GDP) | **Non-Oil**  (% of Total) | **Revenue**  (% of GDP) | **Total**  **Revenue**  (% of GDP) |
| 1960-69 | 8.7 | 0.9 | 91.3 | 9.0 | 9.7 |
| 1970-79 | 64.2 | 12.0 | 35.8 | 7.0 | 19.0 |
| 1980-89 | 68.2 | 16.1 | 37.8 | 6.9 | 22.0 |
| 1990-94 | 78.0 | 24.7 | 22.0 | 7.3 | 32.0 |
| 1995-99 | 68.3 | 14.8 | 31.7 | 6.8 | 21.6 |
| 2000-2007 | 79.7 | 30.9 | 20.3 | 7.9 | 38.8 |
| Average | 61.2 | 16.7 | 39.8 | 7.5 | 24.1 |

Source: CBN Statistical Bulletin and CBN Annual Reports and Statements of Account

The quantum and structure of government revenue changed substantially between 1970 and 1979, as a result of favourable developments in the international oil market. The oil shocks of 1974 and 1975 brought about substantial revenue windfalls to Nigeria as the price per barrel increased astronomically. Thus, federally-collected revenue increased sharply, representing 19.0 per cent of GDP between 1970 and 1979 (see Table 3.8.1). The increase was largely accounted for by the large oil revenue receipts, which stood at 64.2 per cent of total revenue.

Government revenue increased further between 1980 and 1989 as its proportion of GDP averaged of 22 per cent during the period. The general increase was accounted for by the increase in oil revenue, which averaged 68.2 per cent of total revenue. The remarkable increase in the price of crude oil and the deregulation of the economy in the second half of the 1980s accounted for the big increase in oil revenue. The depreciation of the exchange rate also increased the naira earnings from oil revenue which are usually quoted in US dollars. Deregulation of the price in the domestic petroleum market also reflected in higher revenue for government. The dual exchange rate (i.e., the Autonomous Foreign Exchange Market) adopted in 1995, has also yielded substantial fiscal revenue from oil dollar earnings. Consequently, in the 1990s federally-collected revenue increased substantially to an average of 26.8 per cent of GDP and the contribution of oil revenue increased to an average of 73.2 per cent of all revenue during the period.

Total federally-collected revenue, in 2000 and 2001, increased tremendously to 38.8 per cent of GDP and the share of oil sector increased to 79.7 per cent of total revenue during the period. Although revenue from non-oil sources, between 1970 and 2001, recorded a substantial increase in absolute terms, its relative contributions to total revenue product was not impressive as it fell to 35.8 per cent in the 1970s and declined further to 20.3 per cent by 2001 (Table 2.8.1).

The capacity of state and local governments to contribute meaningfully to economic growth has been constrained by very low internally-generated revenue which, during the period under review was largely from personal income and property taxes. Revenue from personal income tax accounted for an average of only 1.9 per cent of total Nigerian government revenue between

1980 and 2001. Similarly, property tax by local councils contributed only an average of 0.2 per cent of government revenue between 1991 and 2001, while the state governments’ non-tax revenue, namely: motor licenses, fees, fines, and earnings from properties contributed an average of only 1.6 per cent of total revenue, and the non-tax revenue of local governments between 1991 and 2001, accounted for a mere 0.2 per cent of total revenue (CBN, 2004).

State governments’ internally-generated revenue as a percentage of their total revenue, diminished to 8.7 per cent in 2000 and 2001, down from an average of 31.5 per cent during the 1995 to 1999 period. In terms of the ratio of internally-generated revenue to total state expenditure, the state governments could only finance an average of 18.3 per cent of their total expenditures between 2000 and 2001, but the local government councils fared even worse than the state governments. For instance, in 2000 and 2001, the local government councils’ internally-generated revenue averaged only 3.1 per cent of their total revenue (CBN Statistical Bulletin, 2004).

The analysis so far reveals that the poor revenue base of the lower governments explains why they have come to depend on federal sources of funding. Because of the mismatch between revenue and expenditures, state governments have persistently run fiscal deficits. The picture at the local government councils reveals a similar pattern of heavy dependence on external sources of funding, and a wide gap between their internally generated revenue and their expenditure needs. Governments’ heavy dependence on oil earnings has exposed government activities to the vagaries of the international market and other externally-induced shocks, with serious implications for macroeconomic performance. Also non-oil revenue has not been fully explored as a result of poor tax administration in the country. For instance, all over the world except in Nigeria, property tax remains a veritable source of revenue to local councils. Thus the poor revenue base of the lower tiers of government in Nigeria has been largely responsible for their poor performance.

Government revenue trends are further captured in separate figures below (Fig. 3.8.1 and Fig. 3.8.2) for federal revenue, and subnational revenue respectively. This is to give additional insights regarding the existence of any unique characterization of government revenue over the study period. One very interesting observation here is that the two fiscal variables maintained an upward trend and periodic swings throughout the study period. Federal government revenue recorded marginal reduction between 1997 and 1998, 2001 and 2002, and 2006 and 2007, while subnational revenue decreased substantially between 2002 and 2003, and 2005 and 2007.

|  |
| --- |
| **Fig. 3.8.1 Trends in Federal Government Revenue** |
|  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fig. 3.8.2 Trends in Subnational (sum of State and Local Government) Revenue** |  |  |  |  |  |



**3.9 Patterns and Trends of Government Expenditure**

Government expenditure oscillated between 30.2 and 22.5 per cent of GDP during the 1990-94 and 1995-99 periods respectively, but rose to 27.8 per cent of GDP between 2001 and 2007. Recurrent expenditure during the period 1960 to 2007 accounted for an average of 57.1 per cent of total or 13.5 per cent of GDP, while the average share of capital expenditure during the period was 42.7 per cent of total expenditure, or 8.9 per cent of GDP (see Table 3.9.1). The higher share of recurrent expenditure was attributable to several factors, such as inflationary pressures, expansion of the public service, the implementation of the democratic process, increased domestic and foreign debt service (interest payments only), and the increase in salaries and allowances of civil servants.

One clear implication of this pattern of expenditure is that a large proportion of government spending is on recurrent expenditure particularly, debt service payments. This partly explains the rapid decline in the country’s social and economic infrastructure. Moreover, the growing recurrent expenditure has tended to crowd-out public investment and contributed to poor economic growth.

**Table 3.9.1: Total Government Expenditure as Percentage of GDP, 1960-2007**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Recurrent** | **Capital** | **Total** |
|  | **Total GDP** | **Total GDP** | **GDP** |
| 1960-1969 | 70.5 9.9 | 29.6 4.1 | 12.3 |
| 1970-1979 | 56.1 11.1 | 43.9 9.4 | 20.5 |
| 1980-1984 | 46.3 17.4 | 53.7 21.4 | 38.8 |
| 1985-1989 | 64.5 17.4 | 35.1 9.5 | 26.9 |
| 1990-1994 | 56.1 16.9 | 43.3 13.3 | 30.2 |
| 1995-1999 | 45.9 11.5 | 54.1 12.0 | 22.5 |
| 2000-2007 | 60.6 10.1 | 39.4 6.5 | 27.8 |
| Average | 57.1 13.5 | 42.7 8.9 | 24.0 |

Sources: CBN Statistical Bulletin and Annual Reports and Statements of Accounts

(various issues)

Government expenditure trends are further captured in separate figures below (Fig. 3.9.1 and Fig. 3.9.2) for federal expenditure and subnational expenditure respectively. This is to provide additional insights regarding the existence of any unique characterization of government expenditure over the study period. One very interesting observation here is that the two fiscal variables maintained an upward trend and periodic swings over the study period. Federal government expenditure recorded marginal reduction between 1998 and 1999 while subnational expenditure decreased substantially between 2001 and 2003.

**Fig. 3.9.1 Trends in Federal Government Expenditure**



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fig. 3.9.2 Trends in Subnational (sum of State and Local Government ) Expenditure** |  |  |  |  |  |

The most commonly used indicator of fiscal decentralization is the subnational share of total government spending. The study uses this indicator to determine the extent of fiscal decentralization over the study period. This was computed for state and local governments and the results are presented in Table 3.9.2 below.

**Table 3.9.2: Subnational Spending Share (per cent)**

|  |
| --- |
| Year State Governments Local Governments |
| 1970 18.5 - |

1975 17.6 -

1980 20.1 4.2

1985 24.6 4.6

1990 29.6 -

1991 37.3 -

1992 38.3 -

1993 17.1 8.3

1994 26.1 9.4

1995 27.8 9.7

1996 34.3 10.2

1997 35.4 10.6

1998 36.3 11.1

1999 36.7 11.3

2000 37.1 12.1

2001 37.5 12.4

2002 38.2 13.6

2003 38.4 13.8

2004 37.3 14.2

2005 37.6 14.4

2006 38.7 14.7

2007 38.2 14.9

|  |
| --- |
| Source: Author’s computation from CBN Statistical Bulletin and Annual Reports and Statements |

of Accounts (various issues)

Table (3.9.2) above shows that subnational spending shares, defined as the ratio of subnational spending to total government spending, is low, indicating a high degree of centralization. It is significant that there was a movement towards greater decentralization of state expenditure in 1991 and 1992, and also from 1994 to 2007. The progressive rise in this ratio since 1993, however, suggests the embrace of the principle of greater decentralization of expenditure responsibilities. Similarly, the very low ratio for local governments has also been increasing, albeit modestly, again implying a move towards more decentralized expenditure shares.

Chete (1998) notes that:

*“Certain problems, however, come up when we use subnational spending share as a robust gauge of fiscal decentralization. In the first place, the purview of this indicator is the composition of total spending. It, therefore, offers less insight into the autonomy of lower levels of government as regards fiscal policy making and its impact on macroeconomic stability. For instance, if an increment in subnational spending is financed through local resource mobilization (increased local tax revenue)) or through spending cuts by the central government, no fiscal imbalances are expected to emerge across government levels. Thus, such imbalances tend to divert resources from the centre although, conceptually, intergovernmental imbalances will impinge one way or the other on intergovernmental fiscal relations, aggregate public finances and the overall macroeconomy.”*

Indeed, when subnational spending rises, it increases subnational dependency. If this is financed via intergovernmental transfers, fiscal decentralization becomes counterproductive in the sense that it discourages resource mobilization at the subnational level and compromises transparency in budget making and accountability in expenditure management at this level since the shortfall can always be bridged through financial assistance from the centre. This situation exemplifies the common pool problem in intergovernmental fiscal relation. There is always an incentive for the subnational government to overspend to the extent that they can internalize the benefit while imposing the cost on the higher tier of government. The Nigerian fiscal federalism clearly exhibits this tendency. Phillips (1994) observes:

*“The second mutually reinforcing factor is the dominance of the federal government in revenue and economic matters … Nigeria’s revenue structure have been such that the bulk of government revenue has, over the years, been collected by the federal government. Consequently, the states and local governments have been largely dependent on federal revenue transfers to them.”*

There is a sense in which the common pool and agency problems can reinforce each other. If broad tax bases are devolved to subnational governments and central surveillance is lacking, an incentive will be created for subnational authorities to underutilize their tax bases, especially when they have restrained access to transfers from the central government.

Fiscal centralism may be characterized a priori by the combination of low subnational autonomy and high subnational dependency on intergovernmental transfers. In this case, few local revenue sources are assigned to subnational jurisdictions and the resources transferred from the centre to subnational governments are considerable. The federal government has always collected more revenue than it requires performing its constitutional functions, while the situation at the state level has been the opposite. Indeed, one of the deficiencies of Nigerian Constitutions to date is their failure to match tax powers with functions when dividing jurisdictions among the tiers of government (Phillips 1994). The implication of this is that the centre becomes the revenue mobilize both locally and nationally while also assigning expenditure functions to subnational governments. Consequently, subnational policy making may be limited in scope and lower-level governments merely become agents of the centre’s spending functions.

In line with the foregoing argument, another indicator of fiscal decentralization is the subnational fiscal autonomy measured as the share of internal revenue in the total revenue of subnational governments. Table 3.5.1 (on page 87 -89) reports this indicator, which mirrors the ability of subnational governments to finance projects in their jurisdictions through local revenue mobilization efforts. From Table 3.5.1 (on page 87-89) it is evident that state governments’ fiscal autonomy ratios from 1980 to 2007 are extremely low, implying high dependency on transfers from the centre. A third indicator of fiscal decentralization in Nigeria is subnational fiscal dependency, defined as the share of intergovernmental transfers (in this case, statutory allocation to states and local governments from the federal government) in total revenue. Chete (1998) reports that there is a high degree of dependence by states and local governments on the federal government for revenue although the decline in the aggregate ratio from 75.5 per cent to 45.7 per cent indicates movement towards a more decentralized fiscal federalism.

**3.10 Result of Government Fiscal Operations and Macroeconomic Implication**

The fiscal operations of the government sector in Nigeria have resulted in deficits in 27, out of the 38 years under review. The deficits have ranged from 0.8 percent of GDP to 24.9 percent of GDP and were mainly incurred by the Federal Government, which also accounted for the lion share of the deficits for 24 years of the period of analysis (CBN 2009). The fiscal operations of the various state governments have resulted in the overall deficits in some of the years, with the deficits ranging between 0.1 percent of GDP and 3.1 percent of GDP in 1992. However, the local government councils recorded an overall deficit only in 1996, amounting to #319.6 million or 0.01 percent of GDP (CBN 2000). The deficits of the government sector have been attributed to the need for massive investment in development projects and to the decline in revenue, due to fluctuations in crude oil prices.

Given the volatile revenue base of the Nigerian economy and the upward spiral in government expenditure over the years, the occurrence of fiscal deficits in 27 of the 38 years since the end of the civil war was probably inevitable. Although a certain level of fiscal deficits may be considered essential in the development process, the level, magnitude and method of financing fiscal deficits in Nigeria have tended to produce and perpetuate macroeconomic imbalance. Empirical results from the Nigerian literature show that financing high deficits by excessive borrowing from the banking system, especially the Central Bank of Nigeria, results in high monetary expansion, high inflationary pressures, exchange rate depreciation, deterioration in balance of payments, sluggish and negative growth rates induced by the crowding out effects of government borrowing, financial sector distress and unemployment among others (Alade et al, 2003).

In the early 1960s, the deficits were financed by the non-bank public, the banking system, and foreign loans with the non-banking public accounting for about 50.0 percent on the average. From 1965, the banking sector became the most important source of financing government deficits, accounting for 87.1 percent in 1971, 93.0 and 37.1 percent in 1975 and 1980 respectively. During this period, the financing role of the non-bank public fluctuated from 10.2 per cent in 1972 to 38.6 and 12.0 per cent in 1976 and 1980 respectively. In effect, the most effective non-inflationary method of financing government deficits had not been mainly optimally.

A major macroeconomic consequence of the pattern analyzed above has been a declining GDP growth rate and accelerating inflation. The periods 1981 to 1990 and 1991 to 2007 were particularly volatile as high proportions of government deficits were financed by massive injection of funds from the banking system, especially the Central Bank of Nigeria during the latter period. Between 1981 and 1990, for instance, the banking system (mainly commercial and merchant banks) accounted for an average of 60.7 per cent of total deficit financing. But between 1991 and 2007, the pattern worsened, with the banking system funding an average of 94.1 per cent, and the Central Bank alone accounting for 87.1 per cent of the total deficit financing. During the same period, the proportion of government deficits financed by the non-bank public fluctuated from 2.8 per cent in 1991 to 33.1 per cent in 2002 and, by 2007, had accounted for 44.9 per cent (CBN, 1994, 2005, 2009). Comparatively, foreign sources provided an average of 14.6 per cent of total deficit financing between 1986 and 1994. Available data from state and local governments show that their deficits have also been financed by borrowing from the banking sector, thereby contributing significantly to the distress of many banks in the early 1990s (CBN, 2000).

Table 3.10.1 reports simple correlations between fiscal decentralization and macroeconomic variables. The idea is to substantiate or contradict theoretical arguments on the association between these two.

**Table 3.10.1: Correlation Relationship between Indicators of Fiscal Decentralization and Macroeconomic Performance**

|  |
| --- |
| Indicator GDP Money Inflation Fiscal  Growth Supply Balance |

Rate Growth GDP

Rate

|  |
| --- |
| Subnational Fiscal |

Autonomy

State 0.26 -0.49 0.13 -0.07

Local -0.35 -0.2 -0.23 -0.02

Subnational Dependency

State -0.02 0.69 -0.025 -0.68

Local -0.61 0.93 0.41 -0.02

Subnational Spending Share

State 0.29 -0.35 -0.58 -0.21

Local 0.59 -0.81 -0.9 0.61

|  |
| --- |
| Source: Author’s Computation |
|  |

From the table above there is a negative correlation between subnational government size and federal government fiscal balance and this reflects considerable inefficiency in the sharing of revenue sources and expenditure assignments. In particular, the transfer of spending assignment has not been matched by a corresponding reduction in the spending share of the centre. Thus, the intuition that bigger government is intrinsically less efficient and, hence, susceptible to fiscal imbalances is validated. The counterintuitive positive correlation between subnational spending share and fiscal balance for local governments may be due to a stringent control of spending at this level. The presence of fiscal imbalances could trigger or exacerbate monetary imbalances, depending on the financing option chosen. Table 3.10.1 reveals that the correlation between fiscal decentralization indicators, on the one hand, and inflation and money supply, on the other, is mostly negative. Subnational dependency is negatively correlated with inflation in the case of state governments. This may, therefore, act as a constraint on subnational spending and, hence, fiscal imbalances. Similarly, the subnational spending share is negatively correlated with money creation. Thus, by reducing budgetary pressures at the centre, a higher subnational spending share obviates the need for money creation to finance central government fiscal imbalances. Overall, monetary imbalances are the consequence of the need to finance unfunded transfers in centralized systems of intergovernmental fiscal relations, and lack of control over subnational spending.

Two of the indicators of fiscal decentralization – subnational fiscal autonomy and subnational spending share – reveal a positive correlation between fiscal decentralization and growth. This validates the mainstream theoretical insight behind fiscal decentralization: increase in the efficiency of service delivery, in allocative efficiency and in accountability and expenditure management is expected to promote growth. Curiously, subnational dependency is negatively correlated with growth. This result is somewhat confounding. Fukasaku and de Mello (1998) suggest that this could occur when tax instruments that are best used by the central government are assigned to subnational governments, thereby reducing the efficiency of such instruments. They believe it could also occur when subnational governments assign resources to expenditure that do not generate economy-wide growth-enhancing externalities.

In summary, Nigerian governments’ reliance on the banking system to finance their revenue shortfalls results in persistent macroeconomic imbalances, which manifests in high inflation rates, declining and sometimes negative real growth rates, depreciation of the naira exchange rate, deterioration in balance of payments, high cost of credit, and financial sector instability. Furthermore, governments’ sustained deficits also result in a high debt burden, both domestically and externally, with negative consequences for foreign credit and economic growth.

**3.11 Patterns and Trends of Macroeconomic Variables**

The four basic series for the study are the Nigerian real gross domestic product (RGDP), inflation rate (INF), exchange rate (EXC) and interest rate (INT). The real gross domestic product, the exchange rate, the rate of interest, and the inflation rate play an important but complex and interdependent role in any economy (Ige, 2006; McConnel and Bruce, 2001; Samuelson and Nordhaus, 2001). Aggregate output is real gross domestic product at current market prices. Gross fixed capital formation was used to proxy capital due to lack of data on net investment. Annual change in it is taken as net investment. Macroeconomic variables trend are captured in separate figures (Fig. 3.11.1, Fig. 3.11.2, Fig. 3.11.3, and Fig. 3.11.4) for the study period 1970-2007.

Fig. 3.11.1 shows an upward trend in economic growth (RGDP) with periodic swings between 1970 and 2007. The period 1980 to 1990 witnessed a slowdown in the growth rate due to the economic recession that occurred in this period. There was also a slight decline in the growth rate between 1981 and 1983 as a result of the economic recession in the 1980s. Fig. 3.11.2 shows sharp swings in inflation trend over the period 1970 to 2007 which peaked in 1994. Fig. 3.11.3 shows an upward trend in exchange rate between 1970 and 2004, followed by a gradual decline from 2004 to 2007. Fig. 3.11.4 also shows swings in interest rate trend between 1970 and 2007 with periodic decline in some years (1976, 1979, 1984, 1986, 1989, 1991, 1999, 2002, and 2004) over the study period.

**Fig. 3.11.1 Trends in Economic Growth (RGDP)**



**Fig. 3.11.2. Trends in Inflation rate**

****

**Fig. 3.11.3. Trends in Exchange rate**

****

**Fig. 3.11.4. Trends in Interest rate**

****

**Table 3.11.1 Correlation Matrix of Decentralization Indicators**

|  |  |  |
| --- | --- | --- |
|  | Revenue | Expenditure |
| Revenue | 1.000000 |  |
| Expenditure | 0.991154 | 1.000000 |

**Table 3.11.2 Correlation Matrix of Macroeconomic Variables**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | RGDP | Inflation rate | Exchange rate | Interest rate |
| RGDP | 1.000000 |  |  |  |
| Inflation rate | -0.094122 | 1.000000 |  |  |
| Exchange rate | -0.526601 | -0.257687 | 1.000000 |  |
| Interest rate | 0.410587 | 0.297774 | -0.906349 | 1.000000 |

Table 3.11.1 and Table 3.11.2 above report the pairwise correlation among the two indicators and the four macroeconomic variables. ‘Revenue’ and ‘Expenditure’ are highly correlated, and so is economic growth (RGDP) and interest rate (INT).

CHAPTER FOUR

THEORETICAL FRAMEWORK AND METHODOLOGY

**4.0 Introduction**

This section develops the theoretical framework to provide a foundation and the direction for this study. This section also provides a platform to add to the body of knowledge in this study area through the use of existing theories to extend the frontiers of the theoretical knowledge. The objective in this section therefore is to theorize and develop models to fulfill the objectives of this study.

**4.1 Theoretical Framework**

There are several economic and political arguments 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. Thus, in discussing issues of fiscal federalism and macroeconomic performance generally, the roles of the various levels of government and their partnership arrangements with society, in respect of the management of the economy, are usually the focus of attention. This partnership is implicitly understood to exist with a view to creating responsible governments that work and serve their people. More specifically, it assumes the formulation of effective macroeconomic policies by government to provide a stable and an enabling environment for unhindered economic activities. It is reflected in the provision of growth-oriented structural policies (including trade, tax, sector policies, and an effective regulatory mechanism) which impact positively on incentives for private investment and production, as well as the provision of complementary services to private sector initiatives. Good macroeconomic performance also involves the development of virile market institutions, the rule of law, a minimal level of corruption, social mobilization and effective participation by society.

The initial theory of fiscal federalism (Samuelson 1954, 1955; Musgrave 1959; Arrow 1970) provided the framework for what became accepted as the proper role of the state in the economy. On the basis of the components of the broad trilogy of ‘a government contract with the citizens’, the consensus in the literature is that while the lower levels of government are assigned the allocative function, the functions of redistribution and stabilization are more appropriately assigned to the national government. Stabilization policies are considered inappropriate for lower levels of government because the management of such functions as the debt burden at the state level, for instance, would entail higher local cost than at the federal level, while the benefits of stabilization measures in one state might spill over to other states in the federation. Debts incurred at the state level can create inflationary pressures and pose a threat to price stability nationally. Moreover, the stability of the national currency requires the centralization of both monetary and fiscal policies, while cyclical shocks tend to be national in outlook, requiring a national response. Consequently, macroeconomic stabilization policies are, rightly, the function of national governments (Musgrave, 1983; Oates, 1972).

Though the views canvassed above have been challenged by many writers in the literature (Scott, 1964; Dafflon, 1977; Walsh, 1992) on the basis of both theoretical and empirical evidence, they nevertheless continue to command a considerable following. One implication of all this is that decentralization of the public sector can pose significant risks and aggravate macroeconomic problems (Aigbokhan, 1999; Tella, 1999; Ige, 2006; Feltenstein and Iwata, 2005).

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 would shift tax revenues from the central government to subnational governments. Subnational 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 subnational 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).

**4.1.1 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 study. 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). The flexibility introduced by policy variables has made the model popular in the analysis of macroeconomic performance of nations especially developing countries (Aigbokhan, 1999).

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, KP , KG ) -------------------------------------------------------------------------------------(1)

where the subscripts denote sectoral inputs:

KP = private capital per labor

KG = public capital per labor

The production functions of the respective sectors are thus:

YP = P(LP, KP, G) ------------------------------------------------------------------------------------(2)

YG = G(LG, KG ) --------------------------------------------------------------------------------------(3)

Total inputs are given as:

LT = LP + LG -------------------------------------------------------------------------------------------(4)

KT = KP + KG ------------------------------------------------------------------------------------------(5)

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

Y = YP + YG, or ---------------------------------------------------------------------------------------(6)

Y = P(LP, KP, G) + G(LG, KG), or -------------------------------------------------------------------(7a)

Y = f(LT, KT, GT)-------------------------------------------------------------------------------------(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 = a0 +LT + KT + GT + µ ----------------------------------------------------------------------------(8)

The study assumes that the size of government tends to influence growth rate (Aigbokhan, 1996) and that fiscal decentralization tends to reduce the size of government (Ehdaie, 1994; Aigbokhan, 1999). Drawing on the foregoing evidence, the study postulates fiscal decentralization has an impact on economic growth. Theoretically, fiscal decentralization is expected to foster growth through allocative efficiency and efficiency of service delivery However there is no consensus in the empirical literature on the direction of impact. A strand of the empirical literature reveals that increased decentralization tends to impact negatively on growth (Zhang and Zou, 1996; Davoodi and Zou 1997; Aigbokhan, 1999). Another strand of the empirical literature reveals that decentralization has a positive impact on economic growth (Chete 1998; Feltenstein and Iwata 2005; Fukasaku and de Mello 1998). Thus, the impact of fiscal decentralization on growth is an empirical issue.

The nature of intergovernmental fiscal arrangement or fiscal federalism is therefore expected to influence output of G (Aigbokhan, 1999). By introducing fiscal decentralization (FDC) as a policy variable into the model on the basis of equation (8)

Gt = f(FDC) ------------------------------------------------------------------------------------(9)

Equation (7b); Y= f(Lt, Kt, Gt) becomes

Y = f(Lt, Kt, FDCt) ----------------------------------------------------------------------------(10)

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

Y = f(Lt, Kt, MSt, FDCt )---------------------------------------------------------------------(11)

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

Y = 0 + 1Lt + 2Kt + 3MSt + 4FDCt + t ------------------------------------(12a)

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

yt = α1yt-1+ α2yt-2+…+ αjyt-j + µt -------------------------------------------------------------(12b)

**4.1.2 Fiscal Federalism and Inflation rate**

According to the Monetarist School of thought, inflation (INF) is a monetary phenomenon. There is evidence to suggest that monetary expansion will lead to increased inflation (Feltenstein and Iwata, 2005).

Thus:

INF = f(MS) ------------------------------------------------------------------------------------(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). Drawing on the foregoing evidence, the study postulates that labour and capital have an impact on price level (inflation). In fact there is evidence to suggest that factor productivity tends to impact positively on price level (inflation rate). Equation (13) becomes:

INF = f(MSt ,Lt , Kt) ----------------------------------------------------------------------------(14)

There are links between 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(MSt , Lt , Kt , FDCt) --------------------------------------------------------------------(15)

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

INF = 0 + 1MSt + 2Lt + 3Kt + 4FDCt + t --------------------------------------(16a)

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

INFt = β1INFt-1+β2INFt-2+…+βjINFt-j+ µt -----------------------------------------------------(16b)

**4.1.3 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) --------------------------------------------------------------------------------(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, that is increase in decentralization would reduce the size of government (Aigbokhan, 1999; Ehdaie, 1994; Chete, 1998). Theoretically, fiscal decentralization may have a negative impact on exchange rate if there is lack of fiscal discipline at subnational levels of government. By introducing fiscal decentralization (FDC) as a policy variable into the model, equation (17) becomes,

EXC = f(INFt , MSt , Gt), or -------------------------------------------------------------------(18)

EXC = f(INFt , MSt , FDCt) -------------------------------------------------------------------(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 = 0 + 1INFt + 2MSt + 3FDCt +t --------------------------------------------- (20a)

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

EXCt = δ1EXCt-1+δ2EXCt-2+…+δjEXCt-j+ µt ------------------------------------------------ (20b)

**4.1.4 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) -------------------------------------------------------------------------------- (21)

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

INT = f (MSt , TDSt , INFt) ------------------------------------------------------------------------(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 subnational 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(MSt ,TDSt , INFt , Gt), or --------------------------------------------------------------(23)

INT = f(MSt , TDSt , INFt , FDCt) ---------------------------------------------------------------(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 = 0 +1MSt +2TDSt +3INFt +4FDCt +t --------------------------------------(25a)

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

INTt = λ1INTt-1+ λ2INTt-2+…+ λjINTt-j+ µt -----------------------------------------------------(25b)

**4.2 Model Specification**

The empirical models of this study are derived from the theoretical framework discussed in section 4.1. 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 is done using a Vector Autoregressive technique in an attempt to provide empirical evidence on the impact of fiscal federalism on macroeconomic performance. The models are presented below.

**4.2.1 Model 1: The Growth-Decentralization Model**

The tests are based on the regressions

Δyt=α0+α1yt-1+jΔyt-j+2ΔLt-j+3ΔKt-j+4ΔMSt-j+5ΔFDC1t-j

+ µt -----------------------------------------------------------------------------------------(26)

Δyt=β0+β1yt-1+jΔyt-j+2ΔLt-j+3ΔKt-j+4ΔMSt-j+5ΔFDC2t-j

+ µt ----------------------------------------------------------------------------------------(27)

Δyt =δ0+δ1yt-1+jΔyt-j+2ΔLt-j+3ΔKt-j+4ΔMSt-j+5ΔFDC3t-j

+ µt ---------------------------------------------------------------------------------------(28)

Δyt =λ0 + λ1yt-1 + jΔyt-j +2 ΔLt-j+3ΔKt-j+4ΔMSt-j+5ΔFDC1t-j

+ 6ΔFDC2t-j + µt ---------------------------------------------------------------(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.

**4.2.2 Model 2: The Inflation rate-Decentralization Model**

The tests are based on the regressions

Δyt=α0+α1yt-1+jΔyt-j+2ΔMSt-j+3ΔLt-j+4ΔKt-j+5ΔFDC1t-j

+µt -------------------------------------------------------------------------------------------------------------------------(30)

Δyt=β0+β1yt-1+jΔyt-j+2ΔMSt-j+3ΔLt-j+4ΔKt-j+5ΔFDC2t-j

+ µt -------------------------------------------------------------------------------------------(31)

Δyt=δ0+δ1yt-1+jΔyt-j+2ΔMSt-j+3ΔLt-j+4ΔKt-j+5ΔFDC3t

+ µt --------------------------------------------------------------------------------------------(32)

Δyt =λ0+λ1yt-1+jΔyt-j+2ΔMSt-j+3ΔKt-j+4ΔFDC1t-j+5ΔFDC2t-j

+ µt ------------------------------------------------------------------------------------------(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.

**4.2.3 Model 3: The Exchange rate-Decentralization Model**

The tests are based on the regressions;

Δyt = α0+α1yt-1+jΔyt-j +2ΔINFt-j+3ΔMSt-j+4ΔFDC1t-j +µt-----(34)

Δyt = β0+β1yt-1+jΔyt-j+2ΔINFt-j+3ΔMSt-j+4ΔFDC2t-j+µt--------(35)

Δyt = δ0+δ1yt-1+jΔyt-j+2 ΔINFt-j+3ΔMSt-j+4ΔFDC3t-j + µt -------(36)

Δyt=λ0+λ1yt-1+jΔyt-j+2ΔINFt-j+3ΔMSt-j+4ΔFDC1t-j+5ΔFDC2t-1

+ µt ------------------------------------------------------------------------------------------------(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.

**4.2.4 Model 4: The Interest rate-Decentralization Model**

The tests are based on the regressions;

Δyt =α0+α1yt-1+jΔyt-j+2ΔMSt-j+3ΔTDSt-j+4ΔFDC1t-j+5ΔINFt-j

+ µt -------------------------------------------------------------------------------------------(38)

Δyt =β0+β1yt-1+jΔyt-j+2ΔMSt-j+3ΔTDSt-j+4ΔFDC2t-j+5ΔINFt-j

+ µt --------------------------------------------------------------------------------------------(39)

Δyt =δ0+δ1yt-1+jΔyt-j+2ΔMSt-j+3ΔTDSt-j+4ΔFDC3t-j+5ΔINFt-j

+ µt -------------------------------------------------------------------------------------------(40)

Δyt =λ0+λ1yt-1+jΔyt-j+2ΔMSt-j+3ΔTDSt-j+4ΔFDC1t-j+5ΔFDC2t-j

+ µt -------------------------------------------------------------------------------------------(41)

Δyt = ή0+ή1yt-1+jΔyt-j+2ΔMSt-j+ΔFDC1t-j+4ΔFDC2t-j+5ΔINFt-j

+ ήt ------------------------------------------------------------------------------------------(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.

**4.3 Model Estimation Technique**

All the models are estimated using the Vector Autoregressive (VAR) technique with lagged decentralization variables. The statistical software used is E-views, version 5.1.

The VAR’s advantage is that it permits one to summarize the information content of the data in a multiple time series as a set of empirical stylized facts. The choice of VAR method is informed largely by its apparent simplicity and by being relatively user friendly. The strength of VAR method rests on the following three tenets;

* There is no a priori endogenous-exogenous dichotomy in the system.
* There are no zero-type restrictions.
* There is no strict underlying economic theory on which the model is based.

The last tenet is the reason behind the naming of the VAR approach to modeling as atheoretical econometrics.[[9]](#footnote-10) Also VAR models have proven successful for forecasting systems of interrelated time-series variables. One of the major attractions of forecasting with VAR models that do not include exogenous variables as opposed to structural econometric models (SEMs) is that there is no need to forecast the exogenous variables as a prelude to obtaining forecasts of the variable(s) of interest (Watson and Teelucksingh, undated).

**4.3.1 TEST FOR STATIONARITY**

The characteristic of the time series data used for estimating the models is examined in order to avoid spurious results from the regression of two or more non-stationary series. Dickey and Fuller (1981) refer to regression results from non-stationary data as examples of “nonsense” or “spurious” regression, because inferences from such results can be misleading.

To test for stationarity, there are a number of statistics. However, there are three methods that are commonly used. These are the Dickey-Fuller (DF) test, the Augmented Dickey-Fuller (ADF) test, and the Sargan-Bhargavan Durbin-Watson (SBDW) test. The ADF is used in view of the drawback of the DF test which assumes that the data generating process (DGP) is an AR (1) process. If this is the case, then the existence autocorrelation in the error term of the equation will lead to a bias in the test. Thus, in the effort to overcome this problem, the ADF test is usually carried out.

The tests for stationarity are based on the regression:

yt = 0 + 1Yt-1 + 1 Yt- k + t

Where;

k = length of lag on the dependent variable necessary to make , white noise

 = white-noise process

For the regression equation, the following holds:

1. The null hypothesis is that 1 = 1, i.e., the variable Y1 has unit root or is non stationary
2. The alternate hypothesis is 1 = 0; i.e., the variable is stationary or integrated of the order 0 -1(0).

iii. A large negative value for the coefficient, 1, leads to the rejection of the null

hypothesis.

iv. A fortiori, the rejection or acceptance of the null hypothesis is done on the basis of

the value of the test statistic given the sign in (iii). The test statistic is the

convenional t-test on 1 (i.e., the coefficient of Yt-1). The computed t-statistic (t) is

compared with the critical values of (tc) given the size of the sample. If t is greater

than tc the null hypothesis is rejected.

To conduct the DF and ADF tests, the sample size for the time series must lie between 25 and . The ADF test was carried out on the levels of the variables, and their differences to test for stationarity.

**4.4 Definition of Variables and Data Sources**

The summary of definition of variables employed in the study and data sources are presented in the Table 4.4.1

**Table 4.4.1 Summary of Definition of Variables and Data Sources**

|  |  |  |
| --- | --- | --- |
| Variable | Definition | Source of Data |
| Fiscal decentralization measure of revenue decentralization (FDC1) | Subnational own-source (internally generated) revenue as a ratio of total central (federal) revenue. Reflects the decentralization of taxing power | CBN Statistical Bulletin (2008) |
| Fiscal decentralization measure of expenditure decentralization (FDC2) | Subnational expenditure as a ratio of total federal expenditure. Reflects the decentralization of spending power | CBN Statistical Bulletin (2008) |
| Fiscal decentralization measure of simultaneous decentralization of taxing and spending powers FDC3 | Subnational own-source (internally generated) revenue as a ratio of total federal expenditure. Capture the simultaneous decentralization of both powers. | CBN Statistical Bulletin (2008) |
| 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 (M1) 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 (M3). | 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 (2008) |

CHAPTER FIVE

DISCUSSION OF EMPIRICAL RESULTS

**5.0 Introduction**

This chapter presents four sets of empirical results. These results are the outcome of the estimation exercises involving models (1), (2), (3), and (4) using the vector autoregressive (VAR) technique. The first set of results is on the fiscal decentralization-growth nexus, and it involves measuring the impact of fiscal decentralization and other control variables on economic growth in Nigeria. The second set of results is on the fiscal decentralization-inflation nexus, and it involves measuring the impact of fiscal decentralization and other control variables on inflation rate in Nigeria. The third set of results is on the fiscal decentralization-exchange rate nexus, and it involves measuring the impact of fiscal decentralization and other control variables on exchange rate in Nigeria. Finally, the fourth set of results is on fiscal decentralization-interest rate nexus, and it involves measuring the impact of fiscal decentralization and other control variables on interest rate in Nigeria. The study used E-views version 5.1 statistical software to analyze the data.

There is a consensus that “an operational measure of decentralization is the share of decentralized expenditures and revenues of state and local governments in the nation’s total fiscal activities” (Ubogu, 1982). Zhang and Zou (1996) measure it as the ratio of total subnational spending to total central spending, while Ehdaie(1994) measures it as the ratio of total subnational governments own-source revenues over total national(federal plus subnational) expenditures. This study employs three measures of fiscal decentralization, subnational fiscal autonomy or revenue measure (FDC1), subnational spending share or expenditure measure (FDC2), and subnational dependency or simultaneity measure (FDC3) to determine the extent, and the impact of fiscal decentralization on macroeconomic performance in Nigeria over the study period 1970 to 2007. 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. Failure to recognize such simultaneity, Ehdaie (1994) argues, is a major weakness in the empirical literature. This chapter also dealt with the implications of findings for policy.

**5.1 Unit Root Test Results**

The ADF test was carried out on the levels of the variables, and their differences to test for stationarity. Appendices 1-4 report the Augmented Dickey-Fuller test results for real gross domestic product, inflation rate, exchange rate and interest rate series. 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 drift.[[10]](#footnote-11)

The study reports the results in Table 5.1.1. The results indicate that 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 5.1.1: SUMMARY OF UNIT ROOT TEST RESULT-ADF STATISTICS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **VARIABLE** | **LEVEL** | **1ST**  **DIFFERENCE** | **ORDER OF INTEGRATION** | **REMARKS** |
| RGDP | 4.923014\* | 4.014679\* | 1(0) | Stationary |
| INF | -3.055182 | -5.675155\* | 1(1) | Stationary |
| EXC | -1.238711 | -5.429593\* | 1(1) | Stationary |
| INT | -1.764596 | -7.703650\* | 1(1) | Stationary |
| MS | 10.76779\* | 7.046647\* | 1(0) | Stationary |
| TDS | 5.724093\* | 7.339196\* | 1(0) | Stationary |
| GEXP | 4.844063\* | 4.730658\* | 1(0) | Stationary |
| L | 10.63940\* | -9.424986\* | 1(0) | Stationary |
| K | 0.282254 | -4.809467\* | 1(1) | Stationary |
| RGDP  Mackinnon | 2.545625  -3.653730 (1%) | -3.707946\*  -3.661661 (1%)  -2.954021 (5%) | 1(1) | Stationary |

NOTE: \* and \*\* indicate significant at 1%, and 5%, probability levels respectively

**5.2. Presentation of Estimated Empirical Results**

The models estimated here have been augmented by a Vector Autoregressive (VAR) representation. The VAR estimated results presented in appendices 1 through 21 are reported in Table 5.5.1 to Table 5.5.4. The values of the Akaike Information Criterion (AIC) for each basic series are similar for all VAR estimates. There is no single model that is especially unfavourable from this criterion. 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 subnational dependency (FDC3) reflects simultaneity in decentralization of taxing and spending powers.

**5.2.1 Presentation of Estimated Empirical Results in the Growth-Decentralization Model**

VAR estimation results for equations 26-29 in Growth model 1 are presented in appendices 5 to 8, and are reported in Table 5.2.1 below. In Growth-Decentralization (model 1) the first difference of real GDP is taken as a proxy for economic growth. This model examines the impact of fiscal decentralization on economic growth. The independent variables are reasonably good proxies for theoretical decision variables. In order to analyze the effects of different measures of decentralization on economic growth in Nigeria three measures of fiscal decentralization (FDC1, FDC2, and FDC3) are included in the models.

Table 5.2.1: Estimated Empirical Results in the Growth-Decentralization Model (Model 1)

|  |
| --- |
| Dependent Variable RGDP |
| Regressors (1) (2) (3) (4) |
| RGDP (-1) 0.7701\*\* 0.8089\*\* 0.8400\*\* 1.0110\*\*  (3.7329) (3.8440) (3.7483) (4.8254)  RGDP (-2) -0.4072\* -0.7333\*\* -0.8232\*\* 0.1376  (1.5129) (2.6351) (2.8675) (0.4895)  L (-1) 165471.7 229046.0 96694.09 101897.6  (0.423) (0.5311) (0.2299) (0.1989)  L (-2) -151819.6 -223248.4 -62764.81 -87077.77  (0.3752) (0.5023) (0.1456) (0.16497)  K (-1) 18.6095\* 6.8446 7.4491 27.6477\*\*  (2.087) (0.6784) (0.8471) (2.4368)  K (-2) -10.4923\* 1.4831 -6.1919 -20.7774\*  (1.5922) (0.1388) (0.7624) (1.8503)  MS (-1) 0.5522 0.9712 0.1394 -  (0.3254) (0.4759) (0.0681) -  MS (-2) 2.9234\* 3.9626\* 5.2414 -  (1.6262) (1.4383) (1.7841) -  FDC1 (-1) 40688.04\* - - 825899\*  (-2.0246) - - (0.3671)  FDC1 (-2) 3875692\*\* - - 5646184\*\*  (2.3169) - - (2.4467)  FDC2 (-1) - 21111\*\* - 1132124\*  (-1.2947) - (0.6551)  FDC2 (-2) - 604800.9\* - 57294.69\*  - (0.4183) - (0.0344)  FDC3 (-1) - - 274597\*\* -  - - (1.4684) -  FDC3 (-2) - - 622822.9\* -  - - (0.3104) -  Constant -1653045 -1504829 -451440.5 -2596465  (2.1204) (0.1345) (0.5929) (2.2043) |
| Observations 35 35 35 35  Adj. R2  0.99 0.98 0.98 0.98  F 227.6 196.2 202.5 138.2  Log likelihood -480.5806 -483.0732 -482.5407 -488.9481  Akaike AIC 28.9165 29.0631 29.0318 29.4087 |
| ***Notes*** Figures in parentheses are standard errors  \*5% level of significance  \*\*1% level of significance |

The relationship between fiscal decentralization and economic growth is analyzed using the three decentralization measures. Of more interest to this study, is the coefficient for decentralization measures. The three measures of decentralization, revenue measure (FDC1), expenditure measure (FDC2), and simultaneity measure (FDC3) are found to be positive and highly significant at one per cent and five per cent in most cases for RGDP growth equations in columns 1 to 4 of Table 5.2.1. This validates the mainstream theoretical insight behind fiscal decentralization; increase in the efficiency of service delivery, in allocative efficiency, and in accountability and expenditure management is expected to promote growth (Chete 1998; Brueckner 2005; Oates 1993). Also the positive sign of decentralization coefficient supports fiscal decentralization theorem: Subnational governments allocate resources better than any other level of government. In the Table the coefficients of revenue measure and expenditure measure show a consistent positive sign when the two decentralization measures are included as reported in the fourth column in Table 5.2.1.

This finding also agrees with findings in similar studies on 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 this study and that of Aigbokhan (1999) could be due to difference in study period. Aigbokhan study covered the period 1976 to 1997, during which Nigeria’s external debt grew rapidly, and the economy slided into deep recession from early 1980s into mid 1990s, and this development consequently impacted negatively on the economy, and slowed down economic growth. This study which covers the period 1970 to 2007 is relatively longer, and has witnessed improved oil revenue and stronger external reserve balance which have impacted positively on the economy.

These models 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. This result is not surprising since labour supply is in relative abundance in Nigeria. 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.

**5.2.2 Presentation of Estimated Empirical Results in the Inflation rate-Decentralization Model**

VAR estimation results for equations 30-33 in inflation rate-decentralization (model 2) are presented in appendices 9 to 12, and are reported in Table 5.2.2. All estimates in this case are robust to heteroskedasticity or autocorrelation. 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). This model examines the effect of fiscal decentralization on inflation rate. The independent variables are reasonably good proxies for theoretical decision variables. In order to analyze the effects of different measures of decentralization on inflation rate in Nigeria three measures of fiscal decentralization, revenue measure, expenditure measure, and simultaneity measure are included in the models.

Table 5.2.2 Estimated Empirical Results in the Inflation rate-Decentralization Model (Model 2)

|  |
| --- |
| Dependent Variable INF |
| Regressors 1 2 3 4 |
| INF (-1) 0.6796\*\* 0.6715\*\* 0.5771\*\* 0.6762\*\*  (3.5657) (3.5444) (3.0686) (3.3645)  INF (-2) -0.2746\* -0.2739\* -0.1878 -0.2349\*  (1.3314) (1.5755) (0.9767) (1.5315)  MS (-1) 1.15E-05 -8.45E-06 1.96E-05 2.05E-05  (0.1982) (0.1376) (0.3537) (0.3183)  MS (-2) -3.46E-05 -9.78E-06 -6.29E-05 -2.89E-05  (0.5035) (0.1351) (0.9398) (0.3651)  L (-1) -19.9264\* -21.4844 -18.4123\* -  (1.5565) (1.5389)\* (1.5466) -  L (-2) 21.4089\* 23.0321\* 19.4088 -  (1.5213) (1.501) (1.3907) -  K (-1) 0.000208 0.000149 0.000256 9.55E-05  (0.6385) (0.4402) (0.9808) (0.2828)  K (-2) 6.88E-05 8.39E-05 0.000185 0.000159  (0.2272) (0.2364) (0.6848) (0.4599)  FDC1 (-1) 22.8518 - - 47.0271  (0.386) - - (0.7121)  FDC1 (-2) -5.4201 - - 21.6765  (0.0956) - - (0.3329)  FDC2 (-1) - 26.2764 - -21.4813  - (0.4884) - (0.3858)  FDC2 (-2) - 25.7434 - -36.6842  - (0.5373) - (0.6968)  FDC3 (-1) - - 100.6981 -  - - (1.7867) -  FDC3 (-2) - - 32.7185 -  - - 0.5534) -  Constant -31.2991 -26.3529 -49.2568 6.3733  (1.1171) (0.6998) (2.1058) (0.2712) |
| Observations 35 35 35 35  Adj. R2  0.27 0.27 0.37 0.18  F 2.20 2.24 2.92 1.73  Log likelihood -133.2211 -133.0698 -130.7022 -135.1087  Akaike AIC 8.4836 8.4747 8.3354 8.5946 |
| ***Notes*** Figures in parentheses are standard errors  \*5% level of significance  \*\*1% level of significance  The relationship between fiscal decentralization and inflation rate is analyzed using the three decentralization measures. Of more interest to this study, is the coefficient for decentralization measures. The three measures of decentralization, revenue measure, expenditure measure, and simultaneity measure are found to be positively related to inflation rate but insignificant at one per cent and five per cent level |

The coefficients of the lagged values of the revenue measure 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 those of Feltenstein and Iwata (2005), and Boadway (1990) who found that fiscal decentralization has adverse implication for the rate of inflation.

Also in Table 5.2.2 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. The study on the basis of this finding therefore concludes that fiscal decentralization have adverse implications for the rate of inflation, and this may be due to inadequacies in the financial system. Feltenstein and Iwata (2005) support this view in their study on China.

These models include three control variables, money supply (MS), labour (L), and capital (K), and they conform to a priori expectations. 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.

On the basis of estimation results of inflation models the null hypothesis that fiscal decentralization does not significantly influence inflation rate is accepted.

**5.2.3 Presentation of Estimated Empirical Results in the Exchange rate-Decentralization Model**

VAR estimation results for equations 34-37 in exchange rate-decentralization (model 3) are presented in appendices 13 to 16, and are reported in Table 5.2.3. All estimates in this case are robust to heteroskedasticity or autocorrelation. This model examines the effect of fiscal decentralization on exchange rate. The independent variables are reasonably good proxies for theoretical decision variables. In order to analyze the effects of fiscal decentralization on exchange rate in Nigeria three measures of fiscal decentralization, revenue measure, expenditure measure, and simultaneity measure are included in the model.

Table 5.2.3 Estimated Empirical Results in the Exchange rate-Decentralization Model(Model 3)

|  |
| --- |
| Dependent Variable EXC |
| Regressors 1 2 3 4 |
| EXC (-1) 1.4763\*\* 1.5304\*\* 1.4199\* 1.3916\*  (9.1511) (9.9854) (9.3599) (8.0944)  EXC (-2) -0.5408 \*\* -0.6273\*\* -0.5422\* -0.5327\*\*  (3.067) (3.9057) (3.4386) (3.1711)  INF (-1) 0.1366\* 0.0743 0.179\*\* 0.0735  (1.1376) (0.6093) (1.5691) (0.6159)  INF (-2) -0.2799\* -0.2061\* -0.2834\*\* -0.2335\*  (2.3844) (1.7858) (2.5096) (2.0567)  MS (-1) -1.76E-05 -4.48E-05 -2.25E-05 -4.42E-05\*  (0.5622) (1.3546) (0.7394) (1.5623)  MS (-2) 2.17E-05 4.73E-05 3.84E-05 4.61E-05  (0.6015) (1.2432) (1.0771) (1.2373)  FDC1 (-1) -31.1456 - - -60.1609  (0.9086) - - (1.269)  FDC1 (-2) -33.151 - - -19.1866  (0.9835) - - (0.5225)  FDC2 (-1) - -52.1984 - -68.3894  - (1.7844) - (2.2157)  FDC2 (-2) - -41.3127 - -20.0752  - (1.3852) - (0.5843)  FDC3 (-1) - - -41.172 -  - - (1.2629) -  FDC3 (-2) - - -60.0664\* -  - - (1.7698) -  Constant 19.1213 4.6509 28.2624 12.238  (1.9719) (0.5237) (2.8487) (1.2433) |
|  |
| Observations 35 35 35 35  Adj. R2  0.27 0.27 0.37 0.18  F 2.20 2.24 2.92 1.73  Log likelihood -133.2211 -133.0698 -130.7022 -135.1087  Akaike AIC 8.4836 8.4747 8.3354 8.5946 |
| ***Notes*** Figures in parentheses are standard errors  \*5% level of significance  \*\*1% level of significance |

The relationship between fiscal decentralization and exchange rate is analyzed using the three decentralization measures. Of more interest to this study is the behavior of the coefficient of decentralization measures. 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.

A number of factors are responsible for the observed negative impact of decentralization on exchange rate. One is the quality of local bureaucracies. Central or federal bureaucracies attract more qualified manpower as they offer better careers and remunerations. The scarcity of local high skilled manpower may, thus, constrain the positive effects of decentralization. This also explains the weakness in public expenditure and management systems. Budget offices lack facilities and skilled manpower that is capable of forecasting expected revenue and spending as well as budgetary classifications which allow the controlling authorities to determine whether fund is actually being spent as budgeted or not.

This model includes 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.

On the basis of estimation results of exchange rate models the null hypothesis that fiscal decentralization does not significantly influence the exchange rate is accepted.

**5.2.4 Presentation of the Estimated Empirical Results in the Interest rate-Decentralization Model**

VAR estimation results for equations 38-42 in interest rate-decentralization model 4 are presented in appendices 17 to 21, and are reported in Table 5.5.4. All estimates in this case are robust to heteroskedasticity or autocorrelation. The relationship between fiscal decentralization and interest rate is analyzed using the three measures of decentralization, revenue measure (FDC1), expenditure measure (FDC2), and simultaneity measure (FDC3). This model examines the effect of fiscal decentralization on interest rate. The independent variables are reasonably good proxies for theoretical decision variables.

Table 5.2.4 Estimated Empirical Results in the Interest rate-Decentralization Model(Model 4)

|  |
| --- |
| Dependent Variable INT |
| Regressors 1 2 3 4 5 |
| INT (-1) 0.5368\*\* 0.5393\* 0.5947\*\* 0.5368\*\* 0.4928\*\*  (3.1658) (3.3939) (3.9) (2.9818) (2.79)  INT (-2) 0.4796\*\* 0.3787\* 0.4039\* 0.2948\* 0.3629\*  (2.6256) (2.2416) (2.2893) (1.6992) (1.9909)  MS (-1) -8.89E-05\* -7.63E-05\* -7.41E-05\* -6.33E-05\* -2.31E-05\*  (3.0159) (2.7702) (2.6491) (1.7879) (1.8686)  MS (-2) -1.06E-05 -2.12E-06 -8.59E-06 4.10E-07 2.68E-05\*  (0.5366) (0.1129) (0.4627) (0.0183) (1.8993)  TDS (-1) 2.09E-05 6.44E-06 1.71E-05 2.90E-05 -  (0.4356) (0.1356) (0.3575) (0.5578) -  TDS (-2) 0.000298\* 0.000254\* 0.000247\* 0.000174\* -  (2.6997) (2.7309) (2.5416) (1.5835) -  INF (-1) -0.0111 0.00642 -0.0119 - 0.0223  (0.2778) (0.1597) (0.2994) - (0.5409)  INF (-2) -0.1051\* -0.1086\*\* -0.1011\*\* - -0.0927\*  (2.5643) (2.7252) (2.516) - (2.2313)  FDC1 (-1) -7.9162 - - 13.3879 19.1162  (0.5778) - - (0.8438) (1.2127)  FDC1 (-2) 10.4237 - - 19.9577 15.5187  (0.8787) - - (1.439) (1.1644)  FDC2 (-1) - -4.7222 - 4.0569 -8.7451  - (0.4966) - (0.3909) (0.8394)  FDC2 (-2) - -8.2498 - -16.9075\* -17.0259  - (0.8968) - 1.5382) (1.2816)  FDC3 (-1) - - 8.3724 - -  - - (0.705) - -  FDC3 (-2) - - 13.3373 - -  - - (1.0849) - -  Constant 1.9202 7.9702 1.7967 1.8675 5.9146  (0.5337) (1.8278) (0.7329) (0.8521) (1.2521) |
| Observations 35 35 35 35 35  Adj. R2  0.81 0.82 0.81 0.78 0.80  F 15 15.9 15.4 13.9 14.5  Log likelihood -79.4106 -78.55 -79.0384 -82.6323 -79.9464  Akaike AIC 5.3182 5.2677 5.2964 5.4489 5.3498 |
| ***Notes*** Figures in parentheses are standard errors  \*5% level of significance  \*\*1% level of significance  The relationship between fiscal decentralization and inflation is analyzed by using the three decentralization measures. Of more interest to this study, is the coefficient for decentralization measures. 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 5.2.4. 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 5.5.4 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 column 4 and 5 of Table 5.5.4. 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.

**5.3 Response of Macroeconomic Variables to Fiscal Decentralization Shocks**

Using the Cholesky two-standard-error shock, this section examines the response of macroeconomic variables to fiscal decentralization shocks when some perturbations occur in the economy. The essence of this is to find out the impact of unanticipated shocks in fiscal decentralization measures on macroeconomic performance. This analysis is very important particularly in a developing country like Nigeria where government fiscal operations have strong impact on macroeconomic stability.

The graphs of a Cholesky two-standard-error shock show the actual impulse response functions for each of the endogenous variables given that, each asymptotically deviated from the normal path. Figures (5.3.1, 5.3.2, 5.3.3, 5.3.4) present the dynamic responses of growth, inflation, exchange rate, and interest rate to a Cholesky two-standard-error shock of decentralization. The effect on growth, inflation, exchange rate as well as interest rate is found to be persistent a defined period.

**5.3.1 Growth (RGDP) Responses to Fiscal Decentralization Shocks**

Figure (5.3.1) presents the dynamic responses of growth to a two-standard-error shock of decentralization. The effect on growth is found to be persistent. The impact on growth is significantly positive over a period of up to 7 years after the shock. A positive decentralization shock caused growth to increase over time. On impact the effect was delayed one lag period but gradually became asymptotic to the steady state over the time horizon. Expenditure measure of decentralization (FDC2) has a profound impact on growth. This is expected because government expenditure being a component of national income has a direct influence on growth (GDP). The lesser impact of revenue measure of decentralization (FDC1) relatively to the expenditure measure of decentralization (FDC2) shows that revenue decentralization not accompanied by prudent and productive application of such revenue at all levels of government will not have a significant impact on growth. The simultaneity measure of decentralization (FDC3) has the least impact on growth. This reflects the weak revenue generation ability of local and state government which is the reason for their heavy dependence on revenue from the federation account.

Fig. 5.3.1

**5.3.2 Inflation rate Responses to Fiscal Decentralization Shocks**

Figure (5.3.2) presents the dynamic responses of inflation to a two-standard-error shock of decentralization. The effect on inflation is found to be persistent. The impact of on inflation is significantly positive over a period of 2-3 years after the shock. A positive decentralization shock caused inflation to increase over time. On impact the effect is delayed for some years but gradually became asymptotic to the steady state over the time horizon. Expenditure measure of decentralization (FDC2) has the most profound impact on inflation followed by simultaneity measure (FDC3), while revenue measure (FDC1) has the least impact. The stable rate of inflation over a period of seven years despite the perturbation could be attributed to a prudent and productive use of government revenue particularly if such revenue is used in providing the critical basic infrastructures that promote business and manufacturing activities. This is because unproductive use of government revenue promotes inflation while productive use of government revenue suppresses inflation.

Fig. 5.3.2 

**5.3.3 Exchange rate Responses to Fiscal Decentralization Shocks**

Figure (5.3.3) presents the dynamic responses of exchange rate to a two-standard-error shock to decentralization. The effect on exchange rate is found to be persistent. The impact on exchange rate is significantly positive over a period of up to 2 year. A positive decentralization shock caused exchange rate to increase over time. On impact the effect was delayed for some years but gradually became asymptotic to the steady state over the time horizon. Simultaneity measure of decentralization (FDC3) has the most profound impact on exchange rate followed by expenditure measure (FDC2), while the revenue measure of decentralization (FDC1) has the least impact.



Fig. 5.3.3 Exchange rate response to decentralization shocks

**5.3.4 Interest rate Responses to Fiscal Decentralization Shocks**

Figure (5.3.4) presents the dynamic responses of interest rate to a two-standard-error shock to decentralization. The effect on interest rate is found to be persistent. The impact on interest rate is significantly positive over a period of up to 2 years. A positive decentralization shock caused interest rate to increase over time. On impact the effect was delayed for some years but gradually became asymptotic to the steady state over the time horizon. Simultaneity measure of decentralization (FDC3) has the most profound impact on interest rate while the magnitude of the impact is the same for revenue measure (FDC1), and expenditure measures (FDC2) of decentralization.



Fig. 5.3.4 Interest rate response to decentralization shocks

**5.4 Variance Decomposition of the Macroeconomic Variables**

Figures (5.4.1, 5.4.2, 5.4.3, 5.4.4) present the variance decomposition of each macroeconomic variable. The impact of each structural shock on all the macroeconomic variables are determined and evaluated using the variance decomposition technique. The variance decomposition shows the percentage of error variance in one variable due to one standard deviation shock of the variable itself and other variables in the system. The variance decomposition decomposes variations in an endogenous variable due to each structural shock in the model or system. The results of variance decomposition assist in determining the relative importance of the various variables in explaining the variations in the variable being considered. In other words the computation of variance decomposition assists in gauging the importance of individual shocks.

**5.4.1 Variance Decomposition of Growth (RGDP)**

Figure (5.4.1) presents the variance decomposition of GDP. The variation in GDP due to the decentralization shocks is highest for expenditure measure (FDC2) of decentralization followed by revenue measure of decentralization (FDC1), while the simultaneity measure (FDC3) of decentralization is the least. Thus expenditure shock explains much of the variations in growth. Expenditure shock explains about 20 percent of total variation in growth while revenue and simultaneity shocks only explain 8 percent and 1 percent respectively. The implication of this is that since expenditure shocks has the highest impact on growth, sudden changes in subnational expenditure as a ratio of total federal expenditure will have far profound impact on growth. The policy implication of this is that there is a strong linkage between government expenditure and growth. This finding reinforces the need for fiscal discipline and productive use of government financial resources particularly in the provision of the socio and economic infrastructures to provide a conducive economic environment for private businesses to flourish and thrive. The days of frugal spending on the part of government should therefore become a thing of the past. This result confirms the age old Keynesian doctrine that fiscal policy (that is government spending) is very potent in stimulating productivity and economic growth particularly during period of economic depression.



Fig. (5.4.1) Variance decomposition of RGDP

**5.4.2 Variance Decomposition of Inflation rate**

Figure (5.4.2) presents the variance decomposition of inflation. The variation in inflation due to the decentralization shocks is the same for the three measures of decentralization and is less than one percent. Thus decentralization shocks do not explain much of the variation in inflation rate. This result further confirms the earlier finding in this study that the impact of fiscal decentralization on inflation is insignificant. The policy implication of this is that since decentralization shocks will not have any significant impact on inflation rate government should give priority to fiscal policy in managing the challenges of macroeconomic instability and volatility. This finding supports the Keynesian belief that fiscal policy (that is government spending) is more effective than monetary policy in managing inflation particularly during periods of economic depression.



Fig. (5.4.2) Variance decomposition of inflation rate

**5.4.3 Variance Decomposition of Exchange rate**

Figure (5.4.3) presents the variance decomposition of exchange rate. The result is similar to that of inflation. The variation in exchange rate due to the decentralization shocks is the same for the three measures of decentralization and is less than one percent. Thus decentralization shocks do not explain much of the variation in exchange rate. The implication of this is that decentralization shocks will not have any significant impact on exchange rate.



Fig. (5.4.3) Variance decomposition of Exchange rate

**5.4.4 Variance Decomposition of Interest rate**

Figure (5.4.4) presents the variance decomposition of interest rate. The result is similar to that of inflation rate and exchange rate. The variation in interest rate due to the decentralization shocks is the same for the three measures of decentralization and is less than one percent. Thus decentralization shocks do not explain much of the variation in interest rate. The implication of this is that decentralization shocks will not have any significant impact on interest rate.



Fig. (5.4.4) Variance decomposition of Interest rate

**5.5 Summary of the Results of Econometric Investigation**

Our econometric investigation offers evidence that there is, indeed, a connection between fiscal federalism and macroeconomic performance in Nigeria over the study the study period. This conforms to a strand of the literature that established linkages between fiscal decentralization, efficiency, and macroeconomic performance (Tiebout, 1956; Huther and Shah, 1998; Stigler, 1957; Oates and Schwab, 1999; Aigbokhan, 1999).

With respect to the relationship between fiscal decentralization and economic growth in Nigeria the empirical results from this study reveal that fiscal decentralization stimulates economic growth over the study period. Decentralization has a significant positive impact on economic growth in Nigeria suggesting that decentralization is good for growth. The revenue measure (FDC1) and the expenditure measure (FDC2) of decentralization are positively related to economic growth and significant. This tends to agree with those of (Kim, 1995; Lin and Liu, 2000; Akai and Sakata, 2002; Stansel, 2006; Iimi, 2005) that found a significant positive relationship between decentralization and economic growth. However this result contradicts the prior empirical studies that found a negative relationship between fiscal decentralization and economic growth (Prud’homme, 1995; Tanzi, 1995; Aigbokhan, 1999; Wildasin, 2007). The experience of many developing countries suggests that subnational governments are likely to contribute to the aggravation of macroeconomic problems. This is particularly so in countries where expenditure assignment is not matched with taxing assignment. In such situations, subnational governments tend to accumulated debt (Aigbokhan, 1999). The strong correlation between fiscal decentralization and economic growth measured by real gross domestic product supports the view that institutional change toward more decentralization would promote competition at subnational levels, and this will ultimately engender economic growth in the long run. On the basis of this finding in this study the null hypothesis that fiscal decentralization does not significantly influence economic growth in Nigeria is therefore rejected.

With respect to the relationship between fiscal decentralization and inflation rate in Nigeria the empirical results from this study reveal that there is an insignificant positive relationship between decentralization and inflation rate over the study period. Decentralization has an insignificant negative impact on inflation rate in Nigeria over the study period suggesting that decentralization is bad for development. The study reveals a positive correlation between the three measures of decentralization, revenue measure (FDC1), expenditure measure (FDC2), and simultaneity measure (FDC3), and inflation rate suggesting that decentralization is bad for price stability in Nigeria although the negative impact is not significant. The positive correlation between fiscal decentralization and inflation rate in Nigeria over the study period leads the study conclude that fiscal decentralization may lead to inflation rate instability. On the basis of the finding of this study the null hypothesis that fiscal decentralization does not significantly influence inflation rate in Nigeria is therefore accepted.

With respect to the relationship between fiscal decentralization and exchange rate in Nigeria the empirical results from this study reveal that there is an insignificant positive relationship between fiscal decentralization and exchange rate over the study period. Decentralization has an insignificant negative impact on exchange rate in Nigeria over the study period suggesting that decentralization is bad for development. The study reveals a positive correlation between the three measures of fiscal decentralization, revenue measure, expenditure measure, and simultaneity measure, and exchange rate suggesting that decentralization is bad for exchange rate stability in Nigeria over the study period although the negative impact is not significant. The positive correlation between fiscal decentralization and exchange rate leads the study to conclude that fiscal decentralization may lead to exchange rate instability. The empirical literature search did not reveal any previous study on fiscal decentralization and exchange rate to which the finding of this study could be linked. On the basis of the finding of this study, the null hypothesis that fiscal decentralization does not significantly influence exchange rate in Nigeria is therefore accepted.

With respect to the relationship between fiscal decentralization and interest rate in Nigeria the empirical results from this study reveal that there is an insignificant positive relationship between fiscal decentralization and interest rate over the study period. Decentralization has an insignificant negative impact on interest rate in Nigeria over the study period suggesting that decentralization is bad for development. The study reveals a positive correlation between the three measures of fiscal decentralization, revenue measure, expenditure measure, and simultaneity measure, and interest rate suggesting that fiscal decentralization is bad for interest stability in Nigeria over the study period although the negative impact is not significant. The positive correlation between fiscal decentralization and interest rate leads the study to conclude that fiscal decentralization may lead to interest rate instability. On the basis of the finding of this study the null hypothesis that fiscal decentralization does not significantly influence interest rate in Nigeria is therefore accepted.

The study also found evidence of the impact of decentralization shocks on macroeconomic performance in Nigeria. The results obtained from the VAR based approach show that the variation in economic growth due to decentralization shock is highest for expenditure decentralization followed by revenue decentralization, while the simultaneity measure of decentralization (FDC3) has the smallest impact. Expenditure shocks explain much of the variations in economic growth. The finding here is in agreement with prior empirical studies (Feltenstein and Iwata, 2005; Brandt and Zhu, 2006). The impact on growth is significantly positive over a period of up to ten years. On the contrary the VAR results show that the effect of decentralization shocks on inflation rate, exchange rate, and interest rate is not significant. This finding contradicts that of Feltenstein and Iwata (2005) that the effect of decentralization shock on inflation is significant over a period of up to 6 years.

**5.6 Policy Implications of Findings**

The empirical findings in this thesis provide basis for a number of policy issues. First, the study has shown that Nigeria progressed from a unitary state to a federal one accompanied by decentralization of governance, limited degree fiscal decentralization, and changes in fiscal structure. The federal government has occupied a very strong position vis-à-vis the state and local governments since the 1970s in Nigeria. This is because most of the powers (financial and legislative) relating to economic management and development has been explicitly centralized at the federal level. This fiscal dominance by the federal government requires appropriate policy to correct this anomaly. The federal state relationship should essentially be one of cooperation and partnership rather than one of command by the federal government and obedience by the subnational governments.

The principles and practice of fiscal federalism in Nigeria has been inhibited by a number of factors which include the dominance of the federal government in the sharing of national financial resources from the Federation Account, the imposition of the command structure of the military on fiscal federalism, the pattern of assignment of responsibilities by the constitution among the federating units, and over-reliance on the revenue from the Federation Account, is another area requiring policy attention. There is the need for appropriate balance in the use of revenue allocation to correct the imbalance between responsibilities and revenue powers at the lower levels of government. Since military incursion into governance between 1966 and 1999 inhibited the true practice of fiscal federalism in Nigeria all the stakeholders in the Nigerian project must work together to prevent the military from truncating the current democratic arrangement. Also government must redress the prevailing mismatch in spending and taxing responsibilities by raising the level of taxing assignment of subnational governments. The current procedure of intergovernmental transfers does not make for effective planning and delivery of services by subnational government and this makes them less able to contribute effectively to growth-enhancing activities. If the twin benefits of slimmer public sector and allocative efficiency derivable from fiscal decentralization are to be realized, the existing structure should be urgently reformed.

The three indicators of fiscal decentralization (subnational share of total government spending, subnational fiscal autonomy, and subnational fiscal dependency) reveal a high degree of centralization of expenditures and revenue which suggests limited decentralization in Nigeria. Policy measures must be put in place to correct this fiscal anomaly to ensure the financial autonomy of subnational governments in resolving the problem of fiscal federalism in Nigeria. Central to the success of fiscal decentralization is clarity in revenue and expenditure authority and responsibilities to the various levels of government

Given the significant positive correlation between fiscal decentralization and economic growth, devolution of appropriate taxing powers and matching expenditure responsibilities to subnational governments must officially be recognized as a major driver of economic growth in Nigeria and in other developing and transition economies. Appropriate policies must therefore be put in place to promote fiscal decentralization as an economic philosophy in government fiscal operations. This could be achieved by enacting policies that encourage lower level governments to expand their expenditure jurisdictions. The practice of allocating revenues must, however not compromise or penalize local revenue mobilization effort. In this regard, state and local tax administration should be improved, unproductive local taxes eliminated, and untapped tax potentials identified.

The empirical results from this study reveal that there is an insignificant positive correlation between fiscal decentralization and the other three indicators of macroeconomic performance: inflation rate, interest rate, and exchange rate. On the basis of this finding the study concludes that decentralization is bad for development in Nigeria. This conclusion is supported by the experience of many developing countries which suggests that subnational governments are likely to contribute to the aggravation of macroeconomic problems, or make it difficult to correct such problems. This is particularly so in countries where expenditure assignment is not matched with taxing assignment. In such situations subnational governments tend to accumulate debt.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

**6.1 Summary**

The issue of fiscal federalism, which is the primary focus of this thesis, has for quite some time engaged the attention of scholars and policy makers in contemporary Nigeria. There are several economic and political arguments 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. In all countries, taxing powers and expenditure responsibilities are necessarily divided to some extent between the central and subnational governments. Allocation of taxing powers and expenditure responsibilities influences not only delivery of services but also their financing that in turn determines macroeconomic performance of countries. There is hitherto no consensus in the literature on the effects of fiscal decentralization on macroeconomic performance in developed, developing, and transition economies. This study sheds new light on this topical and contemporary issue in the field of Economics by examining the economics of the nature and practice of the country’s federal structure using the macroeconomic approach.

The thesis is a time series country study and the data cover the period 1970 to 2007. The study examines three vital aspects of the research problem. These include fiscal federalism challenges-macroeconomic performance nexus in Nigeria, issues promoting or inhibiting the principles and practice of fiscal federalism in Nigeria, and the extent of fiscal decentralization in Nigeria. The overall goal is to analyze the empirical effects of fiscal decentralization on some selected indicators of macroeconomic performance: economic growth, inflation rate, interest rate, and exchange in Nigeria. The Vector Autoregressive (VAR) estimator with lagged decentralization variables was engaged in the study and it uses the E-views, version 5.1 to provide empirical insight into the issue. The VAR’s advantage is that it permits the summary of the information content of the data in a multiple time series as a set of empirical stylized facts.

The empirical findings are novel, 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. This finding conforms to a strand of the literature that establishes links between fiscal decentralization, public sector efficiency and macroeconomic stability (Tiebout, 1956; Hunter and Shah, 1998; Stigler, 1957; Oates and Schwah, 1999; Aighokhan, 1999). The study results revealed that;

* Nigeria progressed from a unitary government to a federal one accompanied by decentralization of governance, limited fiscal decentralization, and changes in fiscal arrangements. This finding suggests that though Nigeria had been operating a federal constitution since 1946 till date Nigeria has not operated as a true federation as responsibilities have been concentrated at the federal level.
* The principles and practice of fiscal federalism in Nigeria has been inhibited by a number of factors which include the dominance of the federal government in the sharing of national financial resources from the Federation Account, the imposition of the command structure of the military on fiscal federalism, the pattern of assignment of responsibilities by the constitution among the federating units, and over-reliance on the revenue from the Federation Account over the study period. By implication this finding suggests that the principles and practice of fiscal federalism in Nigeria should of necessity be guided by the theory of fiscal federalism, and the theory of public goods.
* There is limited degree of fiscal decentralization in Nigeria as fiscal responsibility and taxing powers still remain considerably centralized over the study period. By implication the federal government has for more than five decades assumed certain responsibilities which rightly belonged to the lower tiers of government, and in the process had compromised efficiency in expenditure management.
* Fiscal decentralization has a significant positive impact on economic growth in Nigeria over the study period. Two of the indicators of fiscal decentralization-subnational fiscal autonomy (revenue measure) and subnational spending share (expenditure share) reveal a positive correlation between fiscal decentralization, and economic growth. By implication this validates the mainstream theoretical insight behind fiscal decentralization; increase in the efficiency of service delivery, in allocative efficiency, and in accountability and expenditure management is expected to promote growth. Curiously, subnational dependency (simultaneity measure) is negatively correlated with growth. By implication, this finding suggests that this could occur when tax instruments that are best used by the central government are assigned to subnational governments, thereby reducing the efficiency of such instruments.
* Fiscal decentralization has an insignificant negative impact on inflation rate in Nigeria over the study period. The three measures of fiscal decentralization- subnational fiscal autonomy (revenue measure), subnational spending share (expenditure measure), and subnational dependency (simultaneity measure) reveal a positive correlation with inflation rate over the study period. By implication fiscal decentralization is bad for price stability in Nigeria.
* Fiscal decentralization has an insignificant negative impact on exchange rate in Nigeria over the study period. The three measures of fiscal decentralization- subnational fiscal autonomy (revenue measure), subnational spending share (expenditure measure), and subnational dependency (simultaneity measure) reveal a positive correlation with exchange rate over the study period. By implication fiscal decentralization is bad for exchange rate stability in Nigeria.
* Fiscal decentralization has an insignificant negative impact on interest rate in Nigeria over the study period. The three measures of fiscal decentralization- subnational fiscal autonomy (revenue measure), subnational spending share (expenditure measure), and subnational dependency (simultaneity measure) reveal a positive correlation with interest rate over the study period. By implication fiscal decentralization is bad for interest rate stability in Nigeria.
* The impact of fiscal decentralization on the macroeconomy in Nigeria is mixed. The study therefore concludes that fiscal decentralization is good for growth but bad for development in Nigeria.

The policy options for government to guarantee a stable fiscal federalism are clearly articulated on the basis of each of the above empirical findings. Hopefully the implementation of these policy options would go a long way in addressing the challenges of fiscal federalism practice that have contributed to macroeconomic instability in Nigeria since the attainment of independence in 1960.

**6.2 Conclusion**

The question of whether fiscal federalism 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 in investigating the research problem has proved quite intuitive, robust, and immensely suitable. The empirical study threw more light on fiscal decentralization- macroeconomic performance nexus needed in the formulation of fiscal decentralization policies in Nigeria, and also provide the basis on which the policies can be evaluated.

The results of this study highlighted clearly the impact of fiscal decentralization on macroeconomic performance in Nigeria which is found to be mixed, and the policy options available to the Nigerian government. The study suggests that faster economic growth may constitute an additional benefit of fiscal decentralization beyond those already well recognized. The study also shows that the practice of fiscal federalism in Nigeria has been inhibited by a number of factors, chief of which is long years of military 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. Subnational 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.

Our leaders should draw lessons from the breakup of Czechoslovakia, Yugoslavia, and the dissolution of the Soviet Union, which represent cases where fiscal decentralization has occurred in an extreme form, that is, through the demise of the central government.

**6.3 Recommendations**

Fiscal decentralization has been an important subject in the policy equation of many developed, LDCs and transition countries. Over the years governments in developing and transition countries have introduced a number of policy measures to decentralize fiscal operations in order to maximize provision of public sector services as well as promote macroeconomic stability. Given this understanding and on the basis of findings in this study, the following recommendations are proffered;

* The need to reverse the age long fiscal dominance by the federal government in order to re-establish a true federal system is strongly recommended. To this end all the stakeholders in the Nigerian project must work together to ensure that each tier of government is coordinate and independent in the delimited sphere of authority in line with the practice in true federations.
* The need for an efficient formula between the centre and other tiers of government is recommended. This formula should also satisfy the broad objectives of inter-regional equity and balanced national development. To this end the present vertical revenue allocation formula should be reviewed by the federal government to increase the percentage to lower governments in Nigeria to strengthen their fiscal capacity and enable them play strong role in nation building.
* Strengthening democratic governance in Nigeria in order to build a political culture that will make military rule impossible is strongly recommended. The lessons of the immediate past should be sufficient to guide the country as it progresses in the current democratic arrangement
* Urgent reform in fiscal federalism in Nigeria to address the constitutional issue of fiscal powers among the three tiers of government to redress the prevailing fiscal mismatch at subnational levels of government is strongly recommended. This policy in line with the principles of fiscal federalism should as a matter of urgency increase tax assignment to lower tiers of governments to enhance their access to buoyant revenue sources, and this should be accompanied with matching expenditure responsibilities. The concurrent legislative list that has turned out to be a scheme for usurping local functions by the federal government should be scrapped as this is the basis used to justify federal control of the buoyant revenue sources, and frequent intergovernmental transfers.
* The need to diversify and strengthen the fiscal base of subnational governments is recommended. To this end, local tax administration should be improved, unproductive local taxes eliminated, and untapped tax potentials identified.
* The need to reduce the necessity for frequent intergovernmental transfers that causes disruption in the fiscal system is strongly recommended. This practice engenders a dependency of the lower tiers on the central government. If revenue at subnational levels is boosted through increased tax assignment, and efficient local tax administration, the necessity for transfers would be reduced.
* The need to promote fiscal discipline at all levels of government to sustain macroeconomic stability is strongly recommended. The policy should compulsorily place effective limits on governments’ deficits at all levels, consistent with the objective of macroeconomic stability to ensure sustainable national development.

**6.4 Contribution to Knowledge**

The thesis is concerned with the issue of fiscal decentralization and effects on macroeconomic performance. Unlike studies that are based on one or two macroeconomic variables, the thesis is more comprehensive in its scope.

This study in the field of Economics makes significant theoretical and empirical contributions in the area of public finance. It filled a gap in the theory on public finance in the area of unresolved macroeconomic impact of fiscal federalism, and unresolved non-correspondence issues which have inhibited the true practice of fiscal federalism in Nigeria since the attainment of independence on 1st October, 1960.

The study provides policy-makers a foundation for sequencing the reforms of government in developing countries to provide an effective way of reducing the overall size of government as well as promoting macroeconomic stability, if properly structured.

The formalized theory and the models generated in the study, provide applied economists with a meaningful specification for estimating the impact of fiscal decentralization on macroeconomic performance.

The study has contributed to the empirical literature by providing empirical evidence that fiscal federalism is good for growth but bad for development in Nigeria.

The findings established an empirical basis for government to re-energize the reform of the existing economic structure as a key strategy for Nigeria to realize the vision 20:20:20.

Finally this study also provides useful information on how to address and resolve the problem of vertical imbalance and horizontal imbalance which suggest limited fiscal decentralization in Nigeria.

**6.5 Limitations of the Study**

A major problem that is often associated with studies like this is the accuracy of data available on economic variables. Another is the issue of secondary data being filled with estimation errors. In addition, there are often discrepancies in the data presented by various organizations such as the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), International Financial Statistics (IFS), International Monetary Fund (IMF), and the World Bank. Thus if there are errors in composition of data and its consequent effects on estimation results, this cast doubt on the validity and reliability of the econometric results generated in this study. But this is a common problem faced by studies which make use of secondary data. The study however tried to minimize these discrepancies in the data from various sources. So, the estimation results and findings in this dissertation are correct and reliable to the extent that the data used are presumed accurate from the various secondary sources they were generated from.

Another major limitation was the inability of the researcher to acquire and master in time relevant econometric software and other related manuals for data analysis which hampered the timely completion of this study.

**6.6 Suggestions for Future Researches**

While it is encouraging that the results of this study match recent empirical findings showing a connection between fiscal decentralization and macroeconomic performance in Nigeria, additional theoretical work exploring other possible sources of such a link is clearly needed. The present results emerge from a model based on very minimal assumptions, but exploration of richer models may also be fruitful. Such models could be used to examine, the impact of transmission channels of fiscal federalism, in particular of tax competition, on the innovation of firms in the different states and local governments needs to be analyzed to obtain more insights in the working of fiscal federalism in Nigeria. Finally, other aspects of fiscal federalism such as the convergence and structural perspectives of long-run growth possibilities should be explored in future works.

REFERENCES

Abed, G.T. and H. Davoodi (2000), Corruption, Structural Reforms and Economic Performance in

the Transition Economies . International Monetary Fund Working Paper.

Affonso, Rui de Britto Alvares (2001), Decentralization and Reform of the State: The Brazilian

Federation at the Crossroads : In Bird and Stauffer (eds).

Afolabi, L (1999), Monetary Economics. Ibadan: Intec Printers Limited, 357-62.

Agarwal, R. (2004), China: Reforming Intergovernmental Fiscal Relations, World Bank Discussion

Paper No. 178.

Agiobenebo, T. J. (1999), Assignment, Criteria and the Fiscal Constitution: An Excursion into a

Theory of Rational Fiscal Federalism. In: Fiscal Federalism and Nigeria’s Economic

Development, Proceedings of the 1999 Annual Conference of the Nigerian Economic Society,

25-51.

Ahmad, E and E. Mottu (2003), Petroleum Assignments: Country Experiences and Issues: Revenue

from the Petroleum and the Gas Sector: Issues and Country Experience : In J.M. Davis, R.

Ossowski and A. Fedelino (eds), Fiscal Policy Formulation and Implementation in Petroleum

Producing Countries, Washington, DC: International Monetary Fund, 216-51.

Aigbokhan, B.E. (1996), Government Size and Economic Growth: The Nigerian Experience

Proceedings of the Annual Conference of the Nigerian Economic Society, 505-523.

Aigbokhan, B.E. (1999), Fiscal Federalism and Economic Growth in Nigeria. In: Fiscal Federalism

and Nigeria’s Economic development. Proceedings of the Annual Conference of the Nigerian

Economic Society, 333-352.

Akai, N. and M. Sakata (2002), Fiscal Decentralization Contributes to Economic Growth: Evidence

from State-Level Cross Section data for the United States, Journal of Urban Economics, 52,

93-108.

Akpan, G.E. (1999), Fiscal Potentials and Dependence in Nigeria. In: Fiscal Federalism and

Nigeria’s Economic Development. Proceedings of the 1999 Annual Conference of the

Nigerian Economic Society, 73-100.

Alesina, A., Arnaud, D., William, E., Sergio, K. and R. Wacziarg (2002),‘Fractionalization’, NBER

Working Paper 9411, December, Cambridge, M.A.

Alesina, A. and E. Spoalore (1997), On the Number and Size of Nations, Quarterly Journal of

Economics, 112, 1027-1056.

Alade et al. (2003), Fiscal Federalism and Macroeconomic Governance. In: Cotemporary

Economic Policy Issues in Nigeria. In: Nnanna, O.J., Alade, S.O., and F.O. Odoko, eds.

Central Bank of Nigeria, 13-54.

Amuwo, K. (1998), Federal Systems: A Theoretical Perspective. In: Re-Inventing Federalism in

Nigeria: Issues and Perspectives, Babawale, T. K. O. and F. Adewunmi (eds). Friedrich Ebert

Foundation, 14 – 56.

Anyanwu, J.C. (1995), Nigerian Fiscal Federalism: Concepts Issues and Problems, Paper Presented

at the National Workshop on Additional Sources of Revenue for Federal State and Local

Governments Organized by NCEMA, Ibadan, May 7-19, 1995.

Anyanwu, J.C. (1997), Nigerian Public Finance: JOANEE Press, Onitsha.

Anyanwu, J. C (1999), Fiscal Relations among the various Tiers of Government in Nigeria . In:

Fiscal Federalism and Nigeria’s Economic Development, Ibadan Nigeria. The Nigerian

Economic Society, 119-114.

Arikan, G. (2004), Fiscal Decentralization: A Remedy for Corruption? International Tax and

Public Finance, 11, 175-95.

Ariyo, A. (1993), An Assessment of the Sustainability of Nigeria’s Fiscal Deficit: 1970-1990,

Journal of African Economics, 2, 263-282.

Artis, M. (2006), Alternative Transitions to EMU, Economic Journal, 106, 1005-1015.

Asobie, H.A. (1998), Centralizing Trends in Nigerian Federalism. In: Re-Inventing Federalism in

Nigeria: Issues and Perspectives. Babawale, T. K. and F. Adewunmi, eds. Friedrich Ebert

Foundation, 14-56.

Austin, D.A. (2006), The Price of Nationalism: Evidence from the Soviet Union, Public Choice, 87,

1-18.

Avelar, L. (1999), Citizenship and Social Diversity: The Aspect of Regional Diversity Background

Paper for Forum of Federation, International Conference on Federalism Ottawa.

Babangida, I. B. (1994), Federalism and nation-Building in Nigeria: The Challenges of the

Twenty-First Century . The Nigerian Journal of Federalism, 1 (1), 5-11.

Bahl, R.W. and C. Wallich (2008), Intergovernmental Fiscal Relations in China. Policy Research

Working Paper, WPS. 863, The World Bank.

Bahl, R.W. and J. Linn (1994), Fiscal Decentralization and Intergovernmental Transfers in Less

Developed Countries, The Journal of Federation, 24 (1), 1-19.

Bahl, R.W. and S. Nath (1986), Public Expenditure Decentralization in Developing Countries,

Environment and Planning Journal, 4 (4), 405-18.

Barro, R. (1990), Government Spending in a Simple Model of Endogenous Growth, Journal of

Political Economy, 98, S103-S125.

Besley, T. and S. Coate. (2003),Centralized versus Decentralized provision of Local Public Goods:

A political Economy Approach. Journal of Public Economics, 87, 2611-2637.

Bird, R.M. and T. Stauffer. (2001), Intergovernmental Fiscal Relations, In Fragmente

Societies, Fribourg: Institut du Federalisme.

Bird, R.M. (2003), Taxation in Latin America: Reflections on Sustainability and the Balance

Between Efficiency and Equity . ITP Paper 0306, International Tax Program, Rotman School

of Management, University of Toronto, June.

Bird, R. M., Ebel, R. D. and C. I. Wallich (2005), Fiscal Decentralization: From Command to

Market. In: Decentralization of the Socialist State: Intergovernmental Finance in Transition

Economies, Bird, R.M., Ebel, R.D. and C.I. Wallich, eds. Washington, DC: The World Bank

Boadway, R. W. (1979), Public Sector Economics: Winthrop Publishers. Inc., Cambridge.

Boadway, R. W. (1992), The Constitutional Division of Powers: An Economic Perspective:

Ottawa Economic Council of Canada.

Boadway, R.W. and P. A. R. Hobson (2009), Intergovernmental Fiscal Relations in Canada.

Toronto: Canadian Tax Foundation.

Boadway, R., Roberts, S. and A. Shah. (1994), Fiscal Federalism Dimensions of Tax Reform in

Developing Countries. Policy Research Working Paper 1385 (November), The World Bank.

Boadway, R.W. (1992), The Constitutional Division of Powers: An Economic Perspective:Ottawa,

Ottawa Economic Council of Canada.

Bonfirm, A. and A. Shah (2007), Macroeconomic Management and the Division of Powers in Brazil

Perspectives for the Nineties. World Bank Policy Research and External Affairs Working

Paper 567, January.

Brandt, L. and X. Zhu (2000), Redistribution in a Decentralized Economy: Growth and Inflation in

China under Reform, Journal of Political Economy, 108, 422-439.

Brennan, G. and J. M. Buchanan. (1980), The Power to Tax: Analytical Foundations of a Fiscal

Constitution. Cambridge. UK: Cambridge University Press.

Brosio, G. (2006), The Assignment of Revenue from Natural Resources. In Handbook of Fiscal

Federalism. Ahmad, E. and G. Brosio, (eds). Edward Elgar Publishing, Inc.

Bruecker, J. K. (1999), Fiscal Federalism and Capital Accumulation. Journal of Public Economic

Theory, 1, 205-224.

Bruecker, J.K. (2005), ‘Fiscal Federalism and Growth’, Unpublished Paper, Department of

Economics, University of California, Irvine, CA.

Brueckner, J.K. (2004), Fiscal Decentralization and Economic Growth: A Cross-Country Study.

Journal of Urban Economics, 43, 244-257.

Buchanan, J. M. (1960), Fiscal Theory and Political Economy. Chapel Hill, North Carolina:

University of North Carolina Press.

Central Bank of Nigeria, Annual Report and Statement of Accounts (various issues) Abuja. CBN.

Central Bank of Nigeria Statistical Bulletin (various issues) Abuja, CBN.

Commonwealth Grants Commission, (2001), The Relativities: What Assessment is important?

Discussion Paper CGC. 2001/13.

C.G.C., Publications cited on the web at, [www.cgc.gov.au](http://www.cgc.gov.au).

Chete, L.N. (1998), Fiscal Decentralization and Macroeconomic Management, 6, (1), 91-114.

Cremer, H., Fourgeaud, M. L. M., Merchand, M. and P. Pestieau (1995), Mobility and

Redistribution: A Survey, (Unpublished).

Dafflon, B. (1977), Federal Governance Theory and Practice with Special Reference to

Switzerland, Bein: Verlag Paul Haupt.

Danjuma, T. Y. (1994), Revenue sharing and the Political Economy of Nigeria Federalism In:

Federalism and Nation-Building in Nigeria. Elaigwu, J. I., Logams, P.C., and H.S. Galadima,

eds, 87-115.

Davoodi, H. and H. Zou (1997), Fiscal Decentralization and Budget Size: A Cross-Country Study,

Journal of Urban Economics, 42, 112-126.

Davoodi, H. and H. Zou (1998), Fiscal Decentralization and Economic Growth: A Cross- Country

Study . Journal of Urban Economics, 43, 244-257.

De Mello, L. and M. Barenstein (2001), Fiscal Decentralization and Governance- Cross- Country

Analysis. IMF Working Paper 01/71.

Dickey, D.A and N.A. Fuller (1981), Likelihood Ratio Statistics for Autoregression Time Series

With a Unit Root. Econometrica, 50

Ebel, R.D. and S. Yilmaz. (2003), On the Measurement and Impact of Fiscal Decentralization. In:

Public Finance in Developing and Transitional Countries: Essays of Richard Bird.

Cheltenham: Edward, E., Martinez-Vasquez, J. and J. Alm, eds. 1-26.

Eberts, R.W. and T.J. Gronberg (2006). Can Competition among Local Governments Constraint

Government Spending . Economic Review: Federal Reserve Bank of Cleveland, 24 (1)

2-9

Egwaikhide, F. O., Chete, L. N. and G. O. Falokun.1(994), Exchange Rate Depreciation, Budget

Deficit and Inflation- The Nigerian Experience. AERC Research Paper, No. 26, November,

Nairobi.

Ehdaie, J. (1994), Fiscal Decentralization and the Size of Government: An Extension with

Evidence from Cross-Country Data . Policy Research Working Paper 1387, December,The

World Ban k.

Ehwarieme, W. (1999), The Military Oil and Development: The Political Economy of Fiscal

Federalism in Nigeria. A Paper Presented at the Annual Conference of the Nigerian

Economic Society, 53-72.

Eichengreen, B. and J. V. Hagen. (1996), Fiscal Restrictions and Monetary Union: Rationales,

Repercussions, Reforms. Empirica, 23, 3-23.

Ekpo, A. H. (1994), Fiscal Federalism: Nigeria’s Post-Independence Experience, 1960-1990. World

Development, 22 (8).

Ekpo, A. H. (1994), Fiscal Decentralization and the Size of Government: An Extension with

Evidence from Cross-Country Data. Policy Research Working Paper 1387, World Bank,

December.

Ekpo, A. H. and J. E. Ndebbio. (1998), Local Government Fiscal Operations in Nigeria, AERC

Research Paper 73, AERC Nairobi, Kenya.

Ekpo, A.H. (1999), Fiscal Federalism and Local Government Finances in Nigeria. Paper Presented

At the 1999 Annual Conference of the Nigerian Economic Society, 239-251.

Elaigwu, J. I. (1994), Towards a more Harmonious Federation: Welcome Address. In: Federalism

and Nation Building in Nigeria. Elaigwu, J. I., Logams, P. C., and H.S. Galadima, eds, 1-4.

Elazar, D.J. (1957), Exploring Federalism’, Tuscaloosa, AL: University of Alabama Press. Federal

Ministry of Finance., 2004. Draft Fiscal Responsibility Bill.

Feld, L. P., Kirchgasser, G. and C. A. Schaltegger. (2003), Decentralized Taxation and the size of

Government: Evidence from Swiss State and Local Governments. CESifo Working Paper

1078.

Feltenstein, A. and S. Iwata. (2005), Decentralization and Macroeconomic Performance in China:

Regional Autonomy has its Costs . Journal of Development Economics, 76, 481-501.

Fisman, Raymond and Roberta Gatti (2002), Decentralization and Corruption: Evidence Across

Countries. Journal of Public Economics, 83, 325-45.

France St- Hilaire. (2007), Fiscal Gaps and Imbalances: The New Fundamentals of Canadian

Federalism. The Institute of Intergovernmental Relations, Queens University Montreal.

Fukasaku, K. and de Mello (1998), Fiscal Decentralization and Macroeconomic Stability: The

Experience of Large Developing and transition Economies. In: Democracy Decentralization

And Deficits in Latin America, OECD. Fukasaku, K. and R. Hausman, (eds).

Gboyega, A. (1994), The Place of Traditional Rulers in the Commune and the Centralized State. In:

Autonomy of Communes in Africa and Germany Speaking Countries in Europe. Oyediran,

O., ed. Ibadan: Vantage Publishers, 20-30.

Goldberger, A. (2006), Maximum-Likelihood Estimation of Regressions Containing Unobservable

Independent Variables. International Economic Review, 13.

Gordon, J.A. (1983), Taxation and Mobile Factors in a Federal System. Public Choice, 57, 28-41.

Grossman . J. (1989), Fiscal Decentralization and Government Size: An Extension Public

Choice, 62, 63-69.

Grossman, P. J. and E. G. West. (1994), Federalism and the Growth of Government Revisited.

Public Choice, 79, 19-32.

Gupta, Sanjeev; Hamid Davoodi and Erwin Tiongson (2000), Corruption and the Provision of

Health Care and Education Services. International Monetary Fund Working Paper 00/116.

Gupta, Sanjeev; Hamid Davoodi and Rosa Alosno-Terme (1998), Does Corruption Affect Income

Inequality and Poverty? International Monetary Fund, Working Paper 98/76

Gurgur, Tugrul and Anwar Shah (2002), Localization and Corruption: Panacea or Pandora’s

Box? In E.Ahmad and V. Tanzi (eds), Managing Fiscal Decentralization, London and New

York: Routledge, 46-67.

Herber, B. P. (1979), Modern Public Finance, Richard D. Irwin, Inc., Homewood.

Hines, J. and R. Thaler. (1995), The Flypaper Effect, Journal of Economic Perspectives, 9, 217-

226.

Hu, Shizhang. (1994), Economic Reform, Open Door and the Rise of Provincial Power. Journal of

Third World Studies, 11 (1), Spring, 14-43.

Hunter, J. S. H. (1977), Federalism and Fiscal Balance. Canberra: Australia National University.

Huther, J. and A. Shah. (1998), Applying a Simple Measure of Good Governance to the Debate on

Fiscal Decentralization . Policy Research Working Paper No. 1894, World Bank.

Ige, C.S. (1982), Notes on the Empirical test of the Asymptotic Property of Theil’s Minimum

Residual Variance Criterion using Two-Stage Least Square (2SLS) . Nigerian Journal of

Economic and Social Studies. 25, 141-153.

Ige, C. S. (2006), Macroeconomics of Commercial Banks Re-Capitalization in Nigeria . Covenant

Journal of Business and Social Sciences, 1 (1), December, 5-19.

Iimi, A. (2005), Decentralization and Economic Growth revisited: An Empirical note. Journal of

Urban Economics, 57, 449-461.

Ike, D.N. (1981), Towards an Optimal Formula for Revenue Allocation in Nigeria. The Nigerian

Journal of Development Studies, 1 (2), 104-109.

Ikein, A. and C. Briggs-Anigboh. (1998), Oil and Fiscal Federalism in Nigeria, Aldershot: Ashgate.

Inman, R., (Forthcoming), Local Fiscal Discipline in U.S. Federalism. In: Decentralization

and the Challenge of Hard Budget Constraints. Jonathan, R., Jennie, L. and G. Eskeland (eds)

Cambridge: MIT Press.

Jin, H., Qian, Y. and B. R. Weingast. (1999), Regional Decentralization and Fiscal Incentives:

Federalism, Chinese Style. Stockholm: Nobel Symposium in Economics, September.

Joulfaian, d. and L. M. Marlow. (1990), Government Size and Decentralization: Evidence from

Disaggregated Data. Southern Economic Journal, 56 (4).

Kee, W. S. (1977), Fiscal Decentralization and Economic Development, Public Finance Journal,

5 (1), 79-97.

Kwon, O. (2003), Macroeconomic Management and Intergovernmental Relations in Korea. Public

Budgeting and Finance, 9, (2), 41-60.

Kwon, O. (2008), The Effects of Fiscal Decentralization on Public Spending: The Korean Case,

Public Budgeting and finance, 23 (4), 1-20.

Laffont, J. J. (2005), Incentives in China’s Federal Tax Systems: Presented At ISPE Conference on

“The Distributional Aspects of Fiscal Policy: Implication of Economic Integration”.

University of Essex.

Lardy, N. R. (1998), China’s Unfinished Economic Revolution. Brooking Institution Press,

Washington, D. C.

Lavrov, A., Litwack, J. and D. Sutherland. (2000), Fiscal Federalist Relations in Russia: A Case for

Subnational Autonomy, OECD: Unpublished Paper.

Layard, P. R. G. and A. A. Walters. (1978), Macroeconomic Theory. London: McGraw-Hill (UK)

Ltd.

Lijeron, J. H. E. (1996), Decentralization, Local Governments and Markets: Comparative Study

of Recent Trends in Selected Countries.

Lin, J. Y. and Z. Liu. (2000), Fiscal Decentralization and economic Growth in China. Economic

Development and Cultural Change, 49, 1-21.

Ma, J. (1995), Macroeconomic Management and Intergovernmental Relations in China. Policy

Research Working Paper No. 1408. The World Bank.

Marlow, M. L. (1988), Fiscal Decentralization and Government Size . Public Choice, 56,

259-260.

Martin, A. M. and W. A. Lewis. (1956), Patterns of Public Revenue and Expenditure. Manchester

School of Social Studies, September, 203-244.

Mauro, P. (1995), Corruption and Growth. Quarterly Journal of Economics, 110 (3), 681-713.

Mbanefoh, G. (1993), Unsettled Issue in Nigerian Fiscal Federalism and the National Question.

Proceedings of the 1993 NES Annual Conference, 61-77.

McConnel C. R. and S. L. Brue (2005), Macroeconomics. New York: McGraw-Irwin.

McKinnon, R. I. (1997), Market Preserving Fiscal Federalism in the American Monetary Union. In:

Macroeconomic Dimensions of Public Finance. Mario, I. B. and T. Ter-Manassian, eds.

New York: Routledge, 73-93.

McLean, I. (2002), Fiscal Federalism in Australia. Research School of Social Sciences,

Australian National University Working Papers in Social and Political Theory Programme, at

<http://www.nuff.ox.ac.uk/Politics/Papers>.

McLure, Charles E. (2003), The Assignment of Oil Tax Revenue. In J.M. Davis, R.Ossowski And

1. Fedelino (eds), Fiscal Policy Formulation and Implementation in Oil-Producing Countries,

Washington, DC: International Monetary Fund, 204-15.

McLure, C. E., Jr. (1995), Comment on Fiscal Federalism and Decentralization: A Review of some

Efficiency and Macroeconomics Aspects by Vito Tanzi. In: Annual World Bank Conference

on Development Economics. Bruno, M. and B. Pleskovic, eds. World Bank, 317-322.

McMillan, M. (1981), Natural Resource Prosperity: Boon or Burden for Canadian Federalism,

Canberra: ANU Press.

Moore, M. A., Harvey, P. A. and D. I. Beach. (1985). The Financing of Canadian Federation: The

First hundred years. Ottawa: Canadian Tax Foundation.

Morrison, T. K. (1982), Structural Determinants of Government Budget Deficits in Developing

Countries. World Development, 10 (6), 467-473.

Murty, M. N. and P. B. Nayak (2006), A Normative Approach for Resource Transfers in a Federal

State. In: Tax Policy and Planning in Developing Countries. Bagchi, A. and N. Stern, eds.

Delhi, Oxford University Press, 231-261.

Musgrave, R. A. (1959), The Theory of Public Finance. New York: McGraw-Hill.

Musgrave, R. A. (1983), Who Should Tax where what? In: Tax Assignment in Federal Countries.

Charles Mclure, Jr (ed). Canberra: Centre for Research on Federal Financial Relations,

ANU.

Musgrave, R. A. and P. B. Musgrave. (1989), Public Finance in Theory and Practice, 5th ed.

Singapore: McGraw-Hill.

Musgrave, R. A. and P. B. Musgrave. (1989), Public Finance in Theory and Practice, International

Edition. Singapore: McGraw-hill Book Coy.

Naughton, B. (1995), Growing out of the Plan: Chinese Economic Reform. Cambridge University

Press, New York, 1978-1993.

Nelson, M. A. (1986), An Empirical Analysis of State and Local Tax Structure in the Context of

the Leviathan Model of Government. Public Choice, 49, 283-295.

Nelson, M. A. (2006), Searching for Leviathan, Comments and Extension. American

Economic Review, 77 (1), 198-204.

Oates, W. E. (1968), The Theory of Public Finance in a Federal System. Canadian Journal of

Economics, 1, 37-54.

Oates, W. E. (1972), Fiscal Federalism. New York: Harcourt Brace Jovanovich.

Oates, W. E. (1977), An Economist’s Perspective on Fiscal Federalism. In: The

Political Economy Fiscal Federalism. Wallace, E. Oates, ed. Lexington, M. A: Lexington

Books.

Oates, W. E. (1985), Searching for Leviathan: An Empirical Study . American Economic Review

75, 748-757.

Oates, W. E. (1991), On the Nature and Measurement of Fiscal Federalism, ed. Wallace Oates.

Brookfield: Edward Elgar.

Oates, W. E. (1993), Fiscal Decentralization and Economic Development. National Tax

Journal, 46, 237-243.

Oates, W. E. (2006), On the Theory and Practice of Fiscal Decentralization. In: The Tiebout Model

at Fifty, ed. William A. Fischel. Cambridge, M. A: Lincoln Institute of Land Policy, 1-32.

Oates, W. E. and R. Schwab (1991), The Allocative and Distributive Implications of Local Fiscal

Competition . In: Competition among States and Local Governments. Daphine, A. K. and J.

Kincard, eds. Washington. DC: The Urban Institute Press.

O’Faircheallaigh (1998), Indigenous People and Mineral Taxation Regimes. Resource Policy,

24, 187-94.

Qian, Y. and G. Roland (1998), Federalism and Soft Budget Constraint, American Economic

Review, 88 (5), 1143-1162.

Ojo, M. O. and T. O. Okunrounmu (1992), Why Fiscal Policies matter in African Countries.

Economic and Financial Review, CBN, 30 (4).

Okoh, R. N. and P. C. Egbon (1999), Fiscal Federalism and Revenue Allocation: The Poverty of

the Niger Delta. In: Fiscal Federalism and Nigeria’s Economic Development. Proceedings of

the Annual Conference of the Nigerian Economic Society, 405-419.

Oksenberg, M. and J. Tong (1991), The Evaluation of Central-Provincial Fiscal Relations in

China, 1971-1984: The Formal System. The China Quarterly, 125, 1-32.

Okunrounmu, T. O. (1999) Policy Issues in Fiscal Federalism and National Development. In:

Fiscal Federalism and Nigeria’s Economic Development, Ibadan Nigeria: The Nigerian

Economic Society, 453-475.

Olayiwola, W.K and E. Osabuohien (2010), Fiscal Hydrocephalus and the Challenges of Socio-

Economic Development in Nigeria. Mimeo.

Olomola, A. S. (1999), Restructuring Nigeria’s Fiscal Systems: Rationale, Strategies and Policies.

In: Fiscal Federalism and Nigeria’s Economic Development. Proceedings of the 1999

Annual Conference of the Nigerian Economic Society, 477-499.

Olowononi, G. D. (1999), Federalism and Vertical Intergovernmental Financial Imbalance in

Nigeria. In: Fiscal Federalism and Nigeria’s Economic Development, Ibadan Nigeria. The

Nigerian Economic Society, 189-213.

Olowononi, G. D. (1998), Revenue Allocation and Economics of Federalism. In: Federalism and

Political Restructuring in Nigeria; Spectrum Books Ltd. 247-260.

Olson, M. (1982), The Logic of Collective Action: Public Goods and the Theory of Groups.

Cambridge MA: Harvard University Press.

Otto, James M. (2001), Fiscal Decentralization and Mining Taxation. World Bank Group Mining

Department, Washington, DC.

Oyejide, T. A. (1972), Deficit Financing, Inflation and Capital Formation: An Analysis of the

Nigerian Experience, 1959-1970. The Nigerian Journal of Economic and Social Studies,

14, 22-43.

Panizza, U. (1999), On the Determinants of Fiscal Centralization: Theory and Evidence, Journal of

Public Economics, 74 (1), 97-139.

Peacock, A. T. and J. Wiseman. (1962), The Growth of Public Expenditure in the United Kingdom

Oxford University Press, London.

Persson, T. and G. Tabellini (2006), Political Economy: Explaining Economic Policy. London: MIT

Press.

Persson, T. and G. Tabellini. (1994), Does Centralization Increase the Size of Government?

European Economic Review, 38, 765-773.

Phillips, A. O. (1994), Intergovernmental Fiscal Relations: The Federal Republic of Nigeria. In:

Intergovernmental Fiscal Relations and Macroeconomic Management in Large Countries.

Gupta, S. P., P. Knight and Y. Wen (eds). Economic Development Institute of the World

Bank and Indian Council for Research on International Economic Relations. Allied

Publishers Limited.

Prud’homme, R. (1994), Decentralization and Economic Growth. The World bank, Unpublished

Manuscript.

Prud’homme, R. (1995), The Dangers of Decentralization. The World Bank Research Observer,

10, 201-26.

Ram, R. (1986), Government Size and Economic Growth: A New Framework and some Evidence

From Cross-Section and Time-Series. American Economic Review, 76 (1) , 191-202.

Ramphal, S. S. (1979), Keynote Address. In: Readings on Federalism. Lagos; Nigerian Institute of

International Affairs.

Rao, M. G. and V. Agarwal (2004), Intergovernmental Fiscal Transfers in India: Some Issues of

Design and Measurement. In: Tax Policy and Planning in Developing Countries. Bagchi, A.

And N. Stern (eds). Delhi Oxford University Press, 195-221.

Rattsa, J. (2000), Spending Growth with Vertical Fiscal Imbalance: Decentralized Government

Spending in Norway: 1880-1990. Typescript. Norwegian University of Science and

Technology.

Rivlin, A. M. (1991), Distinguished Lecture on Economics in Government: Strengthening The

Economy by Rethinking the Role of Federal and State Governments. Journal of Economics

Perspectives, 5 (2), 3-14.

Rodden, J. (2002), The Dilemma of Fiscal Federalism: Grants and Fiscal Performance around the

World, American Journal of Political Science, 46 (3), 670-687.

Rodden, J. (2001), Reviving Leviathan: Fiscal Federalism and the Growth of Government,

Unpublished Manuscript, Cambridge, MA: MIT.

Rodden, J., G. Eskeland and J. Litvack, esd, Decentralization and the Challenge of Hard Budget

Constraints (MIT Press, Forthcoming).

Rodden, J. and E. Wibbles. (2001), Federalism and Macroeconomic Management. Cambridge,

MIT Press.

Samuelson, P.A. and William D. Nordhaus. (2001), Economics. New Delhi: Tata McGraw-Hill.

Sarah, O. A., J. O. Ebajemito., S. C. Rapu and M. Tule, (2003), Fiscal Federalism and

Macroeconomic Governance. In: Contemporary Economic Policy Issues in Nigeria.

Nnanna, O. J., S. O. Alade and F. O. Odoko (eds). Central Bank of Nigeria.

Scott, A. (1964), The Economic Goals of Federal Finance. Public Finance, 3, 252-288.

Shah, A. (1991), The New Fiscal Federalism in Brazil. Discussion Papers No. 124. World Bank.

Shah, A. (1991), The Reform of Intergovernmental Fiscal Relations in Developing and

Emerging Market Economies, Policy and Research Series, No. 23, World Bank.

Shah, A. (1994), The Reform of Intergovernmental Fiscal Relations in Developing Countries and

Emerging Market Economies. World Bank Policy and Research Studies, 23.

Shah, A. (2007), Jostering Responsiveness and Accountable Governance: Lessons from

Decentralization Experience. Presented at the World Bank Conference on Evaluation and

Development, April 12, Washington, D. C.

Shaw, A. and Z. Qureshi. (1994), Intergovernmental Fiscal relations in Indonesia: Issues and

Reform Options. World Bank Discussion Paper. 239, Washington D. C.

Shleifer, A. and D. Treisman. (2000), Without a Map: Political Tactics and Economic Reform in

Russia, Cambridge: MIT Press.

Shleifer, A. and R. Vishny. (1993), Accountability and decentralization in Government: An

Incomplete Contracts Model, Europe Economic Review, 40.

Simeon, R. (1980), Natural Resource Revenues and Canadian Federalism: A Survey of the

Issues. Canadian Public Policy, Supplement, 182-91.

Spahn, P .B. and W. Fottinger. (1997), Germany. In: Fiscal Federalism in Theory and Practice.

Teresa Ter-Minassian ed. Washington: International Monetary Fund.

Stansel, D. (2005), Local Decentralization and economic Growth: A Cross-Sectional Examination

of US Metropolitan Areas. Journal of Urban Economics, 57, 55-72.

Stein, E. (1998), Fiscal decentralization and Governmental Size in Latin America. In: Democracy,

Decentralization and Deficits in Latin America. Kiichiro, F. and R. Hausmann (eds)

Washington, D. C.: Inter-American Development Bank and OECD.

Stepan, A. (1999), Federalism and Democracy: Beyond the U.S. Model. Journal of Democracy, 10,

19-33.

Stigler, G. J. (1957), The Tenable Range of Functions of Local Government. In: Federal

Expenditure Policy for economic Growth and Stability: US Congress Joint Economic

Committee ed. Washington, DC: Government Printing Office.

Taiwo, I. O. (1999), Fiscal Federalism: A Theoretical Framework. A Paper Presented at the

Annual Conference of the Nigerian Economic Society, 3-23.

Tanzi, V. (1995), Fiscal Federalism and Decentralization: A Review of some Efficiency And

Macroeconomic Aspects. In: Annual World Bank Conference on Development Economics.

Bruno, M. and B, Pleskovic, eds. World Bank, 317-322.

Tanzi, V. (1996), Fiscal Federalism and Decentralization: A Review of some Efficiency and

Macroeconomic Aspects. In: Annual World Bank Conference on Development Economics.

Bruno, M and B. Plaskovic (eds). Washington. D. C.: The World Bank, 295-316.

Tanzi, Vito and Hamid Davoodi (1997), Corruption, Public Investment and Growth. International

Monetary Fund Working Paper 97/139.

Tella, S. A. (1999), Promoting States Economic Independence through Financial Market

Cooperation. In: Fiscal Federalism and Nigeria’s Economic Development. Proceedings of

the annual Conference of the Nigerian Economic Society, 171-187.

Ter-Minassian, T. and J. Craig. (1997), Control of Subnational Borrowing. In: Fiscal Federalism in

Theory and Practice, ed. Teresa Ter-Minassian. Washington, D. C.: IMF.

Tiebout, C. M. (1956), A Pure Theory of Local Expenditure, Journal of Political Economy, 64,

416-424.

Tomaszewska, Ewa and Anwar Shah (2000), Phantom Hospitals, Ghost Schools and Road to

Nowhere: The Impact of Corruption on Public Services Delivery Performance in Developing

Countries. Working Paper, Operation Evaluation Department; World Bank, Washington,

DC.

Treisman, D. (1999), Political Decentralization and Economic Reform: A Game Theoretic

Analysis. American Journal of Political Science, 43 (2), 488-517.

Treisman, D. (2000), The Causes of Corruption: A Cross National Study. Journal of Public

Economics, 76 (3), 399-457.

Treisman, D. (2001), Decentralization and Inflation: Commitment, Collective Action, or

Continuity? American Political Science Review, 94 ( 4), 837-857.

Treisman, D. (2004), Decentralization, Fiscal Incentives, and Economic Performance: A

Reconsideration. Treisman @polisci.ucla.edu.

Ubogu, R. (1982), Fiscal Decentralization and Economic Development among Nigerian States,

Nigerian Journal of Economic and Social studies, 24 (1) , 1-21.

UNDP, Human Development Report, (1993), London: Oxford University Press.

Varian, H. R. (1990), Intermediate Microeconomics: A Modern Approach. Norton and Company

2nd ed.

Vincent, O. O. (2001), Fiscal Federalism: The Nigerian Experience, Fourth Public Lecture, The

Nigerian Economic Society.

Waisylenko, M. (1987), Fiscal Decentralization and Economic Development, Public Budgeting and

Finance, 7 (4), 57-71.

Walsh, C. (1992), Fiscal Federalism: An Overview of Issues and A Discussion of their Relevance to

The European Community. Federalism Research Centre, Discussion Paper, 12, ANU.

Wantchekon, L. and T. Asadurin. (2002), Transfer Dependence and Regional Disparities: The case

of Nigeria. Paper Presented at the Federalism Conference, June 6-7, Standford University.

Watson, P.K and S.S. Teelucksingh. (Undated), A Practical Introduction to Econometrics

Methods: Classical and Modern. Barbados, The University of the West Indies Press.

Watts, Ronald (1999), Comparing Federal System. 2nd edn. Montreal and Kingston: McGill-

Queen’s University Press.

Watts, R. L and P. Hobson. (2009), Fiscal Federalism in Germany. Institute of Intergovernmental

Relations, Queens University Kingston, Ontario, Canada.

Weingast, B. R. (1997), The Political Foundations of Democracy and the Rule of the Law,

American Political Science Review, 91, 245-263.

Wellisch, D. and D. E. Wildasin (1996), Decentralized Income Redistribution and Immigration,

European Economic Review, 40, 101-133.

Wheare, K. C. (1963), Federal Government, 4th edition. N. Y.: Oxford University Press.

Wibbles, E. (2006), Federalism and the Politics of Macroeconomic Policy and Performance.

American Journal of Political Science, 44 (4), 687-702

Wildasin, D. (1997), Externalities and Bailouts: Hard and Soft Budget Constraints in

Intergovernmental Fiscal Relations . Washington DC: World Bank, Policy Research Working

Paper 1843.

Wildasin, D. (1995), Comment on: Fiscal Federalism and Decentralization, A Review of Some

Efficiency and Macroeconomic Aspects by Vito Tanzi. Annual World Bank Conference on

Development Economics, The World Bank, 323-328.

Wilson, John D. (2006), Tax Competition in a Federal Setting. In E. Ahmad and G. Brosio (eds)

Handbook of Fiscal Federalism: Massachusetts, Edward Elgar Publishing Inc.

Winer, S. (1980), Optimal Fiscal Illusion and the Size of Government. Public Choice, 35,

607-622.

Wink, Jay (2002), April 1865: The Month that saved America, New York: Harper.

Wong, Christine P.W. (1991), Central-Location Relations in an era of Fiscal Decline: The Paradox

of Fiscal Decentralization in Post-Mao China. The China Quartely, 128, December,

691-714.

World Bank (2009), Fiscal Management in India. Washington, DC: World Bank.

World Bank (2006), Fiscal Management in Argentina. Washington, DC: World Bank.

World Bank (2004), Mainstreaming Anti-Corruption Activities in World Bank Assistance- A

Review of Progress since 1997. Washington, DC: World Bank.

World Bank (1990), China: Revenue Mobilization and Tax Policy. Washington D.C: World Bank.

World Bank (1988), World Development Report.

Xie, D., Zou, H. and H. Davoodi. (1999), Fiscal Decentralization and Economic Growth in the

United States. Journal of Urban Economics, 45, 228-239.

Yilmaz, S. (1999), The Impact of Fiscal Decentralization on Macroeconomic Performance:

Prepared for the 92nd Annual Conference on Taxation, Atlanta, GA, 24-26 October for the

Session on Fiscal Decentralization in Transition Countries: The Role of Local Democratic

Governance.

Yussuf, S. (1994), China’s Macroeconomic Performance and Management during Transition.

Journal of economic Perspectives, 8, 71-92.

Zeilo, J. (2005), Tribal Taxation. In Joseph J. Cordes, Robert D. Ebel and Jane G.Gravelle (eds).

The Encyclopedia of Taxation and Tax Policy, Washington, DC: Urban Institute Press.

Zellner, A. (1970), Estimation of Regression Relationships Containing Unobservable Independent

Variables, International Economic Review, 11.

Zhang, T. and H. Zou (1996), Fiscal decentralization Public Spending and economic Growth in

China. The World Bank, Policy Research Working Paper, 1608.

Zhang, T. and H. Zou (1998), Fiscal Decentralization, Public Spending and Economic Growth in

China. Journal of Public Economics, 67, 221-240.

Zhuravskaya, E. V. (2000), Incentives to Provide Local Public Goods: Fiscal Federalism, Russian

Style, Journal of Public Economics, 73 (3) , 337-368.

**APPENDIX 1:** Unit root test (RGDP)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(RGDP) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 3 (Automatic based on SIC, MAXLAG=3) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | 4.014679 | 1.0000 |
| Test critical values: | 1% level |  | -3.661661 |  |
|  | 5% level |  | -2.960411 |  |
|  | 10% level |  | -2.619160 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(GDP,2) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 04/30/10 Time: 00:12 | | |  |  |
| Sample (adjusted): 1975 2007 | | |  |  |
| Included observations: 33 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(GDP(-1)) | 1.375390 | 0.342590 | 4.014679 | 0.0004 |
| D(GDP(-1),2) | -1.751086 | 0.409312 | -4.278120 | 0.0002 |
| D(GDP(-2),2) | -1.508872 | 0.334737 | -4.507636 | 0.0001 |
| D(GDP(-3),2) | -1.754009 | 0.292840 | -5.989640 | 0.0000 |
| C | -33268.55 | 101691.0 | -0.327153 | 0.7462 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.611203 | Mean dependent var | | 102940.4 |
| Adjusted R-squared | 0.551388 | S.D. dependent var | | 696757.5 |
| S.E. of regression | 466677.9 | Akaike info criterion | | 29.09136 |
| Sum squared resid | 5.66E+12 | Schwarz criterion | | 29.32264 |
| Log likelihood | -445.9160 | F-statistic | | 10.21822 |
| Durbin-Watson stat | 1.426355 | Prob(F-statistic) | | 0.000041 |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX 2:** Unit root test (INF)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(INF) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 1 (Automatic based on SIC, MAXLAG=3) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -5.675155 | 0.0000 |
| Test critical values: | 1% level |  | -3.646342 |  |
|  | 5% level |  | -2.954021 |  |
|  | 10% level |  | -2.615817 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(INF,2) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 04/30/10 Time: 00:16 | | |  |  |
| Sample (adjusted): 1973 2007 | | |  |  |
| Included observations: 35 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(INF(-1)) | -1.364441 | 0.240424 | -5.675155 | 0.0000 |
| D(INF(-1),2) | 0.352886 | 0.169091 | 2.086962 | 0.0455 |
| C | 0.447383 | 2.741144 | 0.163210 | 0.8714 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.570639 | Mean dependent var | | 0.463636 |
| Adjusted R-squared | 0.542015 | S.D. dependent var | | 23.26822 |
| S.E. of regression | 15.74666 | Akaike info criterion | | 8.437642 |
| Sum squared resid | 7438.722 | Schwarz criterion | | 8.573688 |
| Log likelihood | -136.2211 | F-statistic | | 19.93567 |
| Durbin-Watson stat | 2.056381 | Prob(F-statistic) | | 0.000003 |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX 3:** Unit root test (EXC)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(EXC) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 1 (Automatic based on SIC, MAXLAG=4) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -3.571413 | 0.0120 |
| Test critical values: | 1% level |  | -3.646342 |  |
|  | 5% level |  | -2.954021 |  |
|  | 10% level |  | -2.615817 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(EXC,2) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 04/30/10 Time: 15:04 | | |  |  |
| Sample (adjusted): 1973 2007 | | |  |  |
| Included observations: 35 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(EXC(-1)) | -0.602283 | 0.168640 | -3.571413 | 0.0012 |
| D(EXC(-1),2) | 0.289703 | 0.174612 | 1.659126 | 0.1075 |
| C | -1.868179 | 1.683235 | -1.109874 | 0.2759 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.298419 | Mean dependent var | | -0.030303 |
| Adjusted R-squared | 0.251647 | S.D. dependent var | | 10.64241 |
| S.E. of regression | 9.206471 | Akaike info criterion | | 7.364198 |
| Sum squared resid | 2542.773 | Schwarz criterion | | 7.500245 |
| Log likelihood | -118.5093 | F-statistic | | 6.380295 |
| Durbin-Watson stat | 1.944072 | Prob(F-statistic) | | 0.004911 |
|  |  |  |  |  |
|  |  |  |  |  |

**APPENDIX 4:** Unit root test (INT)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Null Hypothesis: D(INT) has a unit root | | | |  |
| Exogenous: Constant | | |  |  |
| Lag Length: 0 (Automatic based on SIC, MAXLAG=5) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | t-Statistic | Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller test statistic | | | -7.703650 | 0.0000 |
| Test critical values: | 1% level |  | -3.639407 |  |
|  | 5% level |  | -2.951125 |  |
|  | 10% level |  | -2.614300 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Augmented Dickey-Fuller Test Equation | | | |  |
| Dependent Variable: D(INT,2) | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 04/30/10 Time: 15:11 | | |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |
| Included observations: 36 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D(INT(-1)) | -1.296315 | 0.168273 | -7.703650 | 0.0000 |
| C | 0.460987 | 0.620811 | 0.742557 | 0.4632 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.649684 | Mean dependent var | | -0.029706 |
| Adjusted R-squared | 0.638737 | S.D. dependent var | | 5.990857 |
| S.E. of regression | 3.600814 | Akaike info criterion | | 5.457219 |
| Sum squared resid | 414.9075 | Schwarz criterion | | 5.547005 |
| Log likelihood | -90.77273 | F-statistic | | 59.34622 |
| Durbin-Watson stat | 2.174320 | Prob(F-statistic) | | 0.000000 |
|  |  |  |  |  |
|  |  |  |  |  |

**VAR ESTIMATION**

**Appendix 5:** VAR Estimation of (RGDP) Growth Equation 26

|  |
| --- |
|  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 21:03 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | RGDP | L | K | MS | FDC1 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| RGDP(-1) | 0.770053 | 6.43E-09 | 0.004326 | 0.003428 | -1.64E-08 |
|  | (0.20629) | (1.1E-07) | (0.00385) | (0.02699) | (2.8E-08) |
|  | [ 3.73294] | [ 0.05880] | [ 1.12309] | [ 0.12703] | [-0.58753] |
|  |  |  |  |  |  |
| RGDP(-2) | -0.407168 | 4.67E-08 | -0.007773 | 0.062695 | 4.19E-08 |
|  | (0.26913) | (1.4E-07) | (0.00502) | (0.03521) | (3.6E-08) |
|  | [-1.51289] | [ 0.32756] | [-1.54701] | [ 1.78064] | [ 1.15141] |
|  |  |  |  |  |  |
| L(-1) | 165471.7 | 0.895143 | -10649.01 | -6149.109 | -0.044278 |
|  | (393751.) | (0.20863) | (7351.46) | (51512.4) | (0.05318) |
|  | [ 0.42025] | [ 4.29065] | [-1.44856] | [-0.11937] | [-0.83254] |
|  |  |  |  |  |  |
| L(-2) | -151819.6 | 0.139667 | 10178.48 | 7531.231 | 0.046013 |
|  | (404668.) | (0.21441) | (7555.28) | (52940.7) | (0.05466) |
|  | [-0.37517] | [ 0.65140] | [ 1.34720] | [ 0.14226] | [ 0.84182] |
|  |  |  |  |  |  |
| K(-1) | 18.60946 | 9.00E-07 | 0.809484 | -0.639714 | 8.37E-07 |
|  | (8.91516) | (4.7E-06) | (0.16645) | (1.16633) | (1.2E-06) |
|  | [ 2.08740] | [ 0.19052] | [ 4.86326] | [-0.54849] | [ 0.69490] |
|  |  |  |  |  |  |
| K(-2) | -10.49232 | 1.85E-06 | -0.215072 | 0.698653 | -3.40E-07 |
|  | (8.11958) | (4.3E-06) | (0.15160) | (1.06224) | (1.1E-06) |
|  | [-1.29222] | [ 0.42904] | [-1.41872] | [ 0.65771] | [-0.30997] |
|  |  |  |  |  |  |
| MS(-1) | 0.552244 | 2.34E-07 | -0.120409 | 1.279680 | -1.37E-07 |
|  | (1.69708) | (9.0E-07) | (0.03169) | (0.22202) | (2.3E-07) |
|  | [ 0.32541] | [ 0.26071] | [-3.80018] | [ 5.76380] | [-0.59838] |
|  |  |  |  |  |  |
| MS(-2) | 2.923369 | -4.48E-07 | 0.198571 | -0.383462 | 1.24E-07 |
|  | (2.38410) | (1.3E-06) | (0.04451) | (0.31190) | (3.2E-07) |
|  | [ 1.22619] | [-0.35446] | [ 4.46108] | [-1.22944] | [ 0.38523] |
|  |  |  |  |  |  |
| FDC1(-1) | -40688.04 | -0.026635 | -63209.77 | -169435.4 | 0.266738 |
|  | (1656554) | (0.87771) | (30928.4) | (216719.) | (0.22375) |
|  | [-0.02456] | [-0.03035] | [-2.04374] | [-0.78182] | [ 1.19211] |
|  |  |  |  |  |  |
| FDC1(-2) | 3875692. | -0.034370 | -26557.60 | 171846.9 | 0.165434 |
|  | (1672825) | (0.88634) | (31232.2) | (218847.) | (0.22595) |
|  | [ 2.31685] | [-0.03878] | [-0.85033] | [ 0.78524] | [ 0.73217] |
|  |  |  |  |  |  |
| C | -1653045. | -0.205012 | 59599.60 | -37527.96 | 0.081727 |
|  | (779611.) | (0.41307) | (14555.6) | (101993.) | (0.10530) |
|  | [-2.12035] | [-0.49631] | [ 4.09462] | [-0.36795] | [ 0.77611] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.989995 | 0.999721 | 0.957888 | 0.995948 | 0.452181 |
| Adj. R-squared | 0.985645 | 0.999600 | 0.939579 | 0.994187 | 0.213998 |
| Sum sq. resids | 3.77E+12 | 1.058196 | 1.31E+09 | 6.45E+10 | 0.068770 |
| S.E. equation | 404828.7 | 0.214496 | 7558.291 | 52961.74 | 0.054681 |
| F-statistic | 227.5789 | 8253.757 | 52.31650 | 565.3531 | 1.898463 |
| Log likelihood | -480.5806 | 10.74260 | -345.2328 | -411.4282 | 57.21302 |
| Akaike AIC | 28.91651 | 0.015141 | 20.95487 | 24.84872 | -2.718413 |
| Schwarz SC | 29.41033 | 0.508963 | 21.44869 | 25.34254 | -2.224590 |
| Mean dependent | 1919671. | 38.72150 | 49328.59 | 412109.2 | 0.230000 |
| S.D. dependent | 3378811. | 10.72874 | 30748.83 | 694619.2 | 0.061677 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 1.22E+24 |  |  |  |
| Determinant resid covariance | | 1.73E+23 |  |  |  |
| Log likelihood | | -1150.889 |  |  |  |
| Akaike information criterion | | 70.93465 |  |  |  |
| Schwarz criterion | | 73.40377 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

RGDP = Real Gross Domestic Product

L = Labour

K = Capital

MS = Money Supply

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure

**Appendix 6:** VAR Estimation (RGDP) Growth Equation 27

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 21:25 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | GDP | L | K | MS | FDC2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| GDP(-1) | 0.808996 | 1.17E-08 | 0.006412 | 0.009147 | 7.96E-09 |
|  | (0.21041) | (1.0E-07) | (0.00381) | (0.02523) | (3.0E-08) |
|  | [ 3.84490] | [ 0.11339] | [ 1.68476] | [ 0.36250] | [ 0.26134] |
|  |  |  |  |  |  |
| GDP(-2) | -0.733376 | 5.28E-08 | -0.009658 | 0.037752 | 4.74E-09 |
|  | (0.27830) | (1.4E-07) | (0.00503) | (0.03338) | (4.0E-08) |
|  | [-2.63519] | [ 0.38539] | [-1.91853] | [ 1.13115] | [ 0.11781] |
|  |  |  |  |  |  |
| L(-1) | 229046.0 | 0.897438 | -7702.147 | 1866.269 | -0.076590 |
|  | (431256.) | (0.21215) | (7801.13) | (51717.9) | (0.06241) |
|  | [ 0.53111] | [ 4.23012] | [-0.98731] | [ 0.03609] | [-1.22720] |
|  |  |  |  |  |  |
| L(-2) | -223248.4 | 0.138053 | 6680.654 | -2424.924 | 0.077675 |
|  | (444471.) | (0.21866) | (8040.18) | (53302.7) | (0.06432) |
|  | [-0.50228] | [ 0.63137] | [ 0.83091] | [-0.04549] | [ 1.20758] |
|  |  |  |  |  |  |
| K(-1) | 6.844555 | 1.47E-06 | 0.827440 | -1.452139 | 2.34E-06 |
|  | (10.0897) | (5.0E-06) | (0.18252) | (1.21000) | (1.5E-06) |
|  | [ 0.67837] | [ 0.29631] | [ 4.53352] | [-1.20012] | [ 1.60452] |
|  |  |  |  |  |  |
| K(-2) | 1.483134 | 1.28E-06 | -0.129073 | 1.722903 | 1.27E-07 |
|  | (10.6785) | (5.3E-06) | (0.19317) | (1.28061) | (1.5E-06) |
|  | [ 0.13889] | [ 0.24361] | [-0.66820] | [ 1.34538] | [ 0.08226] |
|  |  |  |  |  |  |
| MS(-1) | 0.971191 | 3.13E-07 | -0.080097 | 1.351561 | 3.78E-07 |
|  | (2.04057) | (1.0E-06) | (0.03691) | (0.24471) | (3.0E-07) |
|  | [ 0.47594] | [ 0.31217] | [-2.16992] | [ 5.52305] | [ 1.28108] |
|  |  |  |  |  |  |
| MS(-2) | 3.962564 | -6.20E-07 | 0.152867 | -0.353065 | -4.47E-07 |
|  | (2.75497) | (1.4E-06) | (0.04984) | (0.33039) | (4.0E-07) |
|  | [ 1.43833] | [-0.45764] | [ 3.06743] | [-1.06864] | [-1.12043] |
|  |  |  |  |  |  |
| FDC2(-1) | -2111130. | -0.003134 | -52746.66 | -211796.7 | 0.297808 |
|  | (1630574) | (0.80215) | (29496.0) | (195545.) | (0.23597) |
|  | [-1.29472] | [-0.00391] | [-1.78827] | [-1.08311] | [ 1.26205] |
|  |  |  |  |  |  |
| FDC2(-2) | 604800.9 | 0.138691 | 4303.851 | -37162.10 | 0.332719 |
|  | (1445766) | (0.71124) | (26152.9) | (173382.) | (0.20923) |
|  | [ 0.41833] | [ 0.19500] | [ 0.16456] | [-0.21434] | [ 1.59023] |
|  |  |  |  |  |  |
| C | -150482.9 | -0.287882 | 66864.21 | 91324.62 | 0.045474 |
|  | (1118927) | (0.55045) | (20240.6) | (134186.) | (0.16193) |
|  | [-0.13449] | [-0.52299] | [ 3.30346] | [ 0.68058] | [ 0.28083] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.988415 | 0.999722 | 0.954226 | 0.996058 | 0.746806 |
| Adj. R-squared | 0.983378 | 0.999601 | 0.934324 | 0.994344 | 0.636721 |
| Sum sq. resids | 4.36E+12 | 1.056281 | 1.43E+09 | 6.28E+10 | 0.091408 |
| S.E. equation | 435621.7 | 0.214302 | 7880.106 | 52241.48 | 0.063042 |
| F-statistic | 196.2285 | 8268.724 | 47.94662 | 581.1136 | 6.783938 |
| Log likelihood | -483.0732 | 10.77340 | -346.6505 | -410.9627 | 52.37540 |
| Akaike AIC | 29.06313 | 0.013330 | 21.03826 | 24.82133 | -2.433847 |
| Schwarz SC | 29.55695 | 0.507152 | 21.53209 | 25.31516 | -1.940024 |
| Mean dependent | 1919671. | 38.72150 | 49328.59 | 412109.2 | 0.352324 |
| S.D. dependent | 3378811. | 10.72874 | 30748.83 | 694619.2 | 0.104594 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 2.26E+24 |  |  |  |
| Determinant resid covariance | | 3.20E+23 |  |  |  |
| Log likelihood | | -1161.328 |  |  |  |
| Akaike information criterion | | 71.54869 |  |  |  |
| Schwarz criterion | | 74.01780 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

RGDP = Real Gross Domestic Product

L = Labour

K = Capital

MS = Money Supply

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Appendix 7:**VAR Estimation (RGDP) Growth Equation 28  Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 22:01 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | GDP | L | K | MS | FDC3 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| GDP(-1) | 0.840007 | -4.63E-09 | 0.007640 | 0.017735 | 2.21E-08 |
|  | (0.22411) | (1.1E-07) | (0.00429) | (0.02745) | (2.7E-08) |
|  | [ 3.74825] | [-0.04147] | [ 1.77905] | [ 0.64611] | [ 0.82568] |
|  |  |  |  |  |  |
| GDP(-2) | -0.823241 | 7.40E-08 | -0.009620 | 0.033426 | -5.92E-08 |
|  | (0.28709) | (1.4E-07) | (0.00550) | (0.03516) | (3.4E-08) |
|  | [-2.86749] | [ 0.51796] | [-1.74862] | [ 0.95057] | [-1.72400] |
|  |  |  |  |  |  |
| L(-1) | 96694.09 | 0.904011 | -10791.97 | -11363.89 | -0.033212 |
|  | (420440.) | (0.20934) | (8056.73) | (51496.8) | (0.05026) |
|  | [ 0.22998] | [ 4.31841] | [-1.33950] | [-0.22067] | [-0.66074] |
|  |  |  |  |  |  |
| L(-2) | -62764.81 | 0.129627 | 10348.04 | 13810.29 | 0.038005 |
|  | (431207.) | (0.21470) | (8263.07) | (52815.7) | (0.05155) |
|  | [-0.14556] | [ 0.60376] | [ 1.25232] | [ 0.26148] | [ 0.73721] |
|  |  |  |  |  |  |
| K(-1) | 7.449085 | 1.49E-06 | 0.912080 | -1.041973 | -2.62E-07 |
|  | (8.79343) | (4.4E-06) | (0.16851) | (1.07705) | (1.1E-06) |
|  | [ 0.84712] | [ 0.34023] | [ 5.41277] | [-0.96743] | [-0.24917] |
|  |  |  |  |  |  |
| K(-2) | -6.191925 | 1.75E-06 | -0.347539 | 0.641709 | -4.42E-07 |
|  | (8.12138) | (4.0E-06) | (0.15563) | (0.99473) | (9.7E-07) |
|  | [-0.76242] | [ 0.43168] | [-2.23316] | [ 0.64511] | [-0.45520] |
|  |  |  |  |  |  |
| MS(-1) | 0.139446 | 1.33E-07 | -0.092645 | 1.342711 | 1.55E-07 |
|  | (2.04838) | (1.0E-06) | (0.03925) | (0.25089) | (2.4E-07) |
|  | [ 0.06808] | [ 0.13083] | [-2.36025] | [ 5.35174] | [ 0.63400] |
|  |  |  |  |  |  |
| MS(-2) | 5.241370 | -4.36E-07 | 0.157477 | -0.381581 | 7.18E-08 |
|  | (2.92146) | (1.5E-06) | (0.05598) | (0.35783) | (3.5E-07) |
|  | [ 1.79409] | [-0.29990] | [ 2.81295] | [-1.06637] | [ 0.20561] |
|  |  |  |  |  |  |
| FDC3(-1) | -2745972. | 0.428886 | -42245.84 | -268095.9 | 0.076629 |
|  | (1870075) | (0.93112) | (35835.5) | (229053.) | (0.22357) |
|  | [-1.46838] | [ 0.46061] | [-1.17888] | [-1.17045] | [ 0.34275] |
|  |  |  |  |  |  |
| FDC3(-2) | -622822.9 | -0.080440 | -173.0153 | -2905.600 | 0.046351 |
|  | (2006839) | (0.99921) | (38456.3) | (245804.) | (0.23992) |
|  | [-0.31035] | [-0.08050] | [-0.00450] | [-0.01182] | [ 0.19319] |
|  |  |  |  |  |  |
| C | -451440.5 | -0.278765 | 49300.77 | 7064.461 | 0.084907 |
|  | (761399.) | (0.37910) | (14590.4) | (93258.7) | (0.09103) |
|  | [-0.59291] | [-0.73533] | [ 3.37898] | [ 0.07575] | [ 0.93276] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.988772 | 0.999724 | 0.950217 | 0.996014 | 0.882874 |
| Adj. R-squared | 0.983890 | 0.999604 | 0.928572 | 0.994282 | 0.831950 |
| Sum sq. resids | 4.23E+12 | 1.048662 | 1.55E+09 | 6.35E+10 | 0.060459 |
| S.E. equation | 428852.4 | 0.213528 | 8217.938 | 52527.27 | 0.051271 |
| F-statistic | 202.5453 | 8328.815 | 43.90036 | 574.7824 | 17.33696 |
| Log likelihood | -482.5407 | 10.89646 | -348.0777 | -411.1482 | 59.40251 |
| Akaike AIC | 29.03181 | 0.006091 | 21.12222 | 24.83225 | -2.847206 |
| Schwarz SC | 29.52563 | 0.499913 | 21.61604 | 25.32607 | -2.353384 |
| Mean dependent | 1919671. | 38.72150 | 49328.59 | 412109.2 | 0.261882 |
| S.D. dependent | 3378811. | 10.72874 | 30748.83 | 694619.2 | 0.125069 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 2.24E+24 |  |  |  |
| Determinant resid covariance | | 3.17E+23 |  |  |  |
| Log likelihood | | -1161.169 |  |  |  |
| Akaike information criterion | | 71.53933 |  |  |  |
| Schwarz criterion | | 74.00845 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

RGDP = Real Gross Domestic Product

L = Labour

K = Capital

MS = Money Supply

FDC3 = Subnational governments revenue as a ratio of total government expenditure

(Simultaneity measure of decentralization)

**Appendix 8:** VAR Estimation (RGDP) Growth Equation 29

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 23:10 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | GDP | L | K | FDC1 | FDC2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| GDP(-1) | 1.011010 | -2.01E-08 | 0.015097 | -1.99E-08 | -1.85E-08 |
|  | (0.20952) | (8.7E-08) | (0.00384) | (2.0E-08) | (2.6E-08) |
|  | [ 4.82536] | [-0.23057] | [ 3.92839] | [-1.01586] | [-0.71372] |
|  |  |  |  |  |  |
| GDP(-2) | 0.137630 | 3.55E-08 | -0.007780 | 1.86E-08 | 3.57E-08 |
|  | (0.28114) | (1.2E-07) | (0.00516) | (2.6E-08) | (3.5E-08) |
|  | [ 0.48954] | [ 0.30422] | [-1.50876] | [ 0.70642] | [ 1.02879] |
|  |  |  |  |  |  |
| L(-1) | 101897.6 | 0.898437 | -9111.948 | -0.051557 | -0.083772 |
|  | (512315.) | (0.21293) | (9397.08) | (0.04801) | (0.06332) |
|  | [ 0.19890] | [ 4.21939] | [-0.96966] | [-1.07398] | [-1.32297] |
|  |  |  |  |  |  |
| L(-2) | -87077.77 | 0.137707 | 8316.298 | 0.057041 | 0.086146 |
|  | (527849.) | (0.21939) | (9682.01) | (0.04946) | (0.06524) |
|  | [-0.16497] | [ 0.62769] | [ 0.85894] | [ 1.15323] | [ 1.32041] |
|  |  |  |  |  |  |
| K(-1) | 27.64774 | 4.71E-07 | 0.992324 | 1.45E-06 | 2.40E-06 |
|  | (11.3458) | (4.7E-06) | (0.20811) | (1.1E-06) | (1.4E-06) |
|  | [ 2.43682] | [ 0.09989] | [ 4.76828] | [ 1.36374] | [ 1.71369] |
|  |  |  |  |  |  |
| K(-2) | -20.77740 | 2.19E-06 | -0.346801 | -1.40E-06 | -9.40E-08 |
|  | (11.2290) | (4.7E-06) | (0.20597) | (1.1E-06) | (1.4E-06) |
|  | [-1.85033] | [ 0.47005] | [-1.68377] | [-1.32896] | [-0.06771] |
|  |  |  |  |  |  |
| FDC1(-1) | 825899.0 | -0.160045 | -7547.221 | 0.054516 | -0.222668 |
|  | (2249823) | (0.93508) | (41267.1) | (0.21082) | (0.27808) |
|  | [ 0.36710] | [-0.17116] | [-0.18289] | [ 0.25859] | [-0.80075] |
|  |  |  |  |  |  |
| FDC1(-2) | 5646184. | -0.152975 | -30917.27 | -0.052063 | 0.196064 |
|  | (2307660) | (0.95912) | (42328.0) | (0.21624) | (0.28522) |
|  | [ 2.44671] | [-0.15950] | [-0.73042] | [-0.24077] | [ 0.68741] |
|  |  |  |  |  |  |
| FDC2(-1) | 1132124. | 0.003318 | -45419.76 | 0.180984 | 0.503136 |
|  | (1728183) | (0.71827) | (31699.0) | (0.16194) | (0.21360) |
|  | [ 0.65509] | [ 0.00462] | [-1.43284] | [ 1.11761] | [ 2.35549] |
|  |  |  |  |  |  |
| FDC2(-2) | 57294.69 | 0.026366 | 62280.95 | 0.266739 | 0.174198 |
|  | (1667515) | (0.69306) | (30586.2) | (0.15625) | (0.20610) |
|  | [ 0.03436] | [ 0.03804] | [ 2.03624] | [ 1.70710] | [ 0.84520] |
|  |  |  |  |  |  |
| C | -2596465. | -0.197880 | 47941.61 | -0.067811 | 0.011191 |
|  | (1177933) | (0.48958) | (21606.1) | (0.11038) | (0.14559) |
|  | [-2.20426] | [-0.40419] | [ 2.21889] | [-0.61435] | [ 0.07687] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.983632 | 0.999720 | 0.933507 | 0.568689 | 0.739067 |
| Adj. R-squared | 0.976516 | 0.999598 | 0.904598 | 0.381163 | 0.625617 |
| Sum sq. resids | 6.17E+12 | 1.065207 | 2.07E+09 | 0.054144 | 0.094202 |
| S.E. equation | 517788.5 | 0.215205 | 9497.479 | 0.048519 | 0.063998 |
| F-statistic | 138.2197 | 8199.419 | 32.29030 | 3.032582 | 6.514512 |
| Log likelihood | -488.9481 | 10.63035 | -352.9978 | 61.27801 | 51.86355 |
| Akaike AIC | 29.40871 | 0.021744 | 21.41163 | -2.957530 | -2.403739 |
| Schwarz SC | 29.90254 | 0.515567 | 21.90546 | -2.463707 | -1.909916 |
| Mean dependent | 1919671. | 38.72150 | 49328.59 | 0.230000 | 0.352324 |
| S.D. dependent | 3378811. | 10.72874 | 30748.83 | 0.061677 | 0.104594 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 3.88E+12 |  |  |  |
| Determinant resid covariance | | 5.50E+11 |  |  |  |
| Log likelihood | | -700.7884 |  |  |  |
| Akaike information criterion | | 44.45814 |  |  |  |
| Schwarz criterion | | 46.92725 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

RGDP = Real Gross Domestic Product

L = Labour

K = Capital

MS = Money Supply

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

**Appendix 9:** VAR Estimation (INF) Inflation Equation 30

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 23:14 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INF | MS | L | K | FDC1 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INF(-1) | 0.679600 | -753.0492 | 0.001233 | 70.75560 | -0.000770 |
|  | (0.19059) | (658.917) | (0.00269) | (101.408) | (0.00070) |
|  | [ 3.56569] | [-1.14286] | [ 0.45817] | [ 0.69773] | [-1.09969] |
|  |  |  |  |  |  |
| INF(-2) | -0.274571 | -1123.472 | 0.002285 | -16.18043 | -5.24E-05 |
|  | (0.20623) | (712.972) | (0.00291) | (109.728) | (0.00076) |
|  | [-1.33138] | [-1.57576] | [ 0.78480] | [-0.14746] | [-0.06909] |
|  |  |  |  |  |  |
| MS(-1) | 1.15E-05 | 1.097435 | 5.79E-07 | -0.135964 | -1.26E-07 |
|  | (5.8E-05) | (0.20013) | (8.2E-07) | (0.03080) | (2.1E-07) |
|  | [ 0.19817] | [ 5.48364] | [ 0.70787] | [-4.41437] | [-0.59439] |
|  |  |  |  |  |  |
| MS(-2) | -3.46E-05 | 0.020512 | -6.16E-07 | 0.211027 | 1.65E-07 |
|  | (6.9E-05) | (0.23734) | (9.7E-07) | (0.03653) | (2.5E-07) |
|  | [-0.50350] | [ 0.08643] | [-0.63510] | [ 5.77739] | [ 0.65414] |
|  |  |  |  |  |  |
| L(-1) | -19.92641 | 28808.46 | 0.849504 | -11480.16 | -0.031827 |
|  | (14.6896) | (50784.5) | (0.20742) | (7815.82) | (0.05398) |
|  | [-1.35649] | [ 0.56727] | [ 4.09565] | [-1.46884] | [-0.58963] |
|  |  |  |  |  |  |
| L(-2) | 21.40897 | -23739.14 | 0.183929 | 10919.47 | 0.034770 |
|  | (15.0635) | (52076.9) | (0.21269) | (8014.72) | (0.05535) |
|  | [ 1.42125] | [-0.45585] | [ 0.86475] | [ 1.36243] | [ 0.62817] |
|  |  |  |  |  |  |
| K(-1) | 0.000208 | -1.375946 | 1.71E-06 | 0.889426 | 2.62E-07 |
|  | (0.00033) | (1.12611) | (4.6E-06) | (0.17331) | (1.2E-06) |
|  | [ 0.63845] | [-1.22186] | [ 0.37282] | [ 5.13199] | [ 0.21920] |
|  |  |  |  |  |  |
| K(-2) | 6.88E-05 | 1.359865 | 1.50E-06 | -0.272604 | 1.44E-07 |
|  | (0.00030) | (1.04662) | (4.3E-06) | (0.16108) | (1.1E-06) |
|  | [ 0.22719] | [ 1.29929] | [ 0.35039] | [-1.69238] | [ 0.12986] |
|  |  |  |  |  |  |
| FDC1(-1) | 22.85175 | -356701.2 | 0.238629 | -71355.50 | 0.250205 |
|  | (59.2008) | (204667.) | (0.83591) | (31498.6) | (0.21754) |
|  | [ 0.38600] | [-1.74284] | [ 0.28547] | [-2.26536] | [ 1.15017] |
|  |  |  |  |  |  |
| FDC1(-2) | -5.420086 | -33064.28 | -0.080561 | -8857.602 | 0.060842 |
|  | (56.6905) | (195988.) | (0.80046) | (30163.0) | (0.20831) |
|  | [-0.09561] | [-0.16871] | [-0.10064] | [-0.29366] | [ 0.29207] |
|  |  |  |  |  |  |
| C | -31.29909 | -49002.07 | -0.257998 | 58700.15 | 0.082915 |
|  | (28.0178) | (96862.0) | (0.39561) | (14907.2) | (0.10295) |
|  | [-1.11712] | [-0.50590] | [-0.65216] | [ 3.93770] | [ 0.80537] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.489312 | 0.996217 | 0.999736 | 0.954278 | 0.457975 |
| Adj. R-squared | 0.267273 | 0.994573 | 0.999621 | 0.934399 | 0.222313 |
| Sum sq. resids | 5039.279 | 6.02E+10 | 1.004688 | 1.43E+09 | 0.068043 |
| S.E. equation | 14.80200 | 51172.91 | 0.209003 | 7875.603 | 0.054391 |
| F-statistic | 2.203724 | 605.7333 | 8693.461 | 48.00410 | 1.943350 |
| Log likelihood | -133.2211 | -410.2600 | 11.62471 | -346.6310 | 57.39380 |
| Akaike AIC | 8.483594 | 24.78000 | -0.036748 | 21.03712 | -2.729047 |
| Schwarz SC | 8.977416 | 25.27382 | 0.457075 | 21.53094 | -2.235225 |
| Mean dependent | 21.00588 | 412109.2 | 38.72150 | 49328.59 | 0.230000 |
| S.D. dependent | 17.29216 | 694619.2 | 10.72874 | 30748.83 | 0.061677 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 3.14E+15 |  |  |  |
| Determinant resid covariance | | 4.44E+14 |  |  |  |
| Log likelihood | | -814.5845 |  |  |  |
| Akaike information criterion | | 51.15203 |  |  |  |
| Schwarz criterion | | 53.62114 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INF = Inflation rate

MS = Money Supply

L = Labour

K = Capital

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

**Appendix 10:** VAR Estimation (INF) Inflation Equation 31

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 23:14 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INF | MS | L | K | FDC2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INF(-1) | 0.671474 | -722.5989 | 0.001180 | 80.06100 | -0.000962 |
|  | (0.18945) | (627.609) | (0.00269) | (108.075) | (0.00079) |
|  | [ 3.54438] | [-1.15135] | [ 0.43847] | [ 0.74079] | [-1.22416] |
|  |  |  |  |  |  |
| INF(-2) | -0.273873 | -891.2916 | 0.002120 | 41.21053 | 0.000216 |
|  | (0.19910) | (659.592) | (0.00283) | (113.582) | (0.00083) |
|  | [-1.37554] | [-1.35128] | [ 0.74940] | [ 0.36283] | [ 0.26107] |
|  |  |  |  |  |  |
| MS(-1) | -8.45E-06 | 1.257405 | 5.44E-07 | -0.108893 | 3.10E-07 |
|  | (6.1E-05) | (0.20328) | (8.7E-07) | (0.03501) | (2.5E-07) |
|  | [-0.13766] | [ 6.18557] | [ 0.62408] | [-3.11078] | [ 1.21772] |
|  |  |  |  |  |  |
| MS(-2) | -9.78E-06 | -0.094224 | -5.70E-07 | 0.183867 | -3.22E-07 |
|  | (7.2E-05) | (0.23978) | (1.0E-06) | (0.04129) | (3.0E-07) |
|  | [-0.13512] | [-0.39297] | [-0.55434] | [ 4.45311] | [-1.07131] |
|  |  |  |  |  |  |
| L(-1) | -21.48441 | 39258.82 | 0.851193 | -10468.50 | -0.065427 |
|  | (14.9316) | (49466.1) | (0.21216) | (8518.11) | (0.06192) |
|  | [-1.43885] | [ 0.79365] | [ 4.01205] | [-1.22897] | [-1.05661] |
|  |  |  |  |  |  |
| L(-2) | 23.03213 | -38424.38 | 0.182530 | 9448.392 | 0.067095 |
|  | (15.3445) | (50834.0) | (0.21803) | (8753.65) | (0.06363) |
|  | [ 1.50100] | [-0.75588] | [ 0.83719] | [ 1.07937] | [ 1.05438] |
|  |  |  |  |  |  |
| K(-1) | 0.000149 | -1.826580 | 1.42E-06 | 0.933688 | 2.03E-06 |
|  | (0.00034) | (1.12374) | (4.8E-06) | (0.19351) | (1.4E-06) |
|  | [ 0.44023] | [-1.62545] | [ 0.29430] | [ 4.82504] | [ 1.44639] |
|  |  |  |  |  |  |
| K(-2) | 8.39E-05 | 2.432183 | 1.73E-06 | -0.227809 | 5.99E-07 |
|  | (0.00035) | (1.17600) | (5.0E-06) | (0.20251) | (1.5E-06) |
|  | [ 0.23638] | [ 2.06818] | [ 0.34234] | [-1.12494] | [ 0.40697] |
|  |  |  |  |  |  |
| FDC2(-1) | 26.27642 | -347370.4 | 0.022656 | -37905.52 | 0.271004 |
|  | (53.7992) | (178228.) | (0.76442) | (30691.0) | (0.22311) |
|  | [ 0.48842] | [-1.94902] | [ 0.02964] | [-1.23507] | [ 1.21468] |
|  |  |  |  |  |  |
| FDC2(-2) | -25.74336 | -49017.49 | -0.007901 | -1342.234 | 0.313472 |
|  | (47.9144) | (158733.) | (0.68080) | (27333.9) | (0.19870) |
|  | [-0.53728] | [-0.30881] | [-0.01161] | [-0.04911] | [ 1.57759] |
|  |  |  |  |  |  |
| C | -26.35298 | 90669.33 | -0.232332 | 63010.07 | 0.043915 |
|  | (37.6602) | (124762.) | (0.53510) | (21484.1) | (0.15618) |
|  | [-0.69976] | [ 0.72674] | [-0.43418] | [ 2.93286] | [ 0.28118] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.493837 | 0.996557 | 0.999735 | 0.947904 | 0.762070 |
| Adj. R-squared | 0.273766 | 0.995061 | 0.999619 | 0.925254 | 0.658622 |
| Sum sq. resids | 4994.623 | 5.48E+10 | 1.008350 | 1.63E+09 | 0.085897 |
| S.E. equation | 14.73627 | 48818.84 | 0.209383 | 8406.648 | 0.061112 |
| F-statistic | 2.243991 | 665.7863 | 8661.879 | 41.84945 | 7.366710 |
| Log likelihood | -133.0698 | -408.6588 | 11.56286 | -348.8496 | 53.43246 |
| Akaike AIC | 8.474693 | 24.68581 | -0.033109 | 21.16763 | -2.496027 |
| Schwarz SC | 8.968515 | 25.17964 | 0.460713 | 21.66145 | -2.002205 |
| Mean dependent | 21.00588 | 412109.2 | 38.72150 | 49328.59 | 0.352324 |
| S.D. dependent | 17.29216 | 694619.2 | 10.72874 | 30748.83 | 0.104594 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 2.85E+15 |  |  |  |
| Determinant resid covariance | | 4.04E+14 |  |  |  |
| Log likelihood | | -812.9714 |  |  |  |
| Akaike information criterion | | 51.05714 |  |  |  |
| Schwarz criterion | | 53.52626 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INF = Inflation rate

MS = Money Supply

L = Labour

K = Capital

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

**Appendix 11:** VAR Estimation (INF) Inflation Equation 32

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 23:16 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INF | MS | L | K | FDC3 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INF(-1) | 0.577128 | -278.7623 | 0.001231 | 118.6149 | -0.000125 |
|  | (0.18807) | (680.550) | (0.00285) | (118.063) | (0.00072) |
|  | [ 3.06861] | [-0.40961] | [ 0.43187] | [ 1.00467] | [-0.17375] |
|  |  |  |  |  |  |
| INF(-2) | -0.187886 | -1204.439 | 0.002179 | 23.52179 | -0.000725 |
|  | (0.19236) | (696.063) | (0.00292) | (120.754) | (0.00074) |
|  | [-0.97673] | [-1.73036] | [ 0.74702] | [ 0.19479] | [-0.98301] |
|  |  |  |  |  |  |
| MS(-1) | 1.96E-05 | 1.123747 | 4.49E-07 | -0.128131 | -5.55E-08 |
|  | (5.5E-05) | (0.20060) | (8.4E-07) | (0.03480) | (2.1E-07) |
|  | [ 0.35370] | [ 5.60205] | [ 0.53452] | [-3.68195] | [-0.26125] |
|  |  |  |  |  |  |
| MS(-2) | -6.29E-05 | 0.046824 | -4.80E-07 | 0.202442 | 1.86E-07 |
|  | (6.7E-05) | (0.24219) | (1.0E-06) | (0.04202) | (2.6E-07) |
|  | [-0.93976] | [ 0.19333] | [-0.47276] | [ 4.81817] | [ 0.72349] |
|  |  |  |  |  |  |
| L(-1) | -18.41234 | 21395.07 | 0.860860 | -12017.17 | -0.021820 |
|  | (13.6729) | (49475.7) | (0.20730) | (8583.16) | (0.05239) |
|  | [-1.34663] | [ 0.43244] | [ 4.15267] | [-1.40009] | [-0.41646] |
|  |  |  |  |  |  |
| L(-2) | 19.49879 | -14923.24 | 0.172699 | 11531.35 | 0.026238 |
|  | (14.0211) | (50735.6) | (0.21258) | (8801.72) | (0.05373) |
|  | [ 1.39067] | [-0.29414] | [ 0.81239] | [ 1.31012] | [ 0.48834] |
|  |  |  |  |  |  |
| K(-1) | 0.000266 | -0.957818 | 1.53E-06 | 1.029785 | 5.18E-08 |
|  | (0.00027) | (0.98266) | (4.1E-06) | (0.17047) | (1.0E-06) |
|  | [ 0.98081] | [-0.97472] | [ 0.37064] | [ 6.04072] | [ 0.04979] |
|  |  |  |  |  |  |
| K(-2) | 0.000185 | 0.393291 | 1.74E-06 | -0.427578 | -6.53E-07 |
|  | (0.00027) | (0.97911) | (4.1E-06) | (0.16986) | (1.0E-06) |
|  | [ 0.68482] | [ 0.40168] | [ 0.42421] | [-2.51727] | [-0.62984] |
|  |  |  |  |  |  |
| FDC3(-1) | 100.6981 | -393282.2 | 0.338801 | -16745.96 | 0.193094 |
|  | (56.3586) | (203934.) | (0.85448) | (35379.0) | (0.21596) |
|  | [ 1.78674] | [-1.92847] | [ 0.39650] | [-0.47333] | [ 0.89410] |
|  |  |  |  |  |  |
| FDC3(-2) | 32.71849 | -160233.1 | -0.270839 | -25311.91 | 0.061837 |
|  | (59.1217) | (213933.) | (0.89638) | (37113.5) | (0.22655) |
|  | [ 0.55341] | [-0.74899] | [-0.30215] | [-0.68201] | [ 0.27295] |
|  |  |  |  |  |  |
| C | -49.25676 | -47210.51 | -0.252146 | 46758.56 | 0.071300 |
|  | (23.3907) | (84639.6) | (0.35464) | (14683.5) | (0.08963) |
|  | [-2.10582] | [-0.55778] | [-0.71099] | [ 3.18443] | [ 0.79547] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.559642 | 0.996427 | 0.999737 | 0.945120 | 0.876391 |
| Adj. R-squared | 0.368183 | 0.994873 | 0.999623 | 0.921259 | 0.822648 |
| Sum sq. resids | 4345.281 | 5.69E+10 | 0.998859 | 1.71E+09 | 0.063806 |
| S.E. equation | 13.74501 | 49736.49 | 0.208395 | 8628.397 | 0.052670 |
| F-statistic | 2.923028 | 641.3611 | 8744.211 | 39.60933 | 16.30708 |
| Log likelihood | -130.7022 | -409.2920 | 11.72364 | -349.7349 | 58.48669 |
| Akaike AIC | 8.335421 | 24.72306 | -0.042567 | 21.21970 | -2.793335 |
| Schwarz SC | 8.829244 | 25.21688 | 0.451256 | 21.71352 | -2.299512 |
| Mean dependent | 21.00588 | 412109.2 | 38.72150 | 49328.59 | 0.261882 |
| S.D. dependent | 17.29216 | 694619.2 | 10.72874 | 30748.83 | 0.125069 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 3.44E+15 |  |  |  |
| Determinant resid covariance | | 4.87E+14 |  |  |  |
| Log likelihood | | -816.1529 |  |  |  |
| Akaike information criterion | | 51.24429 |  |  |  |
| Schwarz criterion | | 53.71340 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INF = Inflation rate

MS = Money Supply

L = Labour

K = Capital

FDC3 = Subnational governments revenue as a ratio of total government expenditure

(Simultaneity measure of decentralization)

**Appendix 12:** VAR Estimation (INF) Inflation Equation 33

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 23:18 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INF | MS | K | FDC1 | FDC2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INF(-1) | 0.676227 | -682.2754 | 48.84523 | -0.000585 | -0.001038 |
|  | (0.20099) | (638.508) | (113.784) | (0.00069) | (0.00080) |
|  | [ 3.36450] | [-1.06855] | [ 0.42928] | [-0.84885] | [-1.30236] |
|  |  |  |  |  |  |
| INF(-2) | -0.234934 | -711.4386 | -123.5165 | 0.000159 | 3.73E-05 |
|  | (0.20764) | (659.623) | (117.547) | (0.00071) | (0.00082) |
|  | [-1.13147] | [-1.07855] | [-1.05079] | [ 0.22383] | [ 0.04531] |
|  |  |  |  |  |  |
| MS(-1) | 2.05E-05 | 1.281116 | -0.154302 | 8.95E-09 | 2.89E-07 |
|  | (6.4E-05) | (0.20420) | (0.03639) | (2.2E-07) | (2.5E-07) |
|  | [ 0.31832] | [ 6.27394] | [-4.24040] | [ 0.04061] | [ 1.13280] |
|  |  |  |  |  |  |
| MS(-2) | -2.89E-05 | -0.072466 | 0.214468 | 3.34E-08 | -3.06E-07 |
|  | (7.9E-05) | (0.25184) | (0.04488) | (2.7E-07) | (3.1E-07) |
|  | [-0.36515] | [-0.28775] | [ 4.77884] | [ 0.12284] | [-0.97217] |
|  |  |  |  |  |  |
| K(-1) | 9.55E-05 | -2.461573 | 1.051872 | 3.23E-07 | 2.15E-06 |
|  | (0.00034) | (1.07234) | (0.19109) | (1.2E-06) | (1.3E-06) |
|  | [ 0.28284] | [-2.29552] | [ 5.50448] | [ 0.27910] | [ 1.60456] |
|  |  |  |  |  |  |
| K(-2) | 0.000159 | 2.951783 | -0.423596 | -5.28E-07 | 4.18E-07 |
|  | (0.00035) | (1.09716) | (0.19552) | (1.2E-06) | (1.4E-06) |
|  | [ 0.45987] | [ 2.69038] | [-2.16653] | [-0.44599] | [ 0.30521] |
|  |  |  |  |  |  |
| FDC1(-1) | 47.02705 | -109183.1 | -90190.07 | 0.209122 | -0.128012 |
|  | (66.0336) | (209777.) | (37383.0) | (0.22651) | (0.26194) |
|  | [ 0.71217] | [-0.52047] | [-2.41260] | [ 0.92324] | [-0.48871] |
|  |  |  |  |  |  |
| FDC1(-2) | 21.67648 | 65057.42 | -27125.92 | -0.015773 | 0.116240 |
|  | (65.1025) | (206820.) | (36855.9) | (0.22332) | (0.25825) |
|  | [ 0.33296] | [ 0.31456] | [-0.73600] | [-0.07063] | [ 0.45012] |
|  |  |  |  |  |  |
| FDC2(-1) | -21.48132 | -332382.7 | 4809.055 | 0.038049 | 0.274491 |
|  | (55.6853) | (176903.) | (31524.6) | (0.19101) | (0.22089) |
|  | [-0.38576] | [-1.87890] | [ 0.15255] | [ 0.19920] | [ 1.24266] |
|  |  |  |  |  |  |
| FDC2(-2) | -36.68418 | -123375.6 | 32046.57 | 0.169335 | 0.308750 |
|  | (52.6449) | (167244.) | (29803.4) | (0.18058) | (0.20883) |
|  | [-0.69682] | [-0.73770] | [ 1.07527] | [ 0.93771] | [ 1.47848] |
|  |  |  |  |  |  |
| C | 6.373382 | 180489.3 | 28949.79 | 0.120374 | 0.050489 |
|  | (23.4998) | (74654.7) | (13303.7) | (0.08061) | (0.09322) |
|  | [ 0.27121] | [ 2.41766] | [ 2.17607] | [ 1.49330] | [ 0.54162] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.429339 | 0.996431 | 0.942159 | 0.472199 | 0.754568 |
| Adj. R-squared | 0.181225 | 0.994879 | 0.917010 | 0.242720 | 0.647859 |
| Sum sq. resids | 5631.068 | 5.68E+10 | 1.80E+09 | 0.066257 | 0.088606 |
| S.E. equation | 15.64701 | 49707.89 | 8858.096 | 0.053673 | 0.062068 |
| F-statistic | 1.730412 | 642.1020 | 37.46402 | 2.057702 | 7.071242 |
| Log likelihood | -135.1087 | -409.2724 | -350.6281 | 57.84586 | 52.90474 |
| Akaike AIC | 8.594630 | 24.72191 | 21.27224 | -2.755639 | -2.464985 |
| Schwarz SC | 9.088452 | 25.21573 | 21.76607 | -2.261816 | -1.971162 |
| Mean dependent | 21.00588 | 412109.2 | 49328.59 | 0.230000 | 0.352324 |
| S.D. dependent | 17.29216 | 694619.2 | 30748.83 | 0.061677 | 0.104594 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 2.03E+14 |  |  |  |
| Determinant resid covariance | | 2.88E+13 |  |  |  |
| Log likelihood | | -768.0866 |  |  |  |
| Akaike information criterion | | 48.41686 |  |  |  |
| Schwarz criterion | | 50.88597 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INF = Inflation rate

MS = Money Supply

K = Capital

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

**Appendix 13:** VAR Estimation (EXC) Exchange rate Equation 34

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |
| Date: 05/01/10 Time: 23:25 | | |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |
| Included observations: 35 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | EXC | INF | MS | FDC1 |
|  |  |  |  |  |
|  |  |  |  |  |
| EXC(-1) | 1.476289 | -0.081740 | 680.5489 | -0.000470 |
|  | (0.16132) | (0.26303) | (968.597) | (0.00095) |
|  | [ 9.15116] | [-0.31077] | [ 0.70261] | [-0.49694] |
|  |  |  |  |  |
| EXC(-2) | -0.540816 | -0.052623 | -1367.561 | 0.000641 |
|  | (0.17631) | (0.28746) | (1058.58) | (0.00103) |
|  | [-3.06743] | [-0.18306] | [-1.29189] | [ 0.61974] |
|  |  |  |  |  |
| INF(-1) | 0.136685 | 0.609665 | -828.4707 | -0.000513 |
|  | (0.12016) | (0.19591) | (721.436) | (0.00070) |
|  | [ 1.13755] | [ 3.11198] | [-1.14836] | [-0.72837] |
|  |  |  |  |  |
| INF(-2) | -0.279974 | -0.328665 | -685.4719 | 0.000174 |
|  | (0.11742) | (0.19144) | (704.982) | (0.00069) |
|  | [-2.38444] | [-1.71680] | [-0.97232] | [ 0.25216] |
|  |  |  |  |  |
| MS(-1) | -1.76E-05 | -1.49E-05 | 1.286877 | -3.74E-08 |
|  | (3.1E-05) | (5.1E-05) | (0.18793) | (1.8E-07) |
|  | [-0.56228] | [-0.29277] | [ 6.84773] | [-0.20390] |
|  |  |  |  |  |
| MS(-2) | 2.17E-05 | 6.34E-06 | -0.184373 | 1.12E-07 |
|  | (3.6E-05) | (5.9E-05) | (0.21680) | (2.1E-07) |
|  | [ 0.60153] | [ 0.10776] | [-0.85042] | [ 0.52728] |
|  |  |  |  |  |
| FDC1(-1) | -31.14555 | 26.10087 | -90452.45 | 0.231096 |
|  | (34.2781) | (55.8882) | (205809.) | (0.20098) |
|  | [-0.90861] | [ 0.46702] | [-0.43950] | [ 1.14983] |
|  |  |  |  |  |
| FDC1(-2) | -33.15100 | -9.973058 | 167836.0 | 0.030093 |
|  | (33.7072) | (54.9576) | (202382.) | (0.19764) |
|  | [-0.98350] | [-0.18147] | [ 0.82930] | [ 0.15226] |
|  |  |  |  |  |
| C | 19.12133 | 21.51953 | 80778.16 | 0.150208 |
|  | (9.69649) | (15.8095) | (58218.7) | (0.05685) |
|  | [ 1.97198] | [ 1.36117] | [ 1.38750] | [ 2.64203] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.975113 | 0.447356 | 0.995356 | 0.438214 |
| Adj. R-squared | 0.967150 | 0.270509 | 0.993869 | 0.258443 |
| Sum sq. resids | 2051.396 | 5453.284 | 7.40E+10 | 0.070523 |
| S.E. equation | 9.058468 | 14.76927 | 54387.93 | 0.053112 |
| F-statistic | 122.4448 | 2.529631 | 669.7162 | 2.437619 |
| Log likelihood | -117.9425 | -134.5633 | -413.7492 | 56.78505 |
| Akaike AIC | 7.467204 | 8.444902 | 24.86760 | -2.810885 |
| Schwarz SC | 7.871241 | 8.848938 | 25.27164 | -2.406849 |
| Mean dependent | 46.26765 | 21.00588 | 412109.2 | 0.230000 |
| S.D. dependent | 49.97874 | 17.29216 | 694619.2 | 0.061677 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 1.39E+11 |  |  |
| Determinant resid covariance | | 4.07E+10 |  |  |
| Log likelihood | | -608.2805 |  |  |
| Akaike information criterion | | 37.89885 |  |  |
| Schwarz criterion | | 39.51500 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Acronyms for variables**

EXC = Exchange rate

INF = Inflation rate

MS = Money Supply

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

**Appendix 14: VAR Estimation (EXC) Exchange rate Equation 35**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |
| Date: 05/01/10 Time: 23:30 | | |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |
| Included observations: 35 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | EXC | INF | MS | FDC2 |
|  |  |  |  |  |
|  |  |  |  |  |
| EXC(-1) | 1.530423 | -0.175998 | 814.7304 | 0.001915 |
|  | (0.15327) | (0.25102) | (933.276) | (0.00119) |
|  | [ 9.98542] | [-0.70112] | [ 0.87298] | [ 1.60607] |
|  |  |  |  |  |
| EXC(-2) | -0.627276 | -0.055402 | -1145.820 | -0.001346 |
|  | (0.16061) | (0.26305) | (977.979) | (0.00125) |
|  | [-3.90565] | [-0.21061] | [-1.17162] | [-1.07758] |
|  |  |  |  |  |
| INF(-1) | 0.074264 | 0.536383 | -478.9101 | -0.000918 |
|  | (0.12188) | (0.19962) | (742.165) | (0.00095) |
|  | [ 0.60931] | [ 2.68700] | [-0.64529] | [-0.96825] |
|  |  |  |  |  |
| INF(-2) | -0.206100 | -0.297142 | -848.6741 | -0.000273 |
|  | (0.11541) | (0.18903) | (702.782) | (0.00090) |
|  | [-1.78576] | [-1.57194] | [-1.20759] | [-0.30453] |
|  |  |  |  |  |
| MS(-1) | -4.48E-05 | -3.10E-05 | 1.355483 | -1.35E-08 |
|  | (3.3E-05) | (5.4E-05) | (0.20147) | (2.6E-07) |
|  | [-1.35455] | [-0.57116] | [ 6.72797] | [-0.05254] |
|  |  |  |  |  |
| MS(-2) | 4.73E-05 | 1.65E-05 | -0.226411 | 1.26E-07 |
|  | (3.8E-05) | (6.2E-05) | (0.23160) | (3.0E-07) |
|  | [ 1.24320] | [ 0.26484] | [-0.97758] | [ 0.42477] |
|  |  |  |  |  |
| FDC2(-1) | 52.19842 | 52.09387 | -209887.0 | 0.323403 |
|  | (29.2521) | (47.9104) | (178124.) | (0.22754) |
|  | [ 1.78443] | [ 1.08732] | [-1.17832] | [ 1.42129] |
|  |  |  |  |  |
| FDC2(-2) | -41.31270 | 8.645826 | 4988.859 | 0.070845 |
|  | (29.8229) | (48.8451) | (181599.) | (0.23198) |
|  | [-1.38527] | [ 0.17700] | [ 0.02747] | [ 0.30539] |
|  |  |  |  |  |
| C | 4.650895 | 12.61182 | 134293.2 | 0.188021 |
|  | (8.88106) | (14.5458) | (54079.1) | (0.06908) |
|  | [ 0.52369] | [ 0.86704] | [ 2.48327] | [ 2.72168] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.976499 | 0.473380 | 0.995489 | 0.675328 |
| Adj. R-squared | 0.968979 | 0.304862 | 0.994045 | 0.571433 |
| Sum sq. resids | 1937.161 | 5196.482 | 7.18E+10 | 0.117213 |
| S.E. equation | 8.802638 | 14.41733 | 53601.62 | 0.068473 |
| F-statistic | 129.8497 | 2.809074 | 689.6015 | 6.500100 |
| Log likelihood | -116.9684 | -133.7433 | -413.2540 | 48.14820 |
| Akaike AIC | 7.409907 | 8.396665 | 24.83847 | -2.302835 |
| Schwarz SC | 7.813944 | 8.800702 | 25.24251 | -1.898799 |
| Mean dependent | 46.26765 | 21.00588 | 412109.2 | 0.352324 |
| S.D. dependent | 49.97874 | 17.29216 | 694619.2 | 0.104594 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 1.60E+11 |  |  |
| Determinant resid covariance | | 4.69E+10 |  |  |
| Log likelihood | | -610.6834 |  |  |
| Akaike information criterion | | 38.04020 |  |  |
| Schwarz criterion | | 39.65635 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Acronyms for variables**

EXC = Exchange rate

INF = Inflation rate

MS = Money Supply

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

**Appendix 15:** VAR Estimation (EXC) Exchange rate Equation 36

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |
| Date: 05/01/10 Time: 23:35 | | |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |
| Included observations: 35 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | EXC | INF | MS | FDC3 |
|  |  |  |  |  |
|  |  |  |  |  |
| EXC(-1) | 1.419958 | -0.049567 | 268.9884 | -0.001389 |
|  | (0.15171) | (0.25982) | (956.509) | (0.00093) |
|  | [ 9.35996] | [-0.19078] | [ 0.28122] | [-1.49215] |
|  |  |  |  |  |
| EXC(-2) | -0.542214 | -0.065042 | -1028.177 | 0.001174 |
|  | (0.15769) | (0.27006) | (994.221) | (0.00097) |
|  | [-3.43855] | [-0.24084] | [-1.03415] | [ 1.21314] |
|  |  |  |  |  |
| INF(-1) | 0.179028 | 0.594171 | -619.8343 | -0.000188 |
|  | (0.11409) | (0.19540) | (719.358) | (0.00070) |
|  | [ 1.56914] | [ 3.04082] | [-0.86165] | [-0.26863] |
|  |  |  |  |  |
| INF(-2) | -0.283480 | -0.317866 | -778.0856 | -0.000202 |
|  | (0.10863) | (0.18605) | (684.925) | (0.00067) |
|  | [-2.60956] | [-1.70854] | [-1.13602] | [-0.30271] |
|  |  |  |  |  |
| MS(-1) | -2.25E-05 | -2.66E-05 | 1.328242 | 9.93E-08 |
|  | (3.0E-05) | (5.2E-05) | (0.19206) | (1.9E-07) |
|  | [-0.73941] | [-0.50970] | [ 6.91574] | [ 0.53101] |
|  |  |  |  |  |
| MS(-2) | 3.84E-05 | 1.29E-05 | -0.186196 | 2.96E-08 |
|  | (3.6E-05) | (6.1E-05) | (0.22467) | (2.2E-07) |
|  | [ 1.07710] | [ 0.21194] | [-0.82874] | [ 0.13532] |
|  |  |  |  |  |
| FDC3(-1) | -41.17202 | 64.24466 | -278493.6 | 0.264004 |
|  | (32.6016) | (55.8346) | (205555.) | (0.20009) |
|  | [-1.26288] | [ 1.15062] | [-1.35484] | [ 1.31943] |
|  |  |  |  |  |
| FDC3(-2) | -60.06640 | -17.04628 | 33498.48 | 0.137173 |
|  | (33.9388) | (58.1246) | (213985.) | (0.20830) |
|  | [-1.76985] | [-0.29327] | [ 0.15655] | [ 0.65855] |
|  |  |  |  |  |
| C | 28.26238 | 14.53646 | 145405.3 | 0.137713 |
|  | (9.92101) | (16.9910) | (62552.4) | (0.06089) |
|  | [ 2.84874] | [ 0.85554] | [ 2.32454] | [ 2.26169] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.978389 | 0.470478 | 0.995552 | 0.870005 |
| Adj. R-squared | 0.971473 | 0.301031 | 0.994129 | 0.828406 |
| Sum sq. resids | 1781.430 | 5225.121 | 7.08E+10 | 0.067103 |
| S.E. equation | 8.441397 | 14.45700 | 53223.36 | 0.051808 |
| F-statistic | 141.4742 | 2.776549 | 699.4830 | 20.91430 |
| Log likelihood | -115.5437 | -133.8367 | -413.0133 | 57.63028 |
| Akaike AIC | 7.326100 | 8.402162 | 24.82431 | -2.860605 |
| Schwarz SC | 7.730136 | 8.806198 | 25.22835 | -2.456568 |
| Mean dependent | 46.26765 | 21.00588 | 412109.2 | 0.261882 |
| S.D. dependent | 49.97874 | 17.29216 | 694619.2 | 0.125069 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 9.38E+10 |  |  |
| Determinant resid covariance | | 2.74E+10 |  |  |
| Log likelihood | | -601.5615 |  |  |
| Akaike information criterion | | 37.50362 |  |  |
| Schwarz criterion | | 39.11977 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Acronyms for variables**

EXC = Exchange rate

INF = Inflation rate

MS = Money Supply

FDC3 = Subnational governments revenue as a ratio of total government expenditure

(Simultaneity measure of decentralization)

**Appendix 16:** VAR Estimation (EXC) Exchange rate Equation 37

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/01/10 Time: 23:40 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | EXC | INF | MS | FDC1 | FDC2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| EXC(-1) | 1.391622 | -0.212913 | 1266.283 | -0.001384 | 0.001597 |
|  | (0.17192) | (0.30095) | (1099.59) | (0.00103) | (0.00141) |
|  | [ 8.09437] | [-0.70747] | [ 1.15159] | [-1.34692] | [ 1.13331] |
|  |  |  |  |  |  |
| EXC(-2) | -0.532696 | -0.027922 | -1484.818 | 0.000866 | -0.001152 |
|  | (0.16798) | (0.29405) | (1074.39) | (0.00100) | (0.00138) |
|  | [-3.17110] | [-0.09496] | [-1.38201] | [ 0.86199] | [-0.83660] |
|  |  |  |  |  |  |
| INF(-1) | 0.073481 | 0.540683 | -537.0689 | -0.000868 | -0.000963 |
|  | (0.11930) | (0.20883) | (763.012) | (0.00071) | (0.00098) |
|  | [ 0.61594] | [ 2.58909] | [-0.70388] | [-1.21698] | [-0.98438] |
|  |  |  |  |  |  |
| INF(-2) | -0.233501 | -0.303631 | -770.2777 | 0.000144 | -0.000344 |
|  | (0.11353) | (0.19874) | (726.132) | (0.00068) | (0.00093) |
|  | [-2.05668] | [-1.52780] | [-1.06080] | [ 0.21148] | [-0.36922] |
|  |  |  |  |  |  |
| MS(-1) | -4.42E-05 | -2.96E-05 | 1.336890 | -2.37E-08 | -2.36E-08 |
|  | (3.2E-05) | (5.7E-05) | (0.20730) | (1.9E-07) | (2.7E-07) |
|  | [-1.36225] | [-0.52090] | [ 6.44910] | [-0.12250] | [-0.08900] |
|  |  |  |  |  |  |
| MS(-2) | 4.61E-05 | 1.50E-05 | -0.206155 | 4.50E-08 | 1.34E-07 |
|  | (3.7E-05) | (6.5E-05) | (0.23807) | (2.2E-07) | (3.1E-07) |
|  | [ 1.23734] | [ 0.22966] | [-0.86594] | [ 0.20240] | [ 0.44038] |
|  |  |  |  |  |  |
| FDC1(-1) | -60.16093 | -4.153970 | 36201.35 | 0.084253 | -0.250579 |
|  | (36.0456) | (63.0970) | (230540.) | (0.21547) | (0.29551) |
|  | [-1.66902] | [-0.06583] | [ 0.15703] | [ 0.39102] | [-0.84795] |
|  |  |  |  |  |  |
| FDC1(-2) | -19.18661 | -16.17653 | 211529.0 | -0.134386 | 0.061771 |
|  | (36.7180) | (64.2741) | (234840.) | (0.21949) | (0.30102) |
|  | [-0.52254] | [-0.25168] | [ 0.90074] | [-0.61227] | [ 0.20520] |
|  |  |  |  |  |  |
| FDC2(-1) | 68.38941 | 51.74943 | -199938.1 | 0.124583 | 0.404792 |
|  | (30.8655) | (54.0294) | (197409.) | (0.18451) | (0.25304) |
|  | [ 2.21572] | [ 0.95780] | [-1.01281] | [ 0.67523] | [ 1.59969] |
|  |  |  |  |  |  |
| FDC2(-2) | -20.07517 | 17.35693 | -105343.0 | 0.332022 | 0.090187 |
|  | (34.3596) | (60.1458) | (219757.) | (0.20539) | (0.28169) |
|  | [-0.58427] | [ 0.28858] | [-0.47936] | [ 1.61653] | [ 0.32016] |
|  |  |  |  |  |  |
| C | 12.23801 | 14.65762 | 109234.5 | 0.118945 | 0.205103 |
|  | (9.84294) | (17.2299) | (62953.3) | (0.05884) | (0.08070) |
|  | [ 1.24333] | [ 0.85071] | [ 1.73517] | [ 2.02155] | [ 2.54170] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.979492 | 0.475058 | 0.995657 | 0.518808 | 0.685281 |
| Adj. R-squared | 0.970575 | 0.246823 | 0.993769 | 0.309595 | 0.548446 |
| Sum sq. resids | 1690.476 | 5179.926 | 6.92E+10 | 0.060406 | 0.113620 |
| S.E. equation | 8.573154 | 15.00714 | 54832.04 | 0.051248 | 0.070285 |
| F-statistic | 109.8510 | 2.081438 | 527.2887 | 2.479800 | 5.008099 |
| Log likelihood | -114.6528 | -133.6891 | -412.6082 | 59.41758 | 48.67748 |
| Akaike AIC | 7.391341 | 8.511121 | 24.91813 | -2.848093 | -2.216322 |
| Schwarz SC | 7.885163 | 9.004944 | 25.41195 | -2.354270 | -1.722500 |
| Mean dependent | 46.26765 | 21.00588 | 412109.2 | 0.230000 | 0.352324 |
| S.D. dependent | 49.97874 | 17.29216 | 694619.2 | 0.061677 | 0.104594 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 3.96E+08 |  |  |  |
| Determinant resid covariance | | 56117896 |  |  |  |
| Log likelihood | | -544.5500 |  |  |  |
| Akaike information criterion | | 35.26764 |  |  |  |
| Schwarz criterion | | 37.73676 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

EXC = Exchange rate

INF = Inflation rate

MS = Money Supply

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

**Appendix 17:** VAR Estimation (INT) Interest rate Equation 38

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/02/10 Time: 10:20 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INT | MS | TDS | FDC1 | INF |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INT(-1) | 0.536789 | 1501.316 | 1694.839 | 0.001712 | -0.370848 |
|  | (0.16956) | (1404.37) | (1076.57) | (0.00291) | (0.73594) |
|  | [ 3.16582] | [ 1.06903] | [ 1.57430] | [ 0.58813] | [-0.50391] |
|  |  |  |  |  |  |
| INT(-2) | 0.479648 | -2614.778 | 430.7893 | -0.002433 | 2.146935 |
|  | (0.18269) | (1513.10) | (1159.91) | (0.00314) | (0.79292) |
|  | [ 2.62555] | [-1.72810] | [ 0.37140] | [-0.77600] | [ 2.70763] |
|  |  |  |  |  |  |
| MS(-1) | -8.89E-05 | -0.023385 | 0.232893 | 4.72E-08 | 8.46E-05 |
|  | (2.9E-05) | (0.24420) | (0.18720) | (5.1E-07) | (0.00013) |
|  | [-3.01594] | [-0.09576] | [ 1.24409] | [ 0.09328] | [ 0.66143] |
|  |  |  |  |  |  |
| MS(-2) | -1.06E-05 | -0.704700 | 0.569537 | 3.04E-07 | 0.000117 |
|  | (2.0E-05) | (0.16435) | (0.12599) | (3.4E-07) | (8.6E-05) |
|  | [-0.53657] | [-4.28784] | [ 4.52061] | [ 0.89368] | [ 1.35965] |
|  |  |  |  |  |  |
| TDS(-1) | 2.09E-05 | 3.833540 | 0.982735 | 9.43E-07 | -0.000177 |
|  | (4.8E-05) | (0.39826) | (0.30530) | (8.3E-07) | (0.00021) |
|  | [ 0.43564] | [ 9.62569] | [ 3.21892] | [ 1.14302] | [-0.84806] |
|  |  |  |  |  |  |
| TDS(-2) | 0.000298 | 1.438778 | -2.112873 | -2.00E-06 | -0.000456 |
|  | (0.00011) | (0.91483) | (0.70129) | (1.9E-06) | (0.00048) |
|  | [ 2.69970] | [ 1.57273] | [-3.01283] | [-1.05314] | [-0.95191] |
|  |  |  |  |  |  |
| FDC1(-1) | -7.916244 | -144664.0 | 22156.39 | 0.429265 | 26.97433 |
|  | (13.7007) | (113477.) | (86989.3) | (0.23514) | (59.4661) |
|  | [-0.57780] | [-1.27483] | [ 0.25470] | [ 1.82554] | [ 0.45361] |
|  |  |  |  |  |  |
| FDC1(-2) | 10.42373 | 96540.42 | 34198.98 | 0.007705 | 17.54632 |
|  | (11.8628) | (98253.9) | (75319.7) | (0.20360) | (51.4887) |
|  | [ 0.87869] | [ 0.98256] | [ 0.45405] | [ 0.03784] | [ 0.34078] |
|  |  |  |  |  |  |
| INF(-1) | -0.011164 | -158.2274 | -48.00879 | -0.000477 | 0.533980 |
|  | (0.04019) | (332.853) | (255.160) | (0.00069) | (0.17443) |
|  | [-0.27779] | [-0.47537] | [-0.18815] | [-0.69193] | [ 3.06132] |
|  |  |  |  |  |  |
| INF(-2) | -0.105119 | -158.4984 | -349.1763 | 0.000342 | -0.424744 |
|  | (0.04099) | (339.530) | (260.277) | (0.00070) | (0.17793) |
|  | [-2.56429] | [-0.46682] | [-1.34155] | [ 0.48607] | [-2.38719] |
|  |  |  |  |  |  |
| C | 1.920176 | 18954.16 | -24854.79 | 0.132366 | -12.41254 |
|  | (3.59757) | (29797.1) | (22841.9) | (0.06174) | (15.6148) |
|  | [ 0.53374] | [ 0.63611] | [-1.08812] | [ 2.14377] | [-0.79492] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.867054 | 0.999084 | 0.996314 | 0.500994 | 0.593999 |
| Adj. R-squared | 0.809252 | 0.998685 | 0.994712 | 0.284034 | 0.417477 |
| Sum sq. resids | 212.6606 | 1.46E+10 | 8.57E+09 | 0.062642 | 4006.264 |
| S.E. equation | 3.040742 | 25185.08 | 19306.44 | 0.052188 | 13.19793 |
| F-statistic | 15.00030 | 2507.973 | 621.7612 | 2.309160 | 3.365009 |
| Log likelihood | -79.41063 | -386.1554 | -377.1178 | 58.79958 | -129.3212 |
| Akaike AIC | 5.318273 | 23.36208 | 22.83046 | -2.811740 | 8.254190 |
| Schwarz SC | 5.812095 | 23.85591 | 23.32428 | -2.317917 | 8.748012 |
| Mean dependent | 17.42559 | 412109.2 | 157640.2 | 0.230000 | 21.00588 |
| S.D. dependent | 6.962246 | 694619.2 | 265496.5 | 0.061677 | 17.29216 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 4.50E+17 |  |  |  |
| Determinant resid covariance | | 6.37E+16 |  |  |  |
| Log likelihood | | -899.0024 |  |  |  |
| Akaike information criterion | | 56.11779 |  |  |  |
| Schwarz criterion | | 58.58690 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INT = Interest rate

MS = Money Supply

TDS = Total Domestic Savings

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

**Appendix 18:** VAR Estimation (INT) Interest rate Equation 39

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/02/10 Time: 10:28 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INT | MS | TDS | FDC2 | INF |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INT(-1) | 0.539354 | 1856.466 | 1310.510 | -0.000528 | -0.190281 |
|  | (0.15892) | (1369.28) | (1001.34) | (0.00347) | (0.70562) |
|  | [ 3.39393] | [ 1.35580] | [ 1.30876] | [-0.15229] | [-0.26967] |
|  |  |  |  |  |  |
| INT(-2) | 0.378731 | -3277.464 | 116.0217 | -0.002130 | 2.144659 |
|  | (0.16896) | (1455.78) | (1064.60) | (0.00368) | (0.75020) |
|  | [ 2.24158] | [-2.25134] | [ 0.10898] | [-0.57826] | [ 2.85879] |
|  |  |  |  |  |  |
| MS(-1) | -7.63E-05 | 0.168261 | 0.265602 | 4.14E-07 | 2.74E-05 |
|  | (2.8E-05) | (0.23732) | (0.17355) | (6.0E-07) | (0.00012) |
|  | [-2.77019] | [ 0.70900] | [ 1.53039] | [ 0.68981] | [ 0.22390] |
|  |  |  |  |  |  |
| MS(-2) | -2.12E-06 | -0.655149 | 0.573050 | 4.16E-07 | 0.000109 |
|  | (1.9E-05) | (0.16204) | (0.11850) | (4.1E-07) | (8.4E-05) |
|  | [-0.11288] | [-4.04318] | [ 4.83599] | [ 1.01388] | [ 1.30767] |
|  |  |  |  |  |  |
| TDS(-1) | 6.44E-06 | 3.742283 | 0.909728 | 1.54E-06 | -0.000148 |
|  | (4.7E-05) | (0.40903) | (0.29912) | (1.0E-06) | (0.00021) |
|  | [ 0.13561] | [ 9.14920] | [ 3.04136] | [ 1.48943] | [-0.70327] |
|  |  |  |  |  |  |
| TDS(-2) | 0.000254 | 0.778204 | -2.108181 | -4.16E-06 | -0.000279 |
|  | (9.3E-05) | (0.80126) | (0.58595) | (2.0E-06) | (0.00041) |
|  | [ 2.73094] | [ 0.97122] | [-3.59786] | [-2.05318] | [-0.67523] |
|  |  |  |  |  |  |
| FDC2(-1) | -4.722198 | -90517.51 | -50135.66 | 0.436866 | 30.50509 |
|  | (9.50930) | (81934.9) | (59918.2) | (0.20735) | (42.2228) |
|  | [-0.49659] | [-1.10475] | [-0.83674] | [ 2.10693] | [ 0.72248] |
|  |  |  |  |  |  |
| FDC2(-2) | -8.249829 | 40491.99 | -31268.15 | 0.196110 | -3.982429 |
|  | (9.19921) | (79263.0) | (57964.3) | (0.20059) | (40.8460) |
|  | [-0.89680] | [ 0.51086] | [-0.53944] | [ 0.97769] | [-0.09750] |
|  |  |  |  |  |  |
| INF(-1) | 0.006423 | -49.40099 | 58.03376 | -0.000565 | 0.508849 |
|  | (0.04022) | (346.543) | (253.423) | (0.00088) | (0.17858) |
|  | [ 0.15969] | [-0.14255] | [ 0.22900] | [-0.64473] | [ 2.84940] |
|  |  |  |  |  |  |
| INF(-2) | -0.108558 | -156.5538 | -443.6008 | 0.000130 | -0.417643 |
|  | (0.03984) | (343.235) | (251.004) | (0.00087) | (0.17688) |
|  | [-2.72516] | [-0.45611] | [-1.76730] | [ 0.15006] | [-2.36121] |
|  |  |  |  |  |  |
| C | 7.970803 | 28674.40 | 23821.21 | 0.167648 | -14.58721 |
|  | (4.36096) | (37575.3) | (27478.4) | (0.09509) | (19.3634) |
|  | [ 1.82776] | [ 0.76312] | [ 0.86691] | [ 1.76306] | [-0.75334] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.873617 | 0.999057 | 0.996549 | 0.733761 | 0.596088 |
| Adj. R-squared | 0.818668 | 0.998648 | 0.995049 | 0.618004 | 0.420473 |
| Sum sq. resids | 202.1632 | 1.50E+10 | 8.03E+09 | 0.096118 | 3985.654 |
| S.E. equation | 2.964743 | 25545.08 | 18680.86 | 0.064645 | 13.16394 |
| F-statistic | 15.89862 | 2437.717 | 664.2578 | 6.338841 | 3.394304 |
| Log likelihood | -78.55006 | -386.6380 | -375.9978 | 51.52133 | -129.2335 |
| Akaike AIC | 5.267651 | 23.39047 | 22.76458 | -2.383607 | 8.249032 |
| Schwarz SC | 5.761473 | 23.88429 | 23.25840 | -1.889785 | 8.742854 |
| Mean dependent | 17.42559 | 412109.2 | 157640.2 | 0.352324 | 21.00588 |
| S.D. dependent | 6.962246 | 694619.2 | 265496.5 | 0.104594 | 17.29216 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 8.43E+17 |  |  |  |
| Determinant resid covariance | | 1.19E+17 |  |  |  |
| Log likelihood | | -909.6785 |  |  |  |
| Akaike information criterion | | 56.74579 |  |  |  |
| Schwarz criterion | | 59.21491 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INT = Interest rate

MS = Money Supply

TDS = Total Domestic Savings

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

INF = Inflation rate

**Appendix 19:** VAR Estimation (INT) Interest rate Equation 40

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/02/10 Time: 10:37 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INT | MS | TDS | FDC3 | INF |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INT(-1) | 0.594729 | 2586.744 | 1914.055 | 0.003066 | -0.391156 |
|  | (0.15249) | (1146.42) | (954.395) | (0.00251) | (0.66763) |
|  | [ 3.90003] | [ 2.25637] | [ 2.00552] | [ 1.21990] | [-0.58589] |
|  |  |  |  |  |  |
| INT(-2) | 0.403997 | -2464.481 | 736.5578 | 0.000167 | 2.070475 |
|  | (0.17647) | (1326.68) | (1104.46) | (0.00291) | (0.77261) |
|  | [ 2.28931] | [-1.85763] | [ 0.66689] | [ 0.05751] | [ 2.67986] |
|  |  |  |  |  |  |
| MS(-1) | -7.41E-05 | 0.122057 | 0.164575 | 3.61E-07 | 3.60E-05 |
|  | (2.8E-05) | (0.21035) | (0.17511) | (4.6E-07) | (0.00012) |
|  | [-2.64912] | [ 0.58027] | [ 0.93983] | [ 0.78342] | [ 0.29356] |
|  |  |  |  |  |  |
| MS(-2) | -8.59E-06 | -0.608900 | 0.581961 | 3.93E-07 | 0.000108 |
|  | (1.9E-05) | (0.13955) | (0.11618) | (3.1E-07) | (8.1E-05) |
|  | [-0.46278] | [-4.36319] | [ 5.00919] | [ 1.28466] | [ 1.32741] |
|  |  |  |  |  |  |
| TDS(-1) | 1.71E-05 | 3.667771 | 0.939348 | 4.07E-07 | -0.000161 |
|  | (4.8E-05) | (0.35954) | (0.29931) | (7.9E-07) | (0.00021) |
|  | [ 0.35749] | [ 10.2014] | [ 3.13835] | [ 0.51577] | [-0.76779] |
|  |  |  |  |  |  |
| TDS(-2) | 0.000247 | 0.967698 | -1.812322 | -2.47E-06 | -0.000285 |
|  | (9.7E-05) | (0.72948) | (0.60729) | (1.6E-06) | (0.00042) |
|  | [ 2.54161] | [ 1.32656] | [-2.98427] | [-1.54467] | [-0.67126] |
|  |  |  |  |  |  |
| FDC3(-1) | -8.372477 | -247801.3 | -52557.38 | 0.252135 | 36.95614 |
|  | (11.8687) | (89227.1) | (74281.6) | (0.19561) | (51.9623) |
|  | [-0.70542] | [-2.77720] | [-0.70754] | [ 1.28894] | [ 0.71121] |
|  |  |  |  |  |  |
| FDC3(-2) | 13.33733 | 24931.19 | -65133.94 | 0.240711 | -27.07529 |
|  | (12.2925) | (92413.3) | (76934.1) | (0.20260) | (53.8178) |
|  | [ 1.08499] | [ 0.26978] | [-0.84662] | [ 1.18811] | [-0.50309] |
|  |  |  |  |  |  |
| INF(-1) | -0.011945 | -87.37832 | 9.472894 | -0.000412 | 0.548709 |
|  | (0.03989) | (299.866) | (249.638) | (0.00066) | (0.17463) |
|  | [-0.29947] | [-0.29139] | [ 0.03795] | [-0.62725] | [ 3.14212] |
|  |  |  |  |  |  |
| INF(-2) | -0.101069 | -235.5067 | -448.0826 | -0.000366 | -0.437462 |
|  | (0.04017) | (301.989) | (251.406) | (0.00066) | (0.17587) |
|  | [-2.51604] | [-0.77985] | [-1.78230] | [-0.55303] | [-2.48746] |
|  |  |  |  |  |  |
| C | 1.796651 | 36218.23 | 2388.751 | 0.075955 | -4.312399 |
|  | (2.45159) | (18430.6) | (15343.5) | (0.04041) | (10.7333) |
|  | [ 0.73285] | [ 1.96511] | [ 0.15568] | [ 1.87980] | [-0.40178] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.869934 | 0.999261 | 0.996497 | 0.890514 | 0.595858 |
| Adj. R-squared | 0.813383 | 0.998940 | 0.994973 | 0.842911 | 0.420145 |
| Sum sq. resids | 208.0548 | 1.18E+10 | 8.15E+09 | 0.056516 | 3987.916 |
| S.E. equation | 3.007634 | 22610.88 | 18823.57 | 0.049570 | 13.16767 |
| F-statistic | 15.38328 | 3112.086 | 654.1894 | 18.70717 | 3.391074 |
| Log likelihood | -79.03840 | -382.4895 | -376.2566 | 60.54916 | -129.2432 |
| Akaike AIC | 5.296377 | 23.14644 | 22.77980 | -2.914657 | 8.249599 |
| Schwarz SC | 5.790199 | 23.64027 | 23.27362 | -2.420834 | 8.743422 |
| Mean dependent | 17.42559 | 412109.2 | 157640.2 | 0.261882 | 21.00588 |
| S.D. dependent | 6.962246 | 694619.2 | 265496.5 | 0.125069 | 17.29216 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 4.28E+17 |  |  |  |
| Determinant resid covariance | | 6.06E+16 |  |  |  |
| Log likelihood | | -898.1607 |  |  |  |
| Akaike information criterion | | 56.06827 |  |  |  |
| Schwarz criterion | | 58.53739 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INT = Interest rate

MS = Money Supply

TDS = Total Domestic Savings

FDC3 = Subnational governments revenue as a ratio of total government expenditure

(Simultaneity measure of decentralization)

INF = Inflation rate

**Appendix 20:** VAR Estimation (INT) Interest rate Equation 41

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/02/10 Time: 10:46 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INT | MS | TDS | FDC1 | FDC2 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INT(-1) | 0.536769 | 1719.067 | 1272.139 | 0.003630 | 0.001828 |
|  | (0.18001) | (1380.86) | (995.913) | (0.00270) | (0.00379) |
|  | [ 2.98180] | [ 1.24492] | [ 1.27736] | [ 1.34491] | [ 0.48186] |
|  |  |  |  |  |  |
| INT(-2) | 0.294845 | -3016.023 | -442.6111 | -0.001663 | -0.001385 |
|  | (0.17352) | (1331.02) | (959.965) | (0.00260) | (0.00366) |
|  | [ 1.69923] | [-2.26595] | [-0.46107] | [-0.63925] | [-0.37887] |
|  |  |  |  |  |  |
| MS(-1) | -6.33E-05 | 0.077330 | 0.427111 | -2.36E-07 | 3.31E-07 |
|  | (3.5E-05) | (0.27158) | (0.19587) | (5.3E-07) | (7.5E-07) |
|  | [-1.78787] | [ 0.28475] | [ 2.18060] | [-0.44396] | [ 0.44427] |
|  |  |  |  |  |  |
| MS(-2) | 4.10E-07 | -0.696508 | 0.631969 | 1.37E-07 | 4.52E-07 |
|  | (2.2E-05) | (0.17163) | (0.12378) | (3.4E-07) | (4.7E-07) |
|  | [ 0.01831] | [-4.05825] | [ 5.10550] | [ 0.40930] | [ 0.95851] |
|  |  |  |  |  |  |
| TDS(-1) | 2.90E-05 | 3.871742 | 0.914670 | 1.37E-06 | 1.76E-06 |
|  | (5.2E-05) | (0.39937) | (0.28804) | (7.8E-07) | (1.1E-06) |
|  | [ 0.55780] | [ 9.69452] | [ 3.17551] | [ 1.75269] | [ 1.60446] |
|  |  |  |  |  |  |
| TDS(-2) | 0.000174 | 1.031834 | -2.827985 | -1.17E-06 | -4.35E-06 |
|  | (0.00013) | (0.96357) | (0.69495) | (1.9E-06) | (2.6E-06) |
|  | [ 1.38346] | [ 1.07084] | [-4.06934] | [-0.61878] | [-1.64467] |
|  |  |  |  |  |  |
| FDC1(-1) | 13.38788 | -69264.90 | 137311.8 | 0.320929 | 0.061377 |
|  | (15.8668) | (121712.) | (87781.4) | (0.23790) | (0.33435) |
|  | [ 0.84377] | [-0.56909] | [ 1.56425] | [ 1.34901] | [ 0.18357] |
|  |  |  |  |  |  |
| FDC1(-2) | 19.95769 | 90036.87 | 66382.97 | -0.101310 | -0.015118 |
|  | (13.8691) | (106388.) | (76729.3) | (0.20795) | (0.29225) |
|  | [ 1.43900] | [ 0.84631] | [ 0.86516] | [-0.48719] | [-0.05173] |
|  |  |  |  |  |  |
| FDC2(-1) | 4.056913 | -28655.51 | -51844.97 | 0.105283 | 0.589691 |
|  | (10.3785) | (79611.9) | (57418.0) | (0.15561) | (0.21870) |
|  | [ 0.39090] | [-0.35994] | [-0.90294] | [ 0.67658] | [ 2.69635] |
|  |  |  |  |  |  |
| FDC2(-2) | -16.90749 | 29147.68 | -80882.83 | 0.288504 | 0.344121 |
|  | (10.9919) | (84316.7) | (60811.3) | (0.16481) | (0.23162) |
|  | [-1.53818] | [ 0.34569] | [-1.33006] | [ 1.75057] | [ 1.48569] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.839314 | 0.999050 | 0.996618 | 0.539707 | 0.683856 |
| Adj. R-squared | 0.779057 | 0.998694 | 0.995350 | 0.367098 | 0.565301 |
| Sum sq. resids | 257.0342 | 1.51E+10 | 7.87E+09 | 0.057782 | 0.114134 |
| S.E. equation | 3.272577 | 25103.39 | 18105.17 | 0.049067 | 0.068961 |
| F-statistic | 13.92884 | 2804.708 | 785.8011 | 3.126750 | 5.768295 |
| Log likelihood | -82.63234 | -386.7685 | -375.6571 | 60.17244 | 48.60067 |
| Akaike AIC | 5.448961 | 23.33932 | 22.68571 | -2.951320 | -2.270628 |
| Schwarz SC | 5.897891 | 23.78825 | 23.13464 | -2.502390 | -1.821698 |
| Mean dependent | 17.42559 | 412109.2 | 157640.2 | 0.230000 | 0.352324 |
| S.D. dependent | 6.962246 | 694619.2 | 265496.5 | 0.061677 | 0.104594 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 1.06E+13 |  |  |  |
| Determinant resid covariance | | 1.87E+12 |  |  |  |
| Log likelihood | | -721.5474 |  |  |  |
| Akaike information criterion | | 45.38514 |  |  |  |
| Schwarz criterion | | 47.62979 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INT = Interest rate

MS = Money Supply

TDS = Total Domestic Savings

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

**Appendix 21:** VAR Estimation (INT) Interest rate Equation 42

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Vector Autoregression Estimates | | |  |  |  |
| Date: 05/02/10 Time: 10:56 | | |  |  |  |
| Sample (adjusted): 1972 2007 | | |  |  |  |
| Included observations: 35 after adjustments | | | |  |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | INT | MS | FDC1 | FDC2 | INF |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| INT(-1) | 0.492831 | 2754.669 | 0.003515 | -0.000193 | -0.414287 |
|  | (0.17663) | (3167.74) | (0.00294) | (0.00414) | (0.75961) |
|  | [ 2.79020] | [ 0.86960] | [ 1.19752] | [-0.04662] | [-0.54539] |
|  |  |  |  |  |  |
| INT(-2) | 0.362853 | 196.9625 | -0.000152 | 0.000339 | 2.181637 |
|  | (0.18226) | (3268.65) | (0.00303) | (0.00428) | (0.78381) |
|  | [ 1.99091] | [ 0.06026] | [-0.05006] | [ 0.07934] | [ 2.78337] |
|  |  |  |  |  |  |
| MS(-1) | -2.31E-05 | 1.301341 | -1.16E-07 | -3.91E-08 | -7.00E-05 |
|  | (1.2E-05) | (0.22138) | (2.1E-07) | (2.9E-07) | (5.3E-05) |
|  | [-1.86857] | [ 5.87830] | [-0.56583] | [-0.13514] | [-1.31868] |
|  |  |  |  |  |  |
| MS(-2) | 2.68E-05 | -0.163102 | 1.60E-07 | 1.26E-07 | 6.32E-05 |
|  | (1.4E-05) | (0.25340) | (2.3E-07) | (3.3E-07) | (6.1E-05) |
|  | [ 1.89934] | [-0.64366] | [ 0.67972] | [ 0.37986] | [ 1.03946] |
|  |  |  |  |  |  |
| FDC1(-1) | 19.11619 | -32463.60 | 0.188268 | -0.382077 | -17.95980 |
|  | (12.6368) | (226635.) | (0.21001) | (0.29647) | (54.3462) |
|  | [ 1.51274] | [-0.14324] | [ 0.89647] | [-1.28874] | [-0.33047] |
|  |  |  |  |  |  |
| FDC1(-2) | 15.51871 | 70523.71 | -0.101173 | -0.058825 | 31.59200 |
|  | (13.3272) | (239016.) | (0.22148) | (0.31267) | (57.3151) |
|  | [ 1.16444] | [ 0.29506] | [-0.45680] | [-0.18814] | [ 0.55120] |
|  |  |  |  |  |  |
| FDC2(-1) | -8.745145 | -138733.6 | 0.092403 | 0.517050 | 42.92730 |
|  | (10.4186) | (186852.) | (0.17314) | (0.24443) | (44.8064) |
|  | [-0.83938] | [-0.74248] | [ 0.53368] | [ 2.11532] | [ 0.95806] |
|  |  |  |  |  |  |
| FDC2(-2) | -17.02592 | -34276.48 | 0.243428 | 0.249385 | -11.91155 |
|  | (10.7653) | (193069.) | (0.17891) | (0.25256) | (46.2973) |
|  | [-1.58156] | [-0.17753] | [ 1.36065] | [ 0.98741] | [-0.25728] |
|  |  |  |  |  |  |
| INF(-1) | 0.022302 | -502.3977 | -0.000997 | -0.001101 | 0.496840 |
|  | (0.04123) | (739.465) | (0.00069) | (0.00097) | (0.17732) |
|  | [ 0.54090] | [-0.67941] | [-1.45431] | [-1.13799] | [ 2.80192] |
|  |  |  |  |  |  |
| INF(-2) | -0.092741 | -716.1122 | 9.93E-05 | -0.000354 | -0.395671 |
|  | (0.04156) | (745.412) | (0.00069) | (0.00098) | (0.17875) |
|  | [-2.23132] | [-0.96069] | [ 0.14379] | [-0.36302] | [-2.21358] |
|  |  |  |  |  |  |
| C | 5.914627 | 43489.45 | 0.052280 | 0.195445 | -17.82304 |
|  | (4.72369) | (84716.8) | (0.07850) | (0.11082) | (20.3148) |
|  | [ 1.25212] | [ 0.51335] | [ 0.66598] | [ 1.76358] | [-0.87734] |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R-squared | 0.862798 | 0.995567 | 0.517151 | 0.665390 | 0.588639 |
| Adj. R-squared | 0.803145 | 0.993639 | 0.307217 | 0.519907 | 0.409786 |
| Sum sq. resids | 219.4694 | 7.06E+10 | 0.060614 | 0.120801 | 4059.155 |
| S.E. equation | 3.089037 | 55400.19 | 0.051336 | 0.072472 | 13.28477 |
| F-statistic | 14.46357 | 516.4821 | 2.463394 | 4.573673 | 3.291194 |
| Log likelihood | -79.94640 | -412.9587 | 59.35913 | 47.63564 | -129.5442 |
| Akaike AIC | 5.349788 | 24.93875 | -2.844655 | -2.155038 | 8.267305 |
| Schwarz SC | 5.843611 | 25.43257 | -2.350832 | -1.661215 | 8.761128 |
| Mean dependent | 17.42559 | 412109.2 | 0.230000 | 0.352324 | 21.00588 |
| S.D. dependent | 6.962246 | 694619.2 | 0.061677 | 0.104594 | 17.29216 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 42878683 |  |  |  |
| Determinant resid covariance | | 6074157. |  |  |  |
| Log likelihood | | -506.7520 |  |  |  |
| Akaike information criterion | | 33.04423 |  |  |  |
| Schwarz criterion | | 35.51335 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Acronyms for variables**

INT = Interest rate

MS = Money Supply

FDC1 = Share of subnational governments revenue in total government revenue

(Revenue Decentralization measure)

FDC2 = Share of subnational governments expenditure in total government expenditure

(Expenditure Decentralization measure)

INF = Inflation rate

1. Consider, for example, how apportioning of collections among distinct jurisdictions may be difficult, when the same company operates across different areas. [↑](#footnote-ref-2)
2. For example, indigenous people, rich in energy resources, in the US have set up an organization, namely the Council of Energy Resources Tribes (CERT) to share information and specialist expertise. This allowed individual groups to expand the range of taxation instruments actually utilized (see O’Faircheallaugh, 1998, p. 191). [↑](#footnote-ref-3)
3. These externalities are analyzed in detail (see Wilson, 2006, p. 339-352). [↑](#footnote-ref-4)
4. Examples are provided, in the case of petroleum, both by federal countries, such as Nigeria (in the case of the ‘Littoral States and the Federal Government’ concerning offshore oil revenue ownership), Australia, Brazil, Argentina, Russia and Canada (in the case of the ‘Atlantic Accord’ concerning the Newfoundland and Labrador provincial governments) and by non-federal countries such as Colombia, Bolivia, Papua New Guinea and Italy. [↑](#footnote-ref-5)
5. Bird and Stauffer (2001) contains the proceedings of a conference held in February 2000 in Murten, Switzerland on this topic, organized by the World Bank Institut in collaboration with the Institut du Federalisme of the University of Fribourg. [↑](#footnote-ref-6)
6. Alesina et al. (2002) develop a parallel concept of ‘fractionalization’, which is an index that measures a country’s ethnic, linguistic and religious mix. Fragmentation emphasizes the territorial dimension of ethnic or other differentiation. [↑](#footnote-ref-7)
7. Even with respect to the United States (broadly conceived) there are many ‘asymmetrical’ relationships: for example, Puerto Rico. Indeed, Elazar (1957) identified two ‘federacies’, three ‘associated states’, three ‘home-rule territories’, three ‘unincorporated territories’, and 130 distinct First Nations with asymmetrical relations to the US federal government (Zeilo 2005). For a brief overview of the racial and economic diversity of Brazil, see Avelar (1999); Affonso (2001) provides a useful recent review of decentralization and reform in Brazil. Watts (1999) provides a useful categorization of different forms of ‘association’ between territories. [↑](#footnote-ref-8)
8. For a discussion of the role played by fiscal factors in sustaining political equilibrium (with particular reference to Latin America), see Bird (2003). Wink (2002) in his brilliant account of the resolution of the American Civil War provides an excellent reminder of how precarious the political balance may be at critical moments in a country’s history. All these accounts are useful lessons for the Nigerian nation state. [↑](#footnote-ref-9)
9. See Cooley and LeRoy (1985) as cited in Watson and Teelucksingh (undated). [↑](#footnote-ref-10)
10. Real GDP, inflation rate, exchange rate and interest rate are I (1) series. The unit root hypothesis is therefore rejected. [↑](#footnote-ref-11)