

Fiscal Decentralization and Social Outcomes in Nigeria

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Abstract

This research is motivated by the increased attention in recent times to the delivery of public services and the role of decentralization. The study explores the linkage between fiscal decentralization, infant mortality rate and literacy rate. It is based on a panel of the 36 states and federal capital territory in Nigeria. Socioeconomic indicators such as infant mortality rate, literacy rate and the ratio of state government revenue to federal government revenue, which is used as a proxy for the level of fiscal decentralization, are employed. Findings demonstrate that higher fiscal decentralization is consistently associated with lower mortality rate and higher literacy rate; benefits from fiscal decentralization are not particularly important for states with high population and low internally generated revenue; the internally generated revenue enhances literacy rates and reduces infant mortality. This underscores the need to improve state autonomy and reduce dependence on transfers from the centre. On the whole, the research findings provide useful information for the ongoing fiscal reforms in Nigeria.

Key Words: Decentralization, Health, Education, Panel data, Nigeria

1. Introduction

Fiscal decentralization has become a major trend worldwide. Much of the recent movement towards devolution has been driven by the belief that fiscal decentralization has a positive effect on government efficiency and service delivery. It is generally assumed that the transfer of powers and resources to lower tiers of government allows for a better matching of public policies to local needs and thus promotes allocation of resources. All these are expected to lead to an improvement in regional and overall economic performance, particularly if sub-national authorities shift resources from current to capital expenditures in search of a better response to local needs.

Opponents of the decentralization policy consider it a road to wrecks and ruins. It is seen as capable of making stabilization policies difficult to manage (Tanzi, 1995). Some authors argue that the benefits of decentralization are not as obvious as proponents of decentralization suggest, and there could be serious shortcomings that policymakers should be aware of in designing decentralization policies (Breton 2002; Crook, 2003). Government accountability and allocative efficiency may not be achieved with decentralization when the scarcity of public sector administrative, financial and managerial capacity is more problematic at the lower levels of government (Crook, 2003; Collier, 2008). In addition, decentralization may impose constraints to the implementation of national policies and the creation of coordination channels across regions (Guldner, 1995). These disagreements arise primarily from the perspectives of the potential impact of such policies on the institutional environment of developing countries.

Whether the arguments will prevail requires empirical support. Several studies exist that investigate the interactions between decentralization and regional local-central relationships, which include among others, (A. Feltenstein and S. Iwata 2005; Ahmed, J., Devarajan, S., Khemani, S., and S. Shah, 2005; Ahmad, Brosio and Tanzi 2008). These studies focus mostly on developed or developing countries of Asia and Latin America, and evidence appears

inconclusive. These issues in the context of Sub-Saharan Africa are scarcely explored. Few empirical evidences (Elhiraika, 2007; Akramov and Asante, 2009) provide differing arguments.

In Nigeria there is a resurgence of interest in public sector reforms. A prominent element in the policy advice to enhance growth and development potentials is the need to restructure the public sector to make it more responsive to efficient and equitable provision of public services and, thereby enhance public sector's contribution to economic growth. However, the relationship between fiscal federalism and growth is rather complex, whereas more efficient provision of public inputs to production is likely to stimulate growth, it could also make people more willing to pay taxes and thus increases public consumption and lessens private savings which could weaken growth potentials. Given the current clamor in Nigeria for *true federalism*, it is important to investigate whether fiscal decentralization does influence economic growth through the provision of social services.

Many studies on fiscal federalism, in Nigeria, have focused on explaining the pattern of intergovernmental relations (Mbanefoh 1993), or providing a historical and idealistic view within the context of political economy of possible consequences of such relationships (Ekpo 1994; Ekpo and Ndebbio 1996). Little has been done to empirically examine the implications of fiscal decentralization on social service delivery. Largely, despite the interest in decentralization and service delivery there is a dearth of research in the subject. This enquiry intends to fill the gap by estimating the relationship between fiscal decentralization and social service outcomes in Nigeria and contributing to the existing debate.

From the foregoing, the broad objective of this research is to determine whether the devolution of the provision of health and education service to the sub-national government—all other things equal, improve outcomes. The specific objectives are to: (i) Estimate the effect of decentralization on health service (the infant mortality rate); and (ii) Examine the effect of decentralization on education outcome (literacy rate) in Nigeria. Policy recommendations of the findings are also proposed and discussed.

2. Background

This section presents an overview of fiscal federalism in Nigeria. It begins with an evolution of the federal structure and inter-governmental fiscal relations. Next is an assessment of social service delivery in Nigeria and its interactions with the decentralized structure.

2.1 Fiscal Decentralization in Nigeria: An Overview

Fiscal decentralization as a system of political organization has a long history in Nigeria. It predates political independence in 1960 and was used during the colonial era as a means of coping with the cultural diversity that existed in the country in the early 1900s. By 1946 federalism became more prominent, resulting in the creation of regional assemblies in the then western and eastern Regions. Fiscal federalism in Nigeria has evolved over time, starting with the Phillipson Commission of 1946. The outcome of the commission was the adoption of the derivation principle in sharing revenue which marked the official beginning of inter-governmental fiscal relations in Nigeria. Following the Phillipsons commission, several other commissions were set up. As indicated by Ekpo and Ndebbio (1996), several factors could influence the operational modalities of a decentralized polity. They could be historical, political, economic, geographic, cultural and social. While the economic, geographic, cultural and social factors are clearly subsumed in the level of autonomy of sub-national governments in carrying out various development and growth oriented tasks, the historical and political issues are seemingly extraneous. Decentralization of the fiscal structure determined by historical and political forces may have significant bearing on the functioning of a country's fiscal system

Nigeria had adopted a decentralized system of governance before independence; however, the component units were further decentralized in 1967 as a check to the power wielded by the Eastern Region in May 1967. The former four regions were broken into a twelve state Federal Structure in 1967. Before 1967, the regions were less dependent on the Federal government. The revenue allocation formula at that time allowed regions to collect petroleum profit tax, airport and produce sale/purchase taxes, and custom and excise taxes. Decree 13 of 1970, reduced the export duties going to the states (through the DPA) from 100 percent to 60 percent, fuel duty from 100 percent to 50 percent, and mining rents and royalties from 50 percent to 45 percent. With the creation of additional seven states by the Murtala

Mohammed administration on 1 April, 1976 these sources of revenues were either entirely withdrawn or reduced to a position of insignificance in the revenue structure of the states. Contained in Table 1 in the appendix is an evolution of Nigeria's federal structure. Evidently, the number of states, after several breakdowns of existing units was increased to 36 in 1996. The reasoning here is that Nigeria's Federalism was not designed as a means for effective service delivery, rather it was structured towards enhancing the unity of the diverse ethnic groups comprising the Nigerian Nation. With the revenue allocation heavily uneven in favour of the Federal government no sub-national government or cliques of sub-national governments could wield enough financial power to effectively break away from the Federation, unless there is external support (Egwaikhide and Ekpo, 1999; Mbanefoh, 1993; Oriakhi, 2006).

On the whole, in Nigeria, there are certain challenges facing intergovernmental relations. These include fiscal autonomy and independence, the federation account, the derivation fund and problems of the oil-producing areas. A robust treatment of these issues by policy-makers will result in a fair and just resolution of the problems confronting the different tiers of government and enhance their role in providing effective service delivery (Egwaikhide and Ekpo, 1999).

2.2 Assessing Fiscal Relations in Nigeria

The degree of decentralization can be examined based on certain basic criteria, which are; expenditure decentralization, revenue decentralization and financial autonomy. The present allocation structure is based on the 1979 constitution, which divides government function into three categories of legislative powers. The executive 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, defense, foreign trade, immigration, currency, among others.

The current assignment of responsibilities among the various tiers of the Nigerian federal system is set out in the Nigerian constitution. The constitution makes provision for the establishment of local government councils, whose responsibilities are set out also in the constitution. Recorded in Tables 2 and 3 in the appendix are tax assignments and expenditure responsibilities of the three tiers of government in Nigeria respectively. While there are no stated underlying principles behind the assignment of constitutional functions, it is reasonable to admit that considerations of the extent of geographic range of externalities and economies of scale have weighed heavily in the decision to assign certain responsibilities to the various tiers of government. Indeed some government responsibilities are such that the incidence of their benefit is nationwide while for others the various cost 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 defense, banking, currency, coinage and legal tender; Citizenship, weights and measures; nuclear energy; traffic on federal roads, and external relations (including borrowing and foreign trade). Other responsibilities include those whose benefits are more local than national, but with the possibility of spillover effects beyond regional boundaries are placed in the concurrent legislative list. For instance, activities related to industrial, commercial and agricultural development; post primary education and secondary healthcare. Further, 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. Ideally, each tier of government should be assigned revenue/tax sources commensurate with its responsibilities. However, it is important to reconcile considerations of efficiency (minimization of resource cost).

2.3 Social Services in Nigeria

There is consensus worldwide that improved service delivery is central to the reduction of poverty and the vulnerability of the low income class to diseases such as malaria, HIV/AIDS, tuberculosis, and a host of other diseases. In addition, investment in education, especially basic (primary and lower secondary) education also contributes to poverty reduction through enhancement of productivity of the poor's labour, by reducing fertility and improving health. Hence, improving access to primary health and basic educational services which could impact

positively on the poor, will promote growth. Currently, Nigeria seems a long way off the track towards the achievement of this lofty objective. In its 2005 report, the African Economic Outlook (AEO) noted that the net enrolment ratio in primary education indicated that there is only one country in the whole of Africa, which has achieved the Millennium Development Goals (MDGs) objective of achieving universal primary education. Eleven others were said to be on the track towards achieving the target. The incidence of drop-out according to the AEO (2005), is however, much more serious in sub-Saharan African countries such as Angola, Madagascar and Mozambique where more than half of the children who enroll in primary school do not reach grade five. The AEO further reports those African countries' health indicators such as infant mortality rate, life expectancy at birth, maternal morbidity and mortality rates are among the worst in the world. One in six children born in low-income Africa will die before the age of five. More than a third of young children are malnourished. Maternal mortality rates are as high as 1600 per 100,000 births for Africa. The report concluded that achieving the MDGs will be extremely difficult for African countries.

In Nigeria, the performance of some health and education indicators reported for Africa above is grimmer. With such poor performance of basic social service indicators in the education and health sectors, policy analysts are often constrained to ask if Nigerian administrators are able to access sufficient resources to meet relevant expenditure assignments at sub-national levels of government. Sala-i-Martin and Sibrமானian (2003) report that over the last 25 years, Nigeria has received \$300 billion in oil revenues after deducting payments to foreign companies. Yet, development indicators clearly place Nigeria at the bottom line. Nigeria's per capita GDP (in PPP terms) was US\$1,113 in 1970. It is estimated to have fallen to \$1084 in 2000, a figure which placed the country among the fifteen poorest in the world. The percentage of Nigerians living below the United Nation's US\$1 per day absolute poverty line has also risen from 27 percent in 1980 to 66 percent in 1996, and 70 percent in 2006. Available evidence from central Bank of Nigeria Statistical bulletins reveals that between 1999 and 2006, the Federal government, states and local governments and the Federal Capital territory spent ₦11.185 trillion. States and local governments and the Federal Capital territory got ₦6, 047 trillion, representing 54 percent, while the balance accrued to the Federal government. With such huge allocations to the three-tiers of government, it is expected that basic necessities such as pipe-borne water, electricity, health services, educational facilities, roads etc., would be adequately provided. On the contrary, these services where they are provided are either grossly inadequate or highly inefficient.

Despite the huge resources that accrued to the Nigerian government during the oil boom era, and the tremendous increase in public expenditure during the period, there was little to account for it. The period as generally observed witnessed a lot of wastage in public resources, with little or no transparency and accountability in public spending (Adubi and Obioma, 1999). In an attempt to minimize wastage of resources, the World Bank (2004) recommended that successful service delivery for poor people can only emerge from institutional relationships in which the actors are accountable to each other. This brings to fore the need for effective decentralization which assumes downward accountability of policy makers to citizens.

2.4 Decentralization and Social Services

Decentralization holds great promise for improving the delivery of public services, but the outcomes depend on its design and on the institutional arrangements governing its implementation. First, it has been argued that for decentralization to increase allocative and productive efficiency, local governments need to have the authority to respond to local demand as well as adequate mechanisms for accountability. Second, functions need to be devolved to a low enough level of government for allocative efficiency to increase as a result of decentralization.

Decentralization has had mixed effects on public service delivery. Limited evidence suggests that effectiveness of decentralized service delivery depends on the design of decentralization and on the institutional arrangements governing its implementation. Specifically, the argument that decentralization promotes allocative and productive efficiency assumes that the devolution of functions occurs within an institutional environment that provides political, administrative, and financial authority to local governments, along with effective channels of local accountability and central oversight. These channels include; a voice mechanism for citizens to express their views to government bodies; exit mechanisms for citizens to switch to nonpublic service providers or to move to other localities; central government laws, rules, budget constraints, and oversight over local government operations, and channels for local governments to influence central governments decisions concerning them; public sector management arrangements

that promote accountability- such as merit-based personnel policies and rules and arrangements promoting fiduciary accountability and constraining corruption (The World Bank, 2001).

In Nigeria, the devolution of responsibilities for public service delivery has been a complex, on going process involving retention of some powers by the central government. The 1999 constitution has increased responsibilities of all sub-national governments: 36 states, a federal capital territory and 774 local governments. Most health spending has been devolved to sub-national governments, though the central government retains responsibility for public goods like immunization and communicable diseases. In education, the central government is still responsible for budgeting and hiring, but local governments are responsible for operating and maintaining schools and are often involved in hiring teachers.

Largely, a strict interpretation of the constitution of Nigeria with regard to the sharing of responsibilities between the three tiers of government implies that it is the state governments that have principal responsibility for basic services such as primary health and primary education. In addition, the extent of participation of Local Government Authorities (LGAs) in the execution of these responsibilities is determined at the discretion of individual state governments.

3. Theoretical Issues

This section examines the theories of decentralization with emphasis on its interactions with education and health services. Contained in this section also is an overview of existing arguments on the subject. The section concludes by identifying existing research gaps in the area.

3.1 Decentralization and Education

Based on theory, decentralization creates advanced sustainability and efficiency as well as equity in economic resource management in local societies. The theoretical advantages of decentralization have become extremely appealing. It is generally believed that the process of decentralization can substantially improve efficiency, transparency, accountability, and responsiveness of service provision compared with centralized systems. Decentralized education promises to be more efficient, better reflect local priorities, encourage participation, and, eventually, improve coverage and quality. In particular, governments with severe fiscal constraints are enticed by the potential of decentralization to increase efficiency. Beneficiary cost recovery schemes such as community financing have emerged as means for central governments to off-load some of the fiscal burden of education service provision (World Bank, 2001).

There is an existing debate regarding the appropriate locus of decision making within the education sector. The debate remains unresolved because the process requires that policymakers rationalize and harmonise a complex set of complementary functions, mainly: curriculum design, teaching methods, student evaluation, textbook production and distribution, teacher recruitment and pay, school construction and rehabilitation, education financing, and parent-teacher linkages. The decision of who does what are further complicated because each of these functions has to be evaluated for primary, secondary, and tertiary education, and often for preschools and adult literacy as well.

Principally, decentralization of education systems demands a complex set of functions, each for primary, secondary, tertiary, and non-formal education. Issues of how far to devolve decision-making in each of these subsectors, and to whom, continue to be debated. There are a number of on-going experiments worldwide, ranging from devolution of limited functions to intermediate governments and local governments to community-based management and financing of schools. The current consensus is that tertiary education, and specific functions such as curriculum design and standards setting are best retained by the centre; secondary and primary education should be devolved as far as possible; local participation in school management improves accountability, and responsiveness, and fosters resource mobilization. Yet, the devil is in the details, and there are many details that need to be sorted out on a country by country basis.

3.2 Decentralization and Health Care

The theoretical argument for decentralizing health care is the potential for improved service quality and coverage; yet the issues of, one, exactly how these benefits can be realized and two, the specific impact of different health

system reforms are not well understood. Health sector decentralization has become appealing to many because of its several theoretical advantages. These include the potential for: amore rational and unified health service that caters to local preferences improved implementation of health programs; decrease in duplication of services as the target populations are more specifically defined; reduction of inequalities between rural and urban areas; cost containment from moving to streamlined targeted programs; greater community financing and involvement of local communities; greater integration of activities of different public and private agencies; improved intersectoral coordination, particularly in local government and rural and development activities (Faguet and Sanchez, 2009)

Little concrete evidence exists to date, however, to confirm that these potential benefits can be realized. Few developing countries have long-term experience with health sector decentralization, and little has been done on its impact on the management of the sector and on the services it delivers. Thus, the debate whether decentralization does indeed improve equity, efficiency, accountability and quality in the health sector continues with little data to inform it. Although anecdotal and country-study evidence confirms that poorly designed and hastily implemented decentralization has serious consequences for health service delivery (Schwartz et al. 2002). A clear analytical framework to isolate or generalize the factors behind successful and unsuccessful decentralization hardly exists (Jimenez and Smith, 2005).

4. Review of Related Literature

In this section, a review of the extant literature on decentralization economic growth and social service delivery is presented. The arguments, methodologies explored and findings of the various works are discussed. Research gaps are also identified which provide justification for the proposed research.

4.1 Empirical Evidence on Decentralization

Over the years, several independent studies have been conducted to examine the impact of fiscal decentralization on growth. In such researches the crucial issue has been to measure the degree of decentralization. Bahl and Linn (1992) present a thorough discussion on the proper index of fiscal decentralization. They consider two possible measures: the ratio of local government revenues to total government revenues and the ratio of local government expenditures to total government expenditures. The first measure indicates the extent to which local government are involved in mobilizing public resources through their system of taxes and user charges. Unfortunately, this measure might ignore a possible greater responsibility of local governments for the delivery of goods and services financed with external sources. This kind of public activities is better accounted for when we measure fiscal decentralization as the share of expenditures undertaken by sub national levels of government. However, Bahl and Linn, list two major limitations to the comparability of the second measure among countries. First, as pointed out by Musgrave (1959), local governments acting just as spending agents of the central governments are not fiscally autonomous. Therefore, the measure does not reflect true decentralization of expenditures, just as centrally collected but shared taxes do not constitute true revenue decentralization. A second limitation of the index is that it does not take into account the number of local governments participating in expenditure separation. All other things being equal, more governments would imply more fiscal decentralization.

Davoodi and Zou (1998) investigate the relationship between fiscal decentralization, measured as the sub-national share of total government spending, and economic growth. They use a panel-data set of 46 countries over the period from 1979-1989. In order to deal with year to year fluctuations in growth, the growth regression is estimated on data averaged over five and ten year periods. Beside the decentralization index, the set of independent variables includes the tax rate, country-fixed effects and time fixed effects. They found a negative relationship between fiscal decentralization and growth for developing countries and the world as a whole, but none for developed countries. In conclusion, they admit that sub national government share of total government expenditure may not reflect the sub national government autonomy in expenditure decision-making.

The authors do not try to analyse differences in fiscal arrangements among countries or to group comparable countries. Even when they consider only developed countries, the level of local expenditure has completely different meaning, say, for Switzerland and Italy. In Switzerland, revenues as well as expenditures are distributed independently among the tiers of government (Spahn,1997). On the contrary, in Italy, the fiscal relations between the central and sub national governments is characterised by a high degree of vertical fiscal imbalances, ambiguity over responsibilities for financing expenditures, and lack of transparency and stability of policies (Emiliani,1997).

In a related paper Zhang and Zou (1997) are more careful about the choice of the proper decentralization index. They explore how the allocation of fiscal resources between the central and local governments has been associated with economic growth in China since the reforms of the late 1970s. First, Zhang and Zou present data to show that fiscal decentralization on the spending varied across provinces and over time. Further, they use annual data from 1980 to 1992 for 28 provinces to estimate the impact of expenditure decentralization on the provincial growth rate. They argue that local revenues do not constitute the proper measure of decentralization because a significant portion of local revenues is transferred to the upper level. The problem of comparability of the decentralization index is less relevant in this case because intergovernmental relations with each province in China are arranged according to the same principle.

Beside the decentralization measures, the explanatory variables include production inputs, composed of budgetary spending, tax rate, foreign trade, inflation, etc. Running Least Squares Dummy Variables (LSDV) regression yields a negative and significantly different from zero coefficient for fiscal decentralization. The random effect-estimation with Generalized Least Squares (GLS) regression produces negative and significant coefficients for fiscal decentralization in two indicators for budgetary and extra budgetary spending respectively. However, a negative and insignificant sign is found for the consolidated provincial spending. The authors did not explore why different provinces assume different expenditure responsibilities. If the same determinants also affect the rate of growth, then we have a problem of endogeneity which might cause a bias in the estimate of the impact of decentralization. This problem is even more aggravated by the fact that annual data were used. The gain in efficiency due to decentralization is likely to affect growth only after a while. In contrast, economic shocks are likely to affect to affect intergovernmental fiscal flows immediately. Thus annual data are likely to indicate the reverse effect: from the state of the economy to fiscal flows.

Another empirical paper by Woller and Phillips (1998) contains a more sophisticated analysis on the topic. The work presents an examination of the relationship between the level of fiscal decentralization and economic growth rates across a sample of twenty-three Less Developed Countries (LDCs) from 1974 to 1991. The data can be used to test whether and to what extent a decentralized fiscal structure contributes to economic growth rates at the national level. In addition to running panel regressions on the annual data, they also ran regressions on data sets consisting of three- and five years averages of the annual data to control for business cycle fluctuations. They use four different measures of fiscal decentralization: (1) the ratio of local government revenues to total government revenues; (2) the ratio of local government revenues less grants-in-aid to total government revenues (3) the ratio of local government expenditures to total government expenditures; and (4) the ratio of local government expenditures to total government expenditures less defense and social security expenditures. For each measure of decentralization the regression included four baseline regressors: the initial level of GDP, the ratio of investment to GDP, human capital accumulation and population growth. To control for the existence of fixed effects in the data the authors included a set of twenty-three dummy variables - one for each country- in the list of regressors. With the exception of the first measure, when using five-year averages, none of the decentralization measures were significant. The negative coefficient on the first measure is significant at the ten per cent level of confidence. Next they tested the robustness of the decentralization variables by including the control variables like imports and exports, foreign bank assets and liabilities, the inflation rate and others. They performed the robustness tests proposed by Sala-i-Martin (1997) for each of the four decentralization measures using annual data and three and five year averages. In every case, all four decentralization measures were not robust according to Leamer's extreme bounds criterion. When using the less stringent Sala-i-Martin test, only the first measure with the five-year averaged data was found to be robust and then "only at a fairly weak ten per cent level of confidence."

Aigbokhan (1999) examines fiscal federalism and economic growth in Nigeria. He employs an endogenous growth model to investigate the pattern of fiscal decentralization in Nigeria and its impact on growth. A single equation model is adopted with three different measures of decentralization; 1. Sub national own-source (internally generated revenue) revenue as a ratio of total central (federal) revenue; 2. Sub-national expenditure as a ratio of total federal expenditure and 3. Sub national own-source as a ratio of total federal expenditure. The Ordinary Least Squares technique was used to estimate the model. His findings indicate an inconsistent pattern. On the whole, a negative impact of decentralization on growth was observed for Nigeria in the study. The problem observed with the work is that the time series properties of the variables were not conducted which makes the results obtained likely to be spurious. More so, the OLS technique has been criticized as not too robust when testing interrelationships between variables. In a related and more recent study by Onwi and Obiora (2007) on Nigeria, the authors found no evidence

that fiscal decentralization leads to any meaningful rise in per capita income. The results indicated a positive but insignificant relationship between fiscal decentralization and growth.

Rodriguez-Pose *et al* (2007) on fiscal decentralization, efficiency and growth test empirically the assumption that the transfer of powers and resources to lower tiers of government allows for a better matching of public policies to local needs and thus a better allocation of resources. The study analyses the evolution of sub national expenditure categories and regional growth in Germany, India, Mexico, Spain, and the USA. They use a dynamic regression analysis of regional GDP per capita on the size and variation in the type of expenditure by sub national governments in the sample countries and control for the effect of differences in regional GDP per capita on growth. Their method of estimation differs from other works. They adopt the heteroskedasticity-consistent pooled OLS (ordinary Least Square) regression to allow for a presentation of a dynamic picture of the impact of different forms of regional expenditure on growth. The findings reveal that lower levels of economic growth were observed for countries where devolution was driven from above. That greater economic growth could be derived where bottom-up process of devolution was employed.

On the whole, the empirical researches show either no impact of decentralization on growth or a negative impact for some measures of decentralization in developing countries. With no theoretical model in hand, researchers have had to employ ad hoc approaches toward the choice of specification. Right hand side variables chosen for the regressions were simply those that were found significant in other papers dealing with this subject. Due to the little theoretical guidance available, the set of explanatory variables varies a lot among studies. By controlling for the usual growth factors, these analyses essentially focused on the residual effects of fiscal decentralization. In addition, most of the empirical studies use the traditional ordinary least (OLS) analysis and paid little attention to the time series properties of the data.

4.2 Empirical Literature on Decentralization and social services

Empirical studies on decentralization and provision of social services are scant. Robalino *et al* 2002, Ramani (2002), Oriakhi (2006), Elhiraika (2007), are some the works on decentralization and social services. Robalino *et al* investigated the linkages between fiscal decentralization and health outcomes. The study was based on a panel of low and high income countries using socioeconomic indicators such as infant mortality rate, GDP per capita, and the share of public expenditures managed by local governments which is used as a proxy for the level of fiscal decentralization. The indicator of fiscal decentralization was defined as the ratio between expenditures managed by local governments and expenditures managed by the central government. From their findings it was evident that higher fiscal decentralization led to improved health outcomes (lower mortality rates), particularly in environments with strong political rights and high levels of ethno-linguistic fractionalization.

Ramani (2002) examined the linkage between fiscal decentralization, rural development and poverty reduction, the Sri Lankan perspective. His analysis approached the issue of decentralization in terms of minimizing the costs of infrastructure provision, adopting a regional perspective to analyse the issue of ensuring the functionality of systems that cross jurisdiction boundaries. Using descriptive analysis, of some basic social services, human poverty index and output growth of regions in Sri Lanka provinces. He argued that intergovernmental transfer system could certainly help target resources to disadvantaged jurisdictions and improve pro-poor projects within jurisdictions. In addition, different factor endowments of different jurisdictions may make it more cost-effective for one to provide services to another.

In a similar study, Oriakhi (2006) examined fiscal decentralization and efficient service delivery in Nigeria. His work was purely descriptive based on data on education indicators, health indicators and other infrastructural facilities. He posited that service delivery by sub-national governments had been poor and attributed it to some constraints such as, the mismatch between expenditure assignments and sources of revenue, lopsided vertical allocation formula which favoured the federal government, rent seeking, ineffective monitoring of public expenditures among others. The following remedial measures were suggested as means of improving service delivery at the sub-national levels of government; the need to reform and modernize institutions and processes for budgetary and financial management, devolution of a greater share of both revenue/ tax sources and funds allocated from the federation account to sub-national levels of government and the need to tie budget items to community based projects and empower the communities to track such expenditures.

More recently, Elhiraika (2007) investigated fiscal decentralization and public service delivery in South Africa using cross-sectional data for nine provinces. He estimated education and health equations using random effects and fixed effects procedures. Own-source revenue and intergovernmental transfers were explored to determine the ability of the provincial governments to meet their expenditure responsibilities. Findings demonstrated that own-source revenue variable had a negative and significant impact on demand for health relative to demand for other public services. Demand for health services was found to be independent of changes in the share of intergovernmental transfers in the total province revenue. While the work could not adequately assess the intergovernmental transfer system due to data limitations, Elhiraika argued for increased fiscal decentralization and greater revenue autonomy in particular to improve service delivery in South Africa.

For Ghana, Akramov and Asante (2009) developed a simple framework that explains disparities in local public services between decentralized districts. The result of their finding suggests that geography and ethnic diversity are important determinants of local public service delivery.

Overall, the empirical literature on the impact of decentralization on the provision of social services in Nigeria is scant. The available ones are mainly qualitative which have helped to understand the pros and cons of decentralization. The magnitude of its impact on health and education outcomes remains largely non-quantified. This quantitative measurement is vital as it gives more precise information to assist in policy formulation which is what the current research seeks to provide.

5. Framework and Model Specification

The model specified here explores the fact that education and health services are jointly provided by central and state governments. The evidence offered focuses on the effects that greater local control of the finance and administration of primary services has on service uptake by local citizens. But before the empirics of the question, it is important to provide the underlying interactions between the center and periphery. To better appreciate how the interactions affect provision of a common local public good, a simple model is explored. In this model, as previously discussed, the major channel through which fiscal decentralization is likely to affect health and education outcomes is an increase in levels of allocative and technical efficiency. A decentralized system is expected to better allocate scarce resources. To make the idea more formal, a benevolent policymaker is considered. The policymaker attempts to maximize the national average health and education outcomes.

The framework employed in this section draws from Robalino et al (2002) but with some modifications. It is assumed that within each state g in a country, the outcome indicator M is a function of structural characteristics of the state (e.g population and resource base), represented as φ and the allocation of revenue x_{g1} among a set of services i . This is written as

$$M_g = f_g(\varphi, x_{g1}, \dots, x_{gi}), \quad (1)$$

It is further assumed that $f(\cdot)$ is a continuous function which validates $I \frac{\partial f_g}{\partial x_g} > 0$ and $\frac{\partial^2 f_g}{\partial x_{gi}^2} < 0$, such that an increase in revenue to the state increases health and education outcomes indicators. Then the problem solved by the policymaker can be expressed as;

$$Max_{x_{gi}} : M = n_g f_g(\varphi, x_{g1}, \dots, x_{gi}) - \lambda \left(\sum_{gi} x_{gi} - Y \right), \quad (2)$$

Where n_g is the contribution of region g to the national average and Y is the total budget to be allocated. The assumption underlying Equation 2 is that a balanced budget is maintained in the analysis. The budget is taken as given. Further interpretation suggests that revenues need to be allocated in a way that the marginal impact of an additional naira to a service i in state g (adjusted by its weight n_g), differs across all states but is optimal.

A second scenario assumes that policymakers are not benevolent and have objective functions that respond to political incentives rather than social welfare. In these cases, the functions used to allocate revenue will be

different from $f_g(\cdot)$ and therefore observed revenue (x_{gi}^{obs}) will be sub-optimal. By extension, the revenue allocation to each state g defined by $y_g^{obs} = x_{gi}^{obs}$ will be sub-optimal as well.

It is straightforward to show that for a given region g , $x_{gi}^* = x_{gi}(\phi, Y)$ are also solutions to the problem:

$$Max_{x_{gi}} : M = f_g(\phi, x_{g1}, \dots, x_{g1}) - \lambda(x_{gi} - Y_g^*), \quad (3)$$

Where Y_g^* is the optimal revenue of region g .

Equation (3) gives the problem that would be solved by a sub-national policy maker in control of budget Y_g^* . It is observed that the allocation of resources by state governments will generate national optimum only if the budget allocated to each state was optimal in the first place. However, even if the revenue $Y_g = x_{gi}^{obs}$ is sub-optimal, their management by the state government can improve the health and education outcome as long as local authorities have a better knowledge of $f_g(\cdot)$. If the revenue allocated to the state is sub-optimal, the resulting level of expenditure in each state will be different from the optimal level; nevertheless, the relative level of expenditure will

be optimal. It would thus become; $\frac{x_{gi}}{y_g^{obs}} = \frac{x_{gi}^*}{x_{gi}^*}$.

When the revenue is managed centrally, the level of inefficiency in the allocation to health and education can be

measured by $\frac{x_{gi}^*}{y_g} = \frac{x_{gi}^{obs}}{y_{gi}^{obs}}$. It is important to note that it becomes $u_{gi} = 0$. Hence, $u = u_{gi}^2$ can be seen as a

general indicator of inefficiency. Clearly, u will be a function of the share S of the total revenue Y that is managed by the state governments. The partial derivative of u with respect to S will depend on the relative levels of efficiency of the state and central governments of public expenditures. Hence, it can be proposed that

$$\frac{\partial U}{\partial S} = C(c-l) \quad (4)$$

Where c and l are indicators of the level of efficiency in managing public resources of the central and state government respectively. Given this, if $c > l$ (meaning the institutional capacity at the local level is low relative to the centre), an increase in the share of public revenue controlled by the state governments will increase inefficiency and reduce health outcomes and vice versa.

Based on the outlined assumptions, the health and education indicator can be written as

$$M = f(\phi, x(\phi, Y)) - h(U(S)) = g(\phi, Y) - h(U(S)), \quad (5)$$

Where h is a continuous and monotonic function which gives the loss in the outcome indicator resulting from inefficiencies in the allocation of public resources.

A first order expansion of (5) gives:

$$\begin{aligned} M &= g(0) + (\phi - \phi_0) \frac{\partial g}{\partial \phi_0} - h(U(S_0)) \frac{\partial h}{\partial U_0} \frac{\partial U}{\partial S_0} \\ &= \left[g(\phi) - \phi_0 \frac{\partial g}{\partial \phi_0} - h(U(S_0)) + S_0 \frac{\partial h}{\partial U_0} \frac{\partial U}{\partial S_0} \right] + \frac{\partial g}{\partial \phi_0} \phi - \frac{\partial h}{\partial U_0} \frac{\partial C}{\partial (c-l)} S, \\ &= \alpha_0 + \alpha_1 \phi + \alpha_2 S \end{aligned} \quad (6)$$

Hence, the sign of α_2 provides information on the relative levels of efficiency of central and state planners in allocating resources. It is reasonable to expect that α_2 is itself a function of the state level of development and other structural factors such as the population figure. A simple formulation of the hypothesis would be

$$\alpha_2 = a_0 + Xb \quad (7)$$

Where X a row vector of structural factors and b is a row vector of parameters to be estimated.

On the basis of models (6) and (7), equations (8) and (9) are estimated

$$\log IMR_{it} = a_0 + a_1 \log S_{it} + a_2 \log POPN_{it} + a_3 \log OS + v_i + e_{it} \text{-----} 8$$

$$\log LR_{it} = b_0 + b_1 \log S_{it} + b_2 \log POPN_{it} + b_3 \log OS + v_i + e_{it} \text{-----} 9 \quad (9)$$

Where *IMR* is the infant mortality rate, *LR* is literacy rate, *S* is the percentage of total revenue managed by the state government, *X* is a vector of structural indicators (population growth and own source of revenue), *v_i* are state specific shocks, and *e* is white noise. Following the specification of a double log model, the slope coefficients represent elasticities. In the ensuing section, the data and estimation strategy are discussed.

6. Scope and Sources of Data

The focus of the research is on Nigeria. The choice is made out of the fact that Nigeria is undergoing some economic reforms and there is a drive towards achieving the Millennium Development Goals. More importantly, the role of local authorities in achieving increased service delivery is increasingly appreciated in Nigeria. Annual series for fiscal decentralization, health and education outcomes are employed. This choice is based on the availability of data on the relevant variables covering the period 2002 to 2009 for 36 states and the federal capital territory. The specific data employed are; (i) an index of decentralization measured as the ratio of central revenue to state revenue; (ii) a measure of health outcomes (infant mortality rate) and (iii) a measure of education outcome (adult literacy rate). Other structural factors that influence fiscal decentralization include, population growth, and States' own revenue, are included in the model. The hub of the research is to investigate the effect of fiscal decentralization on social service delivery (health and education outcomes). Data are drawn from World Development Indicators (WDI) CD-ROM 2009 and annual publications of the National Bureau of Statistics (Nigeria) 2009.

Table 4: Description of Variables

Indicators	Measurement
1. Revenue decentralization	The total revenue of state governments divided by the total revenue of central and state governments.
2. Expenditure decentralization	The total expenditure of state governments divided by the total expenditure of central and state governments
Health indicator	Infant mortality rate
Education indicator	Literacy rate
Structural indicator	Population growth of each state

Contained in Table 4 is a description of the measures of decentralization and other variables employed in the research. It provides an explanation of how the measures were constructed. Fiscal decentralization connotes the shift of government activities from the central to the local levels.

7. Empirical Strategy

A panel of the 36 states and the federal capital territory covering the period 2002 to 2009 is employed. The number of observations available is 296. For each state, an observation is made of infant mortality rate, an indicator of fiscal decentralization, and a structural indicator (Population of each state). The indicator of fiscal decentralization is defined as the ratio between revenue managed by the central government and revenue managed by the state. The outcomes of health and education are used as proxy for the measurement of service delivery. Specifically, infant mortality rate captures health outcome while literacy rate represents education. A panel analysis of the outcomes of these services and fiscal decentralization is undertaken. State specific effects and differences in wealth and revenue resources of different states are considered. This enhances focus on the specific effect of fiscal decentralization on the delivery of the social services.

8. Estimation Results

The estimation begins with a preliminary analysis of the data.

Table 5: Summary Statistics of Variables

Variables	Observations	Mean	SD
Infant mortality Rate	296	12.6	8.72
Literacy Rate	296	31.5	30.1
Population Rate	296	4.8	2.8
Own Revenue	296	21.32	19.29
Fiscal Decentralization Index	296	12.3	11.19

Source: Author's estimation

Contained in Table 5, is the summary statistics of the model variables. From the analysis, the variance v_i is not equal to zero; hence equation (8) cannot be estimated using Ordinary Least Squares (OLS) method. Fixed effects models and random effects models are standard alternatives. The estimation of the education and health equations were done using random and fixed effects procedures. In all cases, the Hausmann Chi-Square test suggests that the random effects model is superior to the fixed effects one.

Table 6: Random Effects for Models (8 and 9)

Dep. Variable = IMR	Coefficient	T-Statistic	Dep. Variable = LR	Coefficient	T-Statistic
Constant	48.825	15.6**	Constant	14.61	5.4**
LogS	-1.35	3.5**	LogS	1.42	2.9**
Log Popn	-0.50	0.055	Log Popn	0.72	0.521
LogOS	-1.43	4.03**	LogOS	1.05	3.2**
Chi ² #	39.9		Chi ² #	3.1	
S.E	1.82		S.E	1.21	
Observations 296			Observations 296		
Groups (37)			Groups (37)		
R ² Between 0.51 R2 Total 0.48			R ² Between 0.52 R2 Total 0.45		

Notes: Method of estimation: Random Effects, * and ** indicate significance at 5 per cent and 1 per cent levels respectively; # Hausmann chi-square test statistic for the Random-effects versus Fixed-effects model.

Source: Author's estimation

Reported in Table 6 is a summary of results for the random effects estimations for models 8 and 9. The estimated equations have good fit in terms of the standard error. The overall R² is relatively fair. Probably the inclusion of some relevant variables could improve the R². Given the high degree of correlation between own-source revenue and transfers, which almost add up to 100 per cent in some states, the two variables were entered separately.

8.1 Interpretation of Results

Findings show that higher share of decentralized revenue tend to lower mortality rates and increase literacy rates. This does not imply that higher decentralization automatically results in improved health and education outcomes. However, evidence supports the view that if state governments are strengthened with more resources from the centre then fiscal decentralization is likely to improve health and education outcomes. In particular, a 10 percent increase in fiscal decentralization index results in a 13.5 per cent decrease and 14.2 per cent increase in infant mortality rate and literacy rate respectively. Given that Nigerian sub-national governments are mainly responsible for financing basic public services such as primary health and education, decentralization creates the potential for further improvements in the financing of these priority sectors. In Nigeria federal grants to states are seen as a common instrument to improve efficiency of inter-governmental cooperation. They are used by federal governments to influence states' resource allocation and encourage them to improve financing of key services in line with national priorities.

To evaluate the role of the size of the state on decentralization and infant mortality rate, the population of each state was introduced into the model. The coefficient of the population rate indicator is insignificant in both models. As shown in Table 6, a 10 per cent increase in population growth rate, would reduce infant mortality rate by 5 per cent and increase literacy by 7 per cent. Population growth rate is not significant in determining the effect of decentralization on health and education outcomes. One possible interpretation of this result is that high population growth rate at the sub-national level weighs down on the resource allocation effort at the centre. This complicates progress in improving service delivery at the sub-national levels.

A striking feature of the results is that the coefficient of own source of revenue is significant in both models. This suggests that the positive effect of fiscal decentralization on infant mortality rate and literacy rate is higher in states with lower own source of revenue. Evidently, 10 per cent increase in own source revenue results in a 14.3 per cent decline in infant mortality rate and 10.5 per cent increase in literacy rate. This does not come as a surprise. A plausible explanation for this finding is that when own source of revenue is high, state governments can better fund health and education services with internally generated revenue thus, depending less on transfers from the federal government. It further points to the fact fiscal decentralization tends to be less effective in improving health and education outcomes when own source of revenue is high. A typical example is the case of Lagos state where internally generated revenue has increased significantly over the last 5 years and has reduced the state's dependence on revenue from the centre. A consequence of this is improved services recorded in Lagos State of Nigeria.

9. Summary of Findings

The study explores the linkages between fiscal decentralization, infant mortality rate and literacy rate. The research is based on a panel of 36 states and the federal capital territory in Nigeria. Socioeconomic indicators such as infant mortality rate, literacy rate are employed to measure service outcomes. The ratio of state government revenue to federal government revenue is used as a proxy for the index of fiscal decentralization.

The following major findings were evident;

- I) Higher fiscal decentralization is consistently associated with lower mortality rate and higher literacy rate;
 - ii) Benefits from fiscal decentralization are not particularly important for states with high population and low internally generated revenue;
 - iii) The Internally generated revenue enhances literacy rates and reduces infant mortality. This demonstrates the need to improve state autonomy and reduce dependence on transfers from the centre.

Largely, the results of the estimated models should be interpreted with caution: first, given measurement problems associated with aggregated state data; second, the indicator of fiscal decentralization used in the analysis is a crude proxy for the fiscal decentralization process and may not be a true representation of the index. Nevertheless, some policy recommendations are to be drawn.

10. Policy Recommendation

Certain policy implications arise from the discourse. Prominent among them are highlighted in this section.

- i) Fiscal decentralization should be encouraged as it is shown to contribute positively towards improved health and education outcomes. However, it is important to stress that the results presented in this research do not imply that fiscal decentralization is a magic recipe to improve health and education outcomes. The central government should be able to influence local policy and implementation without compromising the autonomy of local decision-making from which many of the benefits of a devolved system is expected to flow.
- ii) An optimal allocation of public revenue across regions and adequate transfer mechanisms are important to facilitate the benefits of decentralization. The size of a state in terms of its population growth should form a critical component of the decentralization process. Consequently, states with higher population growth rates should receive a higher percentage of the federal allocation.
- iii) Sub-national governments, particularly state governments must promote internally generated revenue and rely less on subventions from the central government.

On the whole, the research findings provide useful information for the ongoing economic reforms in Nigeria. The key policy making arm of the three tiers of government should also benefit from the findings. Further research in the subject is however necessary.

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Appendix

Table 1: Evolution of Nigeria's Federal Structure, 1914-1997

Date	Northern Nigeria	Southern Nigeria	Total	Enabling Laws
1914	1 Protectorate	1 Protectorate	2	
1933-1939	1 Group of Province	2 Groups of Provinces (east and West)	3	Native, Authority Ordinance
1946	1 Region (Northern Region) 12 provinces 39 Divisions	2 regions (East and West) 11 Provinces 44 Divisions	3 23 83	Notice No. 43 of 1993 Notice No. 1725 of 1938 Notice No. 17 of 1943
1963	1 Region (Northern Region) 14 provinces 41 Divisions	3 regions (East, West and Mid-West) 21 Provinces 55 Divisions	4 35 96	The mid-West Region Transitional Provisional Act No. 19, 1963
1967	10 States 41 Divisions	6 States 55 Divisions	12 96	State (Creation and Transitional) Decree 14, 1967
1976	10 States	9 States	19	State (Creation and Transitional)

	152 Local Governments	148 Local Governments	300	Provisional) Decree 14, 1976
1987-1990	11 States 240 local Governments	10 States 208 Local Governments	21 448	State (Creation and Transitional Provisional) Decree 1987 and 1989
1991	17 States (Including FCT) 320 local governments	14 States 273 Local Governments	31 595	State Creation and Transitional Provisional) Decree 37, 1991
1996	20 States Including FCT) 414 Local Governments	17 States 355 local Governments	37 769	State Creation and Transitional Provisional) Decree 37, 1996
1997	20 States (Including FCT) 417 Local Governments	17 States 357 Local Governments	774	State Creation and Transitional Provisional) Decree 37, 1996

Source: Adapted from Ekpo 1999.

Table2: Tax Jurisdiction in Nigeria

Federal	State	Local
<ol style="list-style-type: none"> 1. Import 2. Excise Duties 3. Export duties 4. Mining Rents and royalties 5. Petroleum profits tax 6. Companies income tax 7. Capital Gains Tax (legal Basis) 8. Personal income tax (legal basis) 9. Value added tax (VAT) 	<ol style="list-style-type: none"> 1. Football pools and other betting taxes 2. Entertainment taxes and estate duties 3. Gift tax 4. Land tax other than on agricultural land 5. Land registration fees 6. Capital gains tax (administration) 7. Stamp duties 	<ol style="list-style-type: none"> 1. Rates 2. Tenement rate 3. Market and trading licenses and fees 4. Motor park duties 5. Advertisement fees 6. Entertainment tax 7. Radio/television licenses

Sources: Nigerian Constitution, Report of the Presidential Commission on Revenue Allocation, 1980 and VAT Decree of 1993 and amendment in 1996.

Table 3: Allocation of Expenditure Responsibilities in Nigeria

Level of Government	Expenditure Category
Federal only	Defense 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, interstate commerce, telecommunications, immigration Mines and minerals, nuclear energy, citizenship and 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, ie., any subject not assigned to federal or local government level by the constitution.
Local government	Economic planning and development Health services Land use Control and regulation of advertisements, pets, small business Markets, public conveniences Social welfare, sewage and refuse disposal, registration of births, deaths Marriages Primary, adult and vocational education Development of agriculture and natural resources.

Source: Nigerian Constitution 1979

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