An Analysis of Government Social Spending and their Correlation with Social Outcomes in Nigeria: Focus on Education

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Abstract
This paper analyzed trends in social spending and social indicators and established relationships between the two. Specifically, the paper established the correlation between social spending on education and one of its social outcomes- adult literacy rates. On the basis of a Nigerian data set and matching adult literacy rates with government spending on education, using ordinary least squares (OLS) and a long- run equilibrium regression tools, a country specific statistical analysis showed that naira spending on education per population was of some relevance to adult literacy rate fluctuations. The paper recommended that the Nigerian government can draw from World Bank/IMF expertise on how social and sectoral spending, aimed at achieving greater outcomes, could be accommodated and financed within a growth-enhancing macroeconomic framework. The country could do so by identifying and implementing, not only unproductive spending that should be reduced to make more money available for education, but also key categories of public expenditure that must be maintained or increased.

INTRODUCTION

In the 1990s, international development assistance (IDA) to Nigeria and other sub-Saharan African (SSA) countries began to address social priorities more explicitly. Since 1999, the International Monetary Fund (IMF), the World Bank and other International Organizations have begun encouraging African countries to pay closer attention to the composition of government spending and to expand or at least preserve shares of social spending in their budgets from year to year.

Social spending is defined as funding for public health care, education, housing and other social services. Generally, it is spending on human capital- education and health development - that helps strengthen skills and boost productivity. Quality human capital is a driving force behind poverty reduction (World Bank, 2002). Quality social spending is an instrument of launching a country into the world of science and technology and consequential hope of human advancement, in terms of living conditions and development of the environment.

Quality education, health care, housing, water and sanitation in the life of any nation are the life wire of its industries. They are the foundation of moral regeneration and revival of its people. Therefore, no nation can afford to pay lip service to social spending on education, health and housing.

The Nigerian government has accorded due recognition to the global clamour for social spending as a veritable instrument of economic development. This is in keeping with the objective of according the citizenry qualitative education and health care, in order to ensure compliance with the Millennium Development Goal (MDGs). For instance, in 2004, Nigerian government signed into law the compulsory, free, universal education for the first nine years of schooling. Also, the government has made a giant stride in healthcare, aimed at actualizing the MDGs.

As laudable and positive as the Nigerian government spending on education, social insurance and healthcare are, the overall objectives of such spending may not guarantee that actual spending has been adequate in improving social conditions in a meaningful way. This is because the social sector is inherently more complex than other sectors for the following reasons:

(a) The bulk of the spending needed in the sector is for long term recurrent costs; this raises the issue of sustainability because traditional budgetary allocation is usually geared toward short term investment costs; and Nigeria needs to figure out how to create adequate fiscal space in the budgets for social spending, because the sector is critical in terms of its role as the life wire of economic productivity.

(b) There are numerous non-social related factors that affect social outcomes, thereby necessitating complex cross-sector approaches

(c) Individual behavior plays a critical role in social outcomes and is very difficult to influence or change.

(d) Measuring social outcomes, other than births and deaths, number of people in school and out of school, number enjoying good water and the number not enjoying good water, etc. and attributing causality to specific factors, is inherently complex.

(e) The costly financial protection element of social financing is largely unique to the sector (except for a few standard social protection programmes such as pensions, unemployment insurance and social assistance) and it creates difficult trade off among competing social objectives for the resource-constrained governments.

Bearing the above social constraints in mind, this paper is an attempt to highlight the actual connections between social spending and social outcomes, using the most comprehensive data available for Nigeria. For now, the focus of the paper is on social spending on education and its impact on social outcomes. **We hypothesize that government's expenditures on education (social spending) have not significantly affected Nigeria's educational outcomes (quality adult literacy rates)** .The paper suggests some policy responses that are relevant not only for the government of Nigeria but also for the international community in their roles in supporting social programmes of quality education.

The paper is organized in **Sections**. Following **Section 1(Introduction)** is **Section 2** which discusses some aspects of the **trends of social outcomes in Nigeria**. **Section 3** examines some aspects of government **social spending theories and empirical reviews. Section 4** presents **methodological issues**. **Section 5** deals with **empirical result analysis and discussion of findings** and finally **Section 6** offers some **concluding policy implications**.

TRENDS OF SOCIAL OUTCOMES IN NIGERIA

In Nigeria, the last sixteen years (1997-2012) have been marked by average poverty incidence above 50% (Bello, 2003). This is an indication of slower progress in the country's quest to scale the hurdle of the UN Millennium Development Goal of halving the 1990 poverty rate by the end of 2015.

The illiteracy rate among adults aged 30 to 50 declined from 43% in 1998 to about 36% in 2009, although the literacy rate reached about 57% for adults (above 50) and more for youths (less than 30) during the period (CBN, 2010). What is behind the failure in education of the most active age in Nigeria? The culprits may well be the quality of funding for infrastructure, leadership, quality of teachers, etc. The rich are willing to pay thousands of naira for private schools while avoiding the so- called free government schools. The government seems to focus on resource allocation without improving infrastructures and incentives to teachers.

On health care, Nigerians continue to have less access to basic health services. As a result, health indicators such as infant mortality per 1000 births and maternal mortality in hospital births remain relatively high, surpassing 50% of the population. No wonder life expectancy has remained at 54 over a decade (CBN, 2010). The high incidence of poverty, deprivations and other adverse developments in the health, education and housing sectors are often associated with the current high violent incidences of youth militancy, armed robbery, youth restiveness, HIV/AIDS, and high vulnerability to other diseases in the land.

Although, the generally improving trends in aggregate Federal Government spending in absolute terms over the last decades (1986-2011) reflect increasing access to social services by Nigerians (see table 1), it is not an evidence that access can be attributed primarily to more generous government social spending policies. If it could, one would expect to see a paralleled rising trend in social outcomes. Nominal expenditure ratio to GDP has historically not been a very reliable guidepost for government expenditure. Apart from the fact that such a measure of expenditure is inflation-ridden, it suffers from deep-rooted institutional problems such as corruption, inefficient management practices, and weak incentives (Allen, 2003). Real growth numbers yield more genuine conclusions.

The above shows that the relationship between social spending and social outcomes in Nigeria may not be as clear-cut as expected. Some intervening factors could be playing a great role.

Table 1 (see Appendix) shows that, in absolute terms, aggregate government expenditure has been growing steadily since the 1990s. This is applicable to expenditure on social services. Also, the social outcomes – adult literacy, life expectancy and infant mortality rates - have been fluctuating.

Specifically, the government expenditure on education has been fluctuating since the 1980s (see table 2, Appendix). The economic recession that beclouded Nigeria in the mid-1980s and the subsequent adoption of the IMF supported Structural Adjustment Programme (SAP) in 1986 in the bid to correct the structural imbalances in the economy adversely affected the education sector. SAP advocated a reduction in the subsidies to social services such as health and education. With the uncertainties in the expenditures, the education sector continues to suffer setbacks in enrolment, facilities, quality of service delivery and output amongst others. In this study, we attempt to ascertain the extent to which educational outcomes have been affected by these uncertainties in expenditure.

THEORETICAL FRAMEWORK AND EMPIRICAL STUDIES

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

Pigou (1928) in his legendary book- Public Finance - noted that in every developed society, there are some forms of government organizations endowed with functions and duties, which involve expenditure and consequently require the raising of revenues. Though Pigou's

perception of what a government and its accompanying responsibilities were, had undergone tremendous transformation both in size and complexity over time, the underlying concept of public expenditure as a veritable instrument through which government policy choices are carried out, remains intrinsically unaltered in today's economies. Hence, the continuous postulations of several theories as well as the identification of various variables that purport to explain the growth in the relative size of the public sector.

Wagner (1890), a German economist, as cited by Ogbonna (2009) explained the growth of public spending on education, recreation and culture, health and welfare services in terms of the relationship between these social services and real income growth (increase in GDP). According to Wagner, public expenditures on these services would rise more in proportion, which would account for the rising ratio of government expenditure to GDP. As unsophisticated as Wagner's postulations were, they nevertheless opened the confines of social spending researches to more rigorous and empirical verifications.

In a study of US economy's spending on education, Hanushek (2005) collaborated Wagner's hypothesis when he found that the real per student public expenditure roughly quadrupled in each 50- year period between 1890 and 1980 in the US; it went from $164 in 1890 to $772 million in 1940 and to $4622 million in 1990. Wagner's thesis was nevertheless criticized for its several assumptions, one of which is the non-recognition of individual's preferences of the citizenry.

In their works, Musgrave and Musgrave (2004) sought, through their theories, to explain further the behaviour of government expenditure over time. Using historical examination process, they found that in the early stages of economic growth and development, public sector investment as a proportion of the total investment of the economy, was high. They reasoned that resource allocation in a market system for social and economic infrastructures could be inefficient, thereby necessitating government intervention and thus enlarging government expenditures.

However, as the economy matures, Musgrave and Musgrave argued that capital expenditure would be high, thereby shifting from the position of economic infrastructures to the promotion of education, health and other welfare services. Consequently, expenditures on welfare distribution programmes would tend to significantly grow in relation to other public expenditure items and also relative to GDP.

Peacock and Wiseman (1961) in their hypothesis, based on the political theory of public expenditure determination, collaborated Wagner's thesis but argued that public expenditure does not increase in a smooth and continuous manner, rather in jerks or step- like fashion in response to booms and depressions as may be experienced in the economy. Goffman and Mahar (1971) argued that population growth and life expectancy positively contributed to the growth of public expenditure.

It is obvious that every government has the tendency to raise social and economic expenditures but the social outcome differs in number and quality. Canning and Bloom (2006) argued that higher social outcomes- higher incomes, healthier population, more educated and productive people - play an important role in the generation of economic development in a country. To Canning and associates (2006), healthy adults are more likely to be in the work force, are more productive and earn higher wages; a longer healthier lifespan can lead people to save more for retirement; and health improvements can lead to better schooling outcomes and test scores for children.

Barrow (2006) argued that in the US and around the world, more years of schooling is associated with higher average incomes and wages. In a survey carried out in 2004, Barrow found that high school graduates earned an average of $14.31 per hour compared with $11.12

per hour for high school drop outs-an advantage of nearly 30%. In 2003, high school graduates earned higher than school drop- outs on an annual basis by 75%, up from 47% in 1979. Higher income per person is good for the economy.

According to Canning and associates (2006), healthier population indirectly raises the "demographic gift" or demographic dividend". Canning explained that reduced infant mortality eventually causes fertility rates to fall which can coincide with a large group of children reaching working age and this significantly boosts economic growth. Further, Canning attributed one-third of China's rapid economic growth to this demographic dividend. Jamison (2005) acknowledged Canning's findings that healthier people raise economic growth when he ran a causal link between the two.

The mutually reinforcing relationship between social outcomes and economic development leads to the prospect of vicious as well as virtuous circles. The current rise in youth crimes, kidnapping, militancy, HIV/AIDS, school drop- outs, for example, have had and will continue to have a very negative impact on economic development. In addition to fraying the social fabrics, undermining public finances and diverting attention from other pressing developmental needs, the rising social malaise further undermines efforts to raise incomes and to reduce poverty.

It is observable from the foregoing that while the Musgraves, Wagner, Peacock and Wiseman as well as Hanushek perceive government as having the tendency to raise expenditure, Canning, Lopez(2003) and Jamison perceived that quality expenditure results to healthier, more educated and productive people who contribute positively to economic growth.

Generally, rising social expenditure budgetary allocation may reflect increasing access to social services. It is not evident that access can be attributed primarily to more generous government social expenditure policies, but more to actual expenditure. Therefore, any attempt to establish actual connection between social spending and social outcomes could be an arduous task.

RESEARCH METHODOLOGY

Measuring Social Spending

Identifying public spending that is truly social is a difficult exercise because there is no gauge of social merit that applies to every individual situation. For most analytical purposes, social spending is often proxied by budgetary outlays on education and health care which tend to be the most representative and easily identifiable categories of such spending (Lopez 2003).

Social spending is usually measured in one of the three ways: in Nigerian naira per capita; as a percentage of GDP; and as a percentage of total government expenditure. Each measure has both merits and shortcomings in its ability to gauge the adequacy of social spending. Per capita spending allows international comparisons of absolute spending; percentages of GDP give an idea of spending relative to the size of the economy; and share of government spending- a more discretionary indicator - gives some sense of policy direction and potential. But the policy assumption underlying the use of all these measures is that the higher the social spending, the better the social outcomes.

Measuring Social Outcomes

The expected social spending outcomes are the social indicators through which we interpret and gauge the level of social spending by the government. Such indicators include: infant mortality rate per 1000 live births or per 1000 death; adult or youth literacy rate; life expectancy; the share of infant population immunized; total fertility rate; and maternal

mortality rate. The number of health institutions, or the number of educational institutions, etc., is also an indicator.

As the average person's income grows, we expect his or her demand for government social services to grow and some to shrink. One of the best documented relationships around the world is that more years of schooling is associated with higher average income and wages (Barrow and Rouse 2006). To them more education leads to higher wages and reduces income inequality. Healthy adults are more likely to be in the workforce, are more productive and earn higher wages (Canning et al, 2006).

The focus of this paper is on education. The aim is to highlight the central position education occupies in the development strategies, given its powerful potential for influencing so many other welfare indicators.

Model Specification

An attempt is made in this sub-section to provide an explanation for the size and structure of social indicators in Nigeria using an econometric model. In specific terms, the paper attempts to evaluate the relationship between actual social spending and social outcomes in Nigeria using econometric model.

In order to avoid double counting, coupled with the prevalence of wide data gaps in the state or local government expenditure profiles, the federal government expenditure data series were used in the estimation, as it tends to portray a better measure of total government social spending.

The paper relies on data generated between 1986 and 2012, looking for any significant relationship, or otherwise, between social spending on education and benefits. The objective is to determine the relative explanatory power in terms of each of the measures.

The model adopted in the paper follows from the simple relationship between social spending and social outcomes. That is:

Social outcome indicator =f (Social spending).

Where f = function of

The model draws considerably from empirical works as summarized in the literature review. The simple regression equation is of the form:

$ALR = a + b(NEEPP) + e_t$

Where:

ALR =Adult Literacy Rate

NEEPP= Naira Expenditure on Education per Population

a = Intercept of regression line

b = Coefficient of the independent variable

e_t = Error term

To capture the dynamic nature of the government expenditure on education in the last twenty-six years, and assuming a possibility that our data could be affected by business cycle fluctuations over time, we control for such fluctuations by incorporating the variable of change – inflation rate – into the model equation. Hence, the long-run equilibrium model is: ALR = a + b1 (NEEPP) + b2(INFR) + et, where INFR = Inflation rate.

RESULTS

The regression results indicate that R^2 =0.520998 showing that 52.09% can be explained by the explanatory variables while the R^2 adjusted square = 48.10%. The F-statistic is 13.05% which indicates that the overall fit is good. The coefficient indicates positive relationship between the dependent variable (adult literacy rate) and the independent variables- naira expenditure on education per population and the inflation rate. Since the p-value is less than

0.05, the relationship between the two is significant at 5 percent level. We conclude, at the level regression, that the government nominal expenditure on education per population influences adult literacy growth over the years.

However, the DW statistic is 1.390686 which is less than 2 and therefore suggests the presence of autocorrelation. This implies accepting the result with caution and hence the need to examine more vigorously the stationarity properties of the level series data.

Unit Root Test

Given the non-stationarity features in the level series data, the Philips-Peron unit root test was conducted. The table below shows the results:

Table3. Philips-Peron Unit Root Test Results

Variable	Pp Test	Order of Integration
ALR	-7.928152	I(1)
NEEPP	-4.781406	I(1)
INFR	-4.721769	I(1)

Source: Compiled by the authors

The Long- run Co-integration and Short Run Dynamics

The long- run effects of Government social spending (NEEPP) on social outcome (ALR) in Nigeria are found in table 4. From our results, the R^2 =89.38% while the adjusted R^2 = 84.42%. The overall F-statistic is 18.03% which is also statistically good and significant. The result further reveal that naira expenditure on education, lagged on period one and three, is significant. Since adult literacy rate depend on government spending on education, it adjusts to the spending with a lag about 66 percent of the discrepancy between long-run and short-run it is corrected within a period. The adjustment increased to about 92 percent with three lags.

The error correction model (ECM) lagged with a coefficient of -37.7 is also significant. In this case it allows the long run behavior of the endogenous variable to converge to their co-integrating plane, i.e., to their long run equilibrium plane while allowing a wide range of short run dynamics. Since the DW statistic is approximately 1.90, we conclude that the autocorrelation coefficient is very close to zero, and we have an indication of no autocorrelation. This confirms the efficiency of the OLS estimators of R^2 (89%), adjusted R^2 (84%) and the reliability of F- statistic (18.03) with p-value of 0.00003, at 5% significance level.

DISCUSSION OF FINDINGS AND CONCLUDING REMARKS

According to Hanushek (2005), education provides economic benefits, builds strong societies and polities and improves health. It is also a widely accepted humanitarian obligation and an internationally mandated human right.

The good news is that over the years, access to education has increased enormously (Cohen and Bloom, 2005). This is consistent with our findings. Illiteracy has fallen, and a higher proportion of people are completing primary, secondary, or tertiary education than ever before.

Consistent with our findings is that a remarkable progress has been made in formal schooling in Nigeria over the years, especially as measured by adult enrollment ratio – the ratio of the number of people enrolled in education, regardless of age, to the population. It is not in doubt that Nigeria has tripled its literacy in the 21st century.

In conclusion, no one questions the importance that nations attach to better education. Human capital, in the form of higher levels of educational attainment, is a major mover of sustainability and productivity growth that spurs broad-based economic growth in any nation. Quality public spending is the best route in determining social indicators.

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APPENDIX

Table 1: Nigeria: Five-year average of federal government expenditure on social/community services and social outcomes (1986-2012)

Year	1986-1990	1991-1995	1996-2000	2001-2005	2006-2012
Total Fed. Government expenditure (Nbillion)	33.3	141.6	569.4	1312.0	1842.6
Expenditure on social/ Community Services (Nbillion)	3.6	9.6	48.5	170.5	272.9
Poverty Incidence (%)	39.3	35.1	67.8	60.0	54.0
Adult Literacy Rate (%)	-	-	57.0	58.0	64.2
Life Expectancy	65	61	54	54	54
Infant Mortality Rate (%)	75.0	75.0	75.1	77.7	75.2

Source: CBN Annual Report and Statement of Accounts (Various years)

Table.2 Data for regression

Obs	ALR	NEEPP	INFR
1986	49.6	1.1	5.4
1987	49.6	0.7	10.2
1988	50.1	1.1	38.3
1989	50.1	1.8	40.9
1990	52.2	2.7	7.5
1991	54.0	1.8	13.0
1992	53.6	2.3	44.5
1993	53.7	8.6	57.2
1994	53.7	9.8	57.0
1995	57.1	12.3	72.8
1996	57.1	14.6	29.3
1997	57.0	15.1	8.5
1998	57.0	24.7	10.0
1999	57.0	36.2	6.6
2000	57.0	43.0	6.9
2001	57.0	50.3	6.9
2002	57.0	89.2	12.9
2003	57.0	63.0	14.0
2004	62.0	65.9	15.0
2005	57.0	85.9	17.9
2006	64.2	108.4	8.2
2007	64.2	142.5	5.4
2008	51.3	111.6	11.6
2009	49.8	91.0	12.4
2010	61.3	112.9	13.7
2011	71.6	210.9	10.8
2012	61.3	212.2	12.2

Source: CBN Statistical Bulletin, 2012

Table 3: OLS RESULTS

Dependent Variable: ALR				
Method: Least Squares				
Date: 10/07/14				
Time:12:40				
Sample: 19862012				
Included observations: 2 7				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	52.53930	1.569729	33.47029	0.0000
NEPC	0.062944	0.013111	4.800723	0.0001
INFR	0.014772	0.044096	0.334994	0.7405
R-squared	0.520998	Mean dependent var		56.30889
Adjusted R-squared	0.481082	S.D. dependent var		5.274054
S.E. of regression	3.799217	Akaike info criterion		5.611906
Sum squared resid	346.4172	Schwarz criterion		5.755888
Log likelihood	-72.76073	Hannan-Quinn criter.		5.654720
F-statistic	13.05210	Durbin-Watson stat		1.390686
Prob(F-statistic)	0.000146			

Table 4: ECM Results

Dependent Variable: D (ALR)				
Method: Least Squares				
Date: 10/07/14 Time: 12:50				
Sample (adjusted): 1990 2012				
Included observations: 23 after adjustments				
Variable	Coefficient	Std. Error	t-statistic	Prob.
C	20.10099	3.117742	0.183406	0.0071
D(ALR(-2))	-6.69683	-3.651371	0.026885	0.0024
D(NEPC)	0.042204	1.569796	0.025177	0.1373
D(NEPC(-1))	-0.65649	-2.607487	0.043114	0.0198
D(NE'PC(-3))	-0.92458	-4.463930	0.029529	0.0005
D(INFR)	-0.06134	-0.207722	0.027689	0.8382
D(INFR(-3))	0.18543	0.669698	0.169310	0.5132
ECM(-1)	0.37714	-2.227526	0.644729	0.0416
R-squared	0.893762	Mean dependent var		0.48695
Adjusted R-squared	0,844184	S.D. dependent var		5.34647.
S.E. of regression	2.110446	Akaike info criterion		4.59988
Sum squared resid	66:80977	Schwart criterion		4:99483
Log likelihood	44.89867	Hannan-Quinn enter		4.69921
F-statistic	18.02740	Durbin-Watson stat		1.85522
Prob(F-statistic)	0.000003			