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Health expenditure and health status in Northern and Southern Nigeria: A comparative analysis using national health account framework

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Abstract

Background: Financing of healthcare by government in Nigeria is complemented by contributions from the household, donor agencies, and the private sector. This paper examines the disparity in healthcare financing flows between the northern and southern regions of Nigeria and the implication for health outcomes.

Methods: The paper uses data from the latest round of Sub-National Health Accounts for 17 states in Nigeria, from 2003 to 2005. The methodology was structured to give a complete accounting of all spending on health, regardless of the origin, destination, or object of the expenditure.

Results: Healthcare financing in the north is relatively lower, accompanied by significant poor health status, with heavy dependence on the households in both regions. The share of households in the north was proportionally disproportionate, because of the high poverty incidence vis-a-vis public providers. This raises equity concerns as those least able to pay were made to bear more burden.

Conclusion: The stewardship role of the government has to increase in terms of funding health care, in the light of low income of majority of the people, especially in the north, if the health status of the populace is to improve. Without government being directly involved in the provision of healthcare services, attempt should be made to subsidise the private sector and increase regulatory capacities to improve the overall availability and accessibility of health services to the citizenry. The pooling mechanism approach is identified to be an appealing alternative to finance healthcare.

Keywords: Health expenditure, Health status, National Health Accounts (NHA), financing sources, financing agents, Nigeria.

Introduction

At independence in 1960, Nigeria had three regions, which comprised the North, South East and South West. Observably, the country can broadly be divided into North and South, the original structure of the nation before the 1914 amalgamation. Despite the amalgamation and more than 52 years of political independence of the country, political ideology and economic characteristics are still patterned along the north-south divide. In the succeeding years, the country witnessed a division into smaller units of states, and currently it operates a federal structure with three tiers of government viz. federal, states and local governments. The nation now comprises of 36 states and the Federal Capital Territory (FCT), as well as 774 Local Government Areas (LGAs).

The federal structure has shaped health delivery in Nigeria as all the three tiers of government are involved in health care delivery organisation, management and financing. Although not formalised by any law, the prevailing situation is such that most of the tertiary heath care is provided by the Federal Government, secondary health care by State governments while LGAs shoulder the major responsibility at the primary level, providing Primary Health Care (PHC) services with support from the state ministries of health [1]. PHC in Nigeria is supposed to be available and accessible to all Nigerians in their communities. It covers health centres and clinics, dispensaries, and health posts, providing general preventive, curative, promotive, rehabilitative and pre-referral care to the population as the entry point to the health care system. Since most of the health care provision is at the primary and secondary levels, the differential roles of state and LGAs become a major factor in determining health status in the different states of the federation [2]. Although there is a National Council on Health that determines health policy in the country, the performance of health sector rests mainly on the different states.

It has been argued that inadequate resources is one of the main reasons for the low health status of Nigerians and this could also explain the regional variations [3]. The general poor health performance in Nigeria has often been associated with inadequate resource allocation and expenditure patterns at the different tiers of government. It is therefore not surprising that the health outcomes in the country vary across the geopolitical zones. For instance, while total fertility rate for the country is 5.3 in 2008 (Table 1), it is 6.5 and 4.3 in the northern and southern parts, respectively. Infant, child and under-five mortalities also show significant disparities.

Table 1: Socio-demographic indicators of Nigeria

Indicators	1970	1990	2008
Population			151,212,000
GNI per capita(US$)			1,160
Crude death rate, 1970	24	20	16
Crude birth rate, 1970	47	46	40
Total Fertility Rate	6.6	6.6	5.3
Life expectancy, 1970	40	45	48
Under-5 mortality rate		230	186
Infant mortality		120	96

Source: [18]

While child and under-five mortalities are respectively as high as 133.3, and 231 per 100,000 births in the north, they are 50, and 130.7 respectively in the South. The same disparities exist in child nutritional indicators. According to 2007 Multiple Indicator Cluster Survey (MICS), 8.3 per cent of children were underweight while 19.4 per cent were stunted. Analysis by location however reveals that the poor status is more location specific. For example, only 3.7 per cent of children in the south were underweight compared to 12.2 per cent in the north. In the same vein, 12.3 per cent of children in the south were stunted, while 29.3 per cent of them in the north were stunted. There are thus policy challenges in the country of how to make development more equitable while improving the health status in the country. There are indications that the differential development in the two locations might not be unconnected to the disparate poverty status in the two areas. Poverty is more widespread in the north than the south.

One issue that arises from the foregoing is whether these disparities are related to the structure and flows of health funds and financing in the two locations. This study therefore proposes to investigate the magnitude and flows of health resources in Nigeria as well as where these eventually go, and the associated influence on the health status outcome. The National Health Accounts (NHA) framework is utilised to investigate this, because it provides an ingenious way of identifying and estimating resource flows in the health sector [4]. Promoted by World Health Organisation (WHO), many African countries have conducted NHA estimates to inform policy decision in the health sector, though no other apart from Nigeria have estimated Sub-National Health Accounts (SNHA) at state/regional level [5]. NHA provides consistent framework for modelling reforms, and for monitoring the effects of changes in health financing and service provision.

The objectives of this paper is thus to determine the differences in the northern and southern regions' patterns of health financial flows, indicating the relative distribution of funding between public, private and donor sources; financial flows between public and private intermediaries as well as establish the health status differences across the northern and southern regions in relation to available health care funding.

Literature Review

The NHA framework is for measuring total national health expenditures by stakeholders in the sector, such as the public, private, and donors. Health expenditures are analysed based on a flow of funds framework and presented in matrices form, linking the sources of expenditure and the financing agents or intermediaries with a variety of breakdown of uses of expenditure [6]. The core of NHA method is the calculation and presentation of estimates through a "source and uses" matrix [7]. Using a matrix approach, a disaggregated analysis of expenditure is provided with the understanding of the flow of funds through the health care system, systemising who pays, how much, and for what. In the NHA matrices, a number of categories of such as sources[1], financing agents[2], and uses[3] are specified. Sources relate to the primary origin of funds, while uses are the categories of providers or types of health services on which the fund

[1] Sources are the institutions or entities that provide the funds used in the system by financing agents

[2] Financing Agents are the institutions or entities that channel funds provided by financing sources and use those funds to pay for or purchase the activities inside the health accounts boundary. They are intermediaries in the disbursement of the fund from sources to specific uses.

[3] Uses are the functions which are the types of goods and services provided and health care activities performed inside the health accounts boundary. These include administration, curative health care, preventive health care, rehabilitative, training and research in health.

is expended. Between sources and uses are the financing agents who serve as intermediaries in the disbursement of the fund from sources to specific uses. Health resources originate and flow from the financing sources to the financing agents who carry out the actual purchases of health goods and services. The uses of the health funds are usually presented in a number of varieties such as by providers, functions, geographical and socio-economic grouping.

NHA has been commonly accepted as a veritable tool for assessing performance progress and changes in the health sector of any country. By the early nineties, there already existed health spending with estimates for 140 countries including total spending as well as public and private shares published by the World Bank and World Health Organisation in 1993 [8, 9]. Many countries in Africa have conducted NHA estimates with the aim of tracking the fund flows in the health sector, and assess the efficiency and effectiveness of health activities and programmes on which fund is allocated. The NHA allows an analysis of the changes in the level and source of all public and private health care expenditures at the aggregate national level, as well as changes in public expenditures that affect allocative efficiency the central and aggregated local levels of government [10].

The policy relevance of NHA estimates have also been identified in the literature. Evidences from some countries have established that user fees often dissuade the poor from utilising health care services [11]. Similarly, the relative roles of public and private sectors to provision of health care services have implication for accessibility by the poor, as private health care provision is usually non-affordable to the poor. NHA framework is often used to determine the skewness of distribution of health care resources between geographical regions [12]. This has provided a number of policy implications for government on the need to increase their capacity for regulating quality, enforcing and monitoring safety standards in the private sector.

NHA has also been used with household survey in Jordan to investigate the degree of inequality in the health system. The general opinion is that dominance of out-of-pocket payments reduces equity since they impose a burden on those least able to pay [11], though it is suggestive of existence of substantial willingness to pay among relatively poor people in low-income countries. For instance, estimates from NHA framework has been used to assess the equity in burden shared by the stakeholders in the health sector in Nigeria [3]. The study concludes that there is a need for changes in the health financing structure to take better advantage of pool financing based on health insurance scheme.

NHA could be used as an element of the basis for resource allocation, by providing information on financing sources, financing agents, functions and providers and as well as giving snapshot comparisons between countries [4]. While analysing NHA estimates from 26 countries in Latin and Middle East countries, and 13 OECD countries [13, 14] provided a comparative analysis of NHA, [11] compared findings for some African countries. The studies established the existence of widespread inequality in the health care financing of the countries covered as well as wide disparity in the share of financial burden by different stakeholders in the health system. Notably, there are inter-country disparities in the literature, but this study contributes to the debate by investigating intra-country disparity in health expenditure in the most populated country in Africa. In a comparative study between SSA and North

African countries [15] concluded that total health expenditures (as well as the public component) are certainly important contributor to health outcomes. Given the funding difference between the two, it was revealed that both infant and under-five mortality are positively and significantly associated with Sub-Saharan Africa, while the reverse is true for North Africa.

In many past studies, NHA have been estimated for the whole country but it is possible to identify the satellite accounts of different states from the national NHA. Nigeria has recently completed the second round of NHA estimation for 2003 to 2005.

Methods

The NHA is structured as a form of satellite account for the national income accounts. The accounts are a set of tables containing the various aspects of a nation's health expenditure. NHA involves generally a rigorous classification of the types and purposes of all expenditures and of all the actors in the health system. The methodology is structured to give a complete accounting of all spending on health, regardless of the origin, destination or object of the expenditure. This often involves a rigorous approach of collecting, cataloguing, and estimating all flows of money relating to health expenditure.

The NHA framework is data intensive as health expenditure data has to be collected from government and private sources. This is because NHA itself is a way of organising and presenting economic data about the nation's health care system to facilitate policy evaluation and formulation. In order to collect as comprehensive data as possible, a consultative and collaborative methodology that focused on institution-building was adopted. The government health expenditure data comes from all the three tiers of government in Nigeria through their various ministries of health as well as other departments and agencies that expend funds on health and health-related activities. In the case of government data, the official sources within the different levels of government were utilised. Primary data were collected directly by the estimation team from relevant government ministries, departments and agencies (MDAs). These include MDAs that spent substantially on health, specifically in the area funding health insurance of staff, involved in reimbursement of staff health expenses, or manages health facilities, or have any line item on health in their budget.

With respect to private sector data, primary and secondary sources were utilised. The household health expenditure was derived from 2004 National Living Standard Survey (NLSS), a national survey conducted by the National Bureau of Statistics (NBS). The survey covered the whole country with information on more than 90,000 individuals. To complement the secondary data, three types of survey on enterprises, health insurance firms[4] and development partners[5] were also conducted[6].

In all, out of the 36 states, data were collected from 17 states out of which there were eight states[7] in the north and nine states[8] in the south. The NHA estimation project was for a specific period of time. As part of the institutionalization procedure

[4] Both enterprises and health insurance firms covered were based a survey of 500 firms in each of the six geopolitical zones. This was augmented and harmonized with household response in the NLSS data in terms of possession of health insurance plan, or reimbursed by enterprise firms

[5] The development partners were covered at federal, regional, and state levels where applicable. They include, States Government (including USAID and the US Centres for Disease Control and Prevention), Oxfam, Africare and Water Aid, UK Department for International Development, Canadian International development Agency, United Nations Children's Fund, European Union Partnership, Rotary International, United Nations Population Fund, United Nations Development Programme, Global Fund for HIV TB and Malaria, World Health Organisation, Government of Japan/Japan International Cooperation Agency, World Bank, and African Development Bank

[6] A comprehensive description of the method of data collection is presented in Soyibo et al 2009

[7] The States are Adamawa, Gombe, Kaduna, Kano, Kebbi, Kogi, Taraba, and Yobe

[8] The States are Cross Rivers, Delta, Edo, Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo

followed in the project, those desk officers with complete government state data set as at of the deadline date were included in the final individual state estimations. These data were then used to extrapolate for the whole country. The data identified the series of wealth resources flow in the states, the financial intermediaries involved as well as the provider past-through of the fund and functions or activities on which the funds were expended. Information on the health status of the north and south of Nigeria was drawn from the NBS 2007 abstract of statistics that focused on data on the core welfare indicators.

The survey data were analysed using STATA software while the administrative data were analysed using Microsoft Excel. In the case of the survey data, the focus was on computing appropriate per capita health expenditure from the sample after which the estimate was determine for the appropriate NHA or SNHA value using appropriate population figures. The next step was the estimation of appropriate NHA and SNHA components. This was done using appropriate Microsoft Excel programmes, purposely developed to avoid double counting as much as possible.

Results

The NHA results reveal that structure and flows of health funds between entities from the various sources through the financing agents to the functions and uses. We present results of the sub-national health accounts (SNHA) estimates for 2003 to 2005. The estimates reveal that the total amount of funds spent on health in Nigeria in 2005 was N976.69 billion, an increment of 24 per cent over the N788.72 billion spent in 2004. The results of this study are presented, by sources, financing agents, and providers.

Sources of Health Funds in Nigeria

There are three principal sources of health funds which are the government, private sector (including households) and donors. The contributions by different sources are shown in Table 2. With respect to private sources, households contribute the most; indeed, they constitute the main sources of financing health in the north and south of the country. Over the years of estimates, the households in Nigeria provided about three-quarters of the health funds with northern households spending a little higher proportion than their southern counterparts.

Government plays a relatively marginal role in the funding of health care in Nigeria, contributing less than one-quarter of total health expenditure. On the average, the proportion of public sector in total health expenditure is relatively higher in the south than in the north. It ranges from 21.7% and 23.3% in the north to between 23.4% and 25.5% in the south. Considering the contributions by different tiers of government, there is significant variation across the regions. While the contribution of the Federal Government is generally lower in the north relative to the south, the state and local governments in the north contribute higher share than their counterparts from the south, though their contributions are smaller in absolute terms. The per capita amount sourced from the Federal Government is generally higher than contributions from the states and local governments in the south, while the reverse is the case in the north.

Private firms also contribute to the funding of health care in Nigeria. The per capita contributions of firms to total health expenditure differ significantly in both absolute amount and proportion across the regions. In the North, the per capita contribution of firms ranged from three cents in 2003 to four cent in 2005,

representing 0.1 per cent during this period. This may be a reflection of the employment absorption rate and the economic differences across the region.

Unlike in many African countries where the donors contribute well over one-quarter of health funds, the donor share of total health expenditure in the country is generally small in the north and south. Donors on average contributed less than 1.0 per cent of total health expenditure. In the north, the donors contributed average of 0.14 per cent in 2003, but increased progressively to 1.1 per cent in 2005. Though, the per capita amount contributed by donors in the south increased over the years from $0.23 in 2003 to $0.34 in 2005, the percentage share fluctuated from 0.5 per cent in 2003 to 0.7 per cent in 2004, and then dropped to 0.6 per cent in 200.

Table 2: Distribution of Per Capita Health Expenditure by Region by Sources ($)

	NORTH ($)			SOUTH($)		
Sources	**2003**	**2004**	**2005**	**2003**	**2004**	**2005**
Federal Government	2.01(6.4%)	1.97(6.1%)	2.22(5.5%)	5.39(12.1%)	5.39(11.7%)	6.17(10.8%)
State Government	2.68(8.5%)	2.96(9.2%)	4.00(9.9%)	3.17(7.1%)	4.15(9.0%)	5.56(9.8%)
Local Government	2.11(6.7%)	2.55(7.9%)	2.98(7.4%)	1.87(4.2%)	2.23(4.8%)	2.58(4.5%)
PUBLIC	6.80(21.7%)	7.48(23.3%)	9.20(22.9%)	10.43(23.4%)	11.77(25.5%)	14.31(25.1%)
Households	24.53(78.1%)	24.45(76.2%)	30.58(76.0%)	32.97(73.9%)	32.87(71.2%)	41.11(72.2%)
Firms	0.03(0.1%)	0.03(0.1%)	0.04(0.1%)	1.00(2.3%)	1.19(2.6%)	1.20(2.1%)
Donors	0.04(0.14%)	0.13(0.4%)	0.44(1.1%)	0.23(0.5%)	0.30(0.7%)	0.34(0.6%)
PRIVATE	24.60(78.3%)	24.62(76.7%)	31.06(77.1%)	34.21(76.6%)	34.37(74.5%)	42.65(74.9%)
Total	31.41	32.10	40.26	44.64	46.14	56.95

Sources: Computed from [19], Note: Percentages in parenthesis

Financial Intermediaries

The funds spent on health care are not necessarily expended by the source and in many instances the funds are channelled through financing agents. The Nigerian condition reveals that most of the funds are channelled mainly through the associated sector where the funds are derived. Apart from development partners who do not spend their funds directly, other agents spend more than 90 per cent of their funds on their own. Since most of the funds spent on health care are obtained from households, the main financing agent of health in the country is households' out of pocket (OOP) expenses. Thus this remains the largest purchaser of health services over the years at an average of between 76.4 per cent and 78.5 per cent in the north and between 71.4 per cent and 74.2 per cent in the south (Table 3). Funds channelled through public financing agents across the regions are relatively small, as between 21.4 per cent and 23.5 per cent of health care services is purchased by the public agencies in the north and between 23.2 per cent and 25.6 per cent in the south (Table 3). The health care purchases by the states and LGs dominate in the north, while the Federal Government agencies dominate in the South.

Firms' health department, health insurance, and NGOs are other private purchasers of health care services, though their commitment is relatively insignificant. These three stakeholders accounts for less than 0.1 per cent of health service purchases in the north, while they are responsible for the purchase of more than 1 per cent of health care service in the south.

Table 3: Distribution of Per Capita Health Expenditure by Region by Financing Agents ($)

	NORTH ($)			SOUTH($)		
Financing Agents	2003	2004	2005	2003	2004	2005
Federal Govt. Agencies	1.95(6.2%)	1.91(6.0%)	2.14(5.3%)	5.34(12.0%)	5.35(11.6%)	6.12(10.7%)
SMOH	2.05(6.5%)	2.47(7.7%)	3.67(9.1%)	1.60(3.9%)	2.39(5.2%)	3.29(5.8%)
HMB	0.60(1.9%)	0.54(1.7%)	0.62(1.5%)	1.30(2.9%)	1.35(2.9%)	1.56(2.7%)
Other State Agencies	0.02(0.07%)	0.03(0.1%)	0.08(0.2%)	0.22(0.5%)	0.20(0.44%)	0.23(0.4%)
LGA Health Depts.	2.09(6.6%)	2.52(7.9%)	2.96(7.3%)	1.92(4.3%)	2.52(5.5%)	3.10(5.4%)
PUBLIC	6.72(21.4%)	7.47(23.3%)	9.47(23.5%)	10.37(23.2%)	11.80(25.6%)	14.30(25.1%)
Out-of-Pocket	24.67(78.5%)	24.59(76.6%)	30.76(76.4%)	33.11(74.2%)	33.00(71.5%)	41.27(72.5%)
Firm Health Depts.	0.003(0.01%)	0.003(0.01%)	0.003(0.01%)	0.89(2.0%)	1.07(2.3%)	0.88(1.5%)
Health Insurance	0.01(0.02%)	0.01(0.02%)	0.01(0.02%)	0.06(0.14%)	0.07(0.2%)	0.26(0.5%)
NGOs	0.01(0.05%)	0.02(0.05%)	0.02(0.06%)	0.19(0.43%)	0.19(0.42%)	0.24(0.4%)
PRIVATE	24.69(78.6%)	24.62(76.7%)	30.79(76.5%)	34.25(76.7%)	34.34(74.4%)	42.65(74.9%)
TOTAL ($)	31.41	32.10	40.26	44.64	46.14	56.95

Sources: Computed from [19], Note: Percentage in Parenthesis

Uses of Health Funds: Health Expenditure by Types of Provider across the Regions

We present an analysis of where the health funds are spent in the country as shown in Table 4 indicating providers' breakdown of health care expenditure by regions. Health facilities are also broadly categorised into government and private. This is because the public and private sectors play significant role in the provision of health care services across the regions. Generally, in the north and south, more health care services are provided by public health care providers. While the public facilities dominate in the provision of health care services in the north, public and private sectors appear to play equal role in the provision of health care services in the south. More than 71 per cent of health funds are spent in public facilities in the north, while the remaining is expended on the services provided by the private sector. In the south, the health expenditure is spent almost equally in private and public facilities. In both regions the state facilities receive most of the funds spent on government facilities (Table 4). However, the local government facilities receive more health funds on the per capita basis than the federal facilities in the provision of health care services in the north, while the reverse of this condition prevails in the south.

Table 4: Distribution of Per Capita Health Expenditure by Region by Providers ($)

	NORTH ($)			SOUTH($)		
Providers	2003	2004	2005	2003	2004	2005
Fed Health Facilities	3.29(10.5%)	3.25(10.1%)	3.82(9.5%)	6.34(14.2%)	6.37(13.8%)	7.39(13.0%)
State Health Facilities	10.60(33.8%)	10.75(33.5%)	13.98(34.7%)	10.63(23.8%)	11.44(24.8%)	14.47(25.4%)
LGA Health Facilities	8.68(27.7%)	9.12(28.4%)	11.22(27.9%)	5.26(11.8%)	5.84(12.7%)	7.15(12.6%)
PUBLIC FACILITIES	22.58(71.88%)	23.12(71.02%)	29.01(72.06%)	22.23(49.79%)	23.65(51.26%)	29.01(50.93%)
Mission/NGO Facilities	0.57(1.8%)	0.57(1.8%)	0.73(1.8%)	0.60(1.4%)	0.60(1.3%)	0.76(1.3%)
Private Facilities	6.89(21.9%)	6.88(21.4%)	8.60(21.4%)	18.47(%41.4)	18.56(40.2%)	22.94(40.3%)
Chemist/Traditional Care	0.98(3.1%)	0.98(3.1%)	1.10(2.7%)	2.02(4.5%)	2.02(4.4%)	2.54(4.5%)
Others	0.39(1.2%)	0.55(1.7%)	0.82(2.0%)	1.32(3.0%)	1.31(2.8%)	1.70(3.0%)
PRIVATE FACILITIES	8.83(28.12%)	8.98(28.98%)	11.25(27.94%)	22.41(50.21%)	22.49(48.74%)	27.95(49.07%)
TOTAL	31.41	32.10	40.26	44.64	46.14	56.95

Sources: Computed from [19], *Note: Percentage in Parenthesis*

Discussions

The dominance of the private sector, especially the households in financing health has implication on equity, as those least able to pay are made to bear larger burden. Coupled with the relatively lower income level in the north, access and utilisation of health facilities are significantly poor. For instance, as reported in the Nigeria 2003 DHS, less than 25 per cent of deliveries in the north utilized health facilities, while the remaining (more than 75 per cent) of deliveries was done at home without any medical assistance. On the other hand, more than 71 per cent of households in the south utilised health facilities, with fewer percentage handled at home. This household share confirms the findings on international studies among non-socialists low-income countries that the poor and low-income households bear a large share of health care funding [6].

A per capita government expenditure of US$12.00 is generally recommended to fund basic health package [8]. Notably, there is disparity in the amount expended by government in the two regions. While this recommendation is largely met in the southern region, it fell short in the northern region of the country which makes the basic package of health services to the northern population to be smaller than required. Incidentally, the core health indicators for the country are still very poor which means while inadequate funding prevails in the north, the case in the south is different and could be a situation of relative inefficiency of financial resource-use within the health care system of the region, rather than absolute inadequacy of resources.

It is observed that the ability of the public in the regions to raise revenue for health care is influenced by their aggregate economic capacity. The higher contribution of the public in the south is partly explained by the general economic advancement of the southern states relative to their northern counterparts. Incidence of poverty is much higher in the north relative to the south. More than 70 per cent of the population of the north lives below the poverty line, while less than 35 per cent in the south are considered as poor [16].

Private commercial activities are generally more prominent in the south than in the north. The general low contributions of firms to total health expenditure suggest that employers of labour are less concerned about the welfare of their workers. With effective take-off of the social insurance scheme in the country there is enhanced hope for increased contribution by private employers of labour into the resource pooling plan for health care. One financing opportunity yet to be fully

explored is the health insurance option. The huge burden on the household through OOP can be pooled under health insurance to better facilitate access to health by the poor. The national health insurance scheme (NHIS) prescribes that both the employee and employer contribute five per cent of the basic salary of the enrolee. There is however the need to fast track the enrolment of private organisation employees, as majority of the current contributors to the scheme are public employees.

Though, the per capita health care expenditure from donors is considered low, the low dependency on donor funding in the states is quite encouraging. This signifies existence of reliable funding within the country's resources to maintain current health services for a growing population. Nonetheless, increase funding is advocated for.

Though the absolute amount spent through the OOP in the south is greater than in the north, the burden is heavier in the north. In the north, the welfare condition of the poor is compounded by the burden of having to pay for the health demand through OOP. It is believed that poor households might be spending more than necessary due to the absence of health insurance that caters for them. The high proportion of OOP is due to the low level of activities in the health insurance sector of the economy. This might be responsible for the health status in the north relative to the south, as user fees may discourage the poor from utilising health facilities. Reliance majorly on OOP may make it difficult for the health status of population across the regions to improve, especially in the north. This calls for a critical in-depth appraisal of the issue as only a small proportion of the population can afford patronage of private facilities concentrated in the urban centres. The Federal level involvement in the purchase of health care in the north is weak. There is therefore the need for the health care activities of the Federal Government to be revisited to facilitate increased allocation and provision of health services to the northern region of the country. Given that the revenue allocation to the federal government from the "federation account" is more than allocation to other tiers of government, purchase of health services by federal government needs to be intensified if any appreciable improvement in the health status of the north populace is to be achieved.

Observably, payments in private facilities are higher than payments in public hospitals. This explains the variation in the proportion of funds used at the various facilities. Private facilities are more pronounced in the southern region of Nigeria and hence, the amount of user fees paid by the few who patronise the private providers is enough to tilt a higher proportion of health spending in the south in favour of private providers. However, since most of the facilities in the north are government owned, the total funds used in public facilities are higher.

The lower amount of funds spent in private facilities in the north further confirms the inabilities of the poor to afford health care services provided by the private sector, as the north have greater incidence of poverty.

Access to care from health care professionals varies between the north and the south. While only 13.4 per cent of deliveries in the north were handled by physicians, more than 48 per cent of deliveries in the south were handled by physicians. More deliveries are however handled by Community Health Extension Workers (CHEWs) in the north (2.6%) when just 0.6 per cent was handled in the south [17].

Comparison of Degree of Regional Inequity in Health Care Expenditure

The quantity and quality of health care services delivered to any group of people is a function of the available resources. The

more the resources available the better the health care services delivered. The per capita mean value of health expenditure for the two regions combined increased progressively from $38.41 in 2003 to $49.10 in 2005 (Table 5). Considering the characteristics of the states with the highest and lowest per capita values, there is the tendency for expenditures to be higher in urban compared to rural areas. Given the commerce characteristics of Lagos State, the highest per capita health expenditure is incurred in the state, while the least per capita health expenditure is incurred in Kebbi State, reflecting the rural nature and low economic activities in the latter. The gap between the per capita health expenditure of Lagos State and Kebbi State is almost three-fold, reflecting the severity of inequality in the country. This further reinforces the argument that rural areas receive lower proportions of public and private health expenditures than the urban areas. Most heavily funded public hospitals are in the urban areas, while private health facilities are often equally urban-based.

Table 5: Comparison of Degree of Regional Equity in health Expenditure

	North & South			North			South		
	2003	2004	2005	2003	2004	2005	2003	2004	2005
Mean($)	38.41	39.53	49.10	31.41	32.10	40.26	44.64	46.14	56.95
Std. Dev	14.63	14.79	18.4	10.03	10.01	13.03	15.73	15.66	19.51
Range	53.00	52.33	65.25	30.37	30.66	40.97	45.05	44.78	56.71
Highest ($)	Lagos	Lagos	Lagos	Tarraba	Tarraba	Tarraba	Lagos	Lagos	Lagos
	(69.65)	(70.48)	(87.68)	(47.02)	(48.81)	(63.40)	(69.65)	(70.48)	(87.68)
Lowest ($)	Kebbi	Kebbi	Kebbi	Kebbi	Kebbi	Kebbi	Ondo	Ondo	Ondo
	(16.65)	(18.15)	(22.43)	(16.65)	(18.15)	(22.43)	(24.60)	(25.71)	(30.97)

Sources: Computed from [19], Note: Percentage in Parenthesis

The degree of inequality across the regions differs. The mean per capita health expenditure in the south is higher than in the north. Over the period of analysis, less than $41.00 per capita was spent in the north, while between $44.64 and $56.95 per capita was expended in the south (Table 6). The gaps in the range across the states in each of the regions are far more than the lowest per capita value in the regions. Though, the southern region had higher per capita mean value due to high overall per capita health expenditure, the distribution across the states in the region is more inequitable. The range of values is higher in the south than in the north. However, with more inequality in the south, the per capita health expenditure of most of the states in the south is greater than most states in the north. The seeming differentials in the distribution of resources against rural areas is an indication of the fact that allocation of health resources is significantly influenced by existing infrastructure, rather than the varying regional health needs.

The delivery of health care services has generally been linked to the quality and quantity of funds available. Though the factors influencing health outcomes may not be limited to health expenditure, there are evidences of positive correlation between the two. Our analyses have shown that greater resources are spent on health care in the south than in the northern region of Nigeria. Consequently, the health outcomes from both regions have not been the same. Some selected core health indicators in Table 6 reveal that health outcomes in the north compared to the south are relatively worse. While almost 90 per cent of the people in the south access prenatal care, less than 64 per cent of the people in the north do. Also, around one-quarter of mothers in the north do access

post-natal care, while more than 40 per cent do in the south. Similarly, less than one-third of delivery in the north is handled by health professionals, whereas more than two-third of delivery in the south utilises the services of health professionals. As a follow up to access to antenatal care, at delivery, less than five per cent of birth weights are up to 2.5kg and above in the north, whereas 35.8 per cent in the south exceed 2.5kg.

Table 6: Nigeria Sub-NHA Estimates and Core Welfare Indicators

	North	South
Per capita Health Expenditure		
Sub-NHA, 2003 ($)	31.41	44.64
Sub-NHA, 2004 ($)	32.10	46.14
Sub-NHA, 2005 ($)	40.59	56.95
Core Health Indicators, 2006		
Pre-Natal Care (%)	63.2	89.9
Post-Natal Care (%), 2003	25.9	40.4
Birth weight (≥2.5kg), 2003	4.9	35.8
Delivery by Health Professionals (%)	31.8	77.9
Measles immunization (%)	62.3	81.2
Fully Vaccinated (%)	32.7	64.9
Not vaccinated (%)	22.3	9.9
Incidence of diarrhoea (%)	5.3	4.6
Incidence of Poverty		
Spread in Poverty 1980 (%)	35.2	13.2
Spread in Poverty 1985 (%)	52.6	38.2
Spread in Poverty 1992 (%)	45.5	41.6
Spread in Poverty 1996 (%)	70.7	57.5
Spread in Poverty 2004 (%)	70.1	34.9
Spread in Poverty 2010 (%)	73.8	63.3

Sources: Computed from [19, 14, 20, 16]

Also the effectiveness of preventive health in the regions significantly differs. The immunisation coverage in the northern region is generally low. A situation where less than one-third of children in the north gets fully vaccinated, in the same country where their counterparts in the south gets almost two-third of children fully vaccinated is not encouraging. This further emphasizes the existence of severe inequality across the regions, thus requiring government intervention. It has been established in the literature that the health status of people has implication for their ability to generate income. Productivity of an individual is significantly influenced by the state of his/her health. Worsening health condition can lead to poor economic status. The poor health status observed in the northern region of Nigeria is found to be associated with greater incidence of poverty. Over the years, between 1980 and 2010, the incidence of poverty has progressively increased in the northern region relative to the south (Table 6). As at 2010, more than 73% of the northern population live below the poverty line as against 63% in the south.

Conclusion

This study presents a comparison of the set of findings of SNHA estimates for 2003 to 2005 for the states in the northern and

southern regions of Nigeria. It shows that per capita health expenditure across the two regions of the country is low and that there are wide disparities in health spending across the two geographical regions, being lower in the north. Associated with this is that the health status indicators in the north are generally poorer relative to what obtains in the south.

The study revealed that health care financing in the states in north and south of Nigeria is heavily dependent on private sources (especially the household OOP), being more in the north. Household OOP spending ranged from more than three-quarters (average of 77%) in the north to a little less than three-quarter (average of 72.5%) in the south. The government funding of health expenditure ranged from average of 22.6 per cent in the north to 24.7 per cent in the south. This has implication for equity of access to health care, with the poor most likely disadvantaged. The spread and trend in poverty rate between 1980 and 2010 show that the proportion of the population in the north living below the poverty line is significantly higher than the proportion in the south. The government stewardship role has to increase in terms of funding health care, in the light of the low income of majority of the people, if the health status of the populace is to improve, and equity in health care is to be achieved.

Limitations of the Study

One significant limitation of this study is that not all the states of the federation were included in the analysis due to non-completion of data collection for a number of states. Specifically, the states in the South-East zone of the country were not covered at all, while other zones had varying number of states covered. It is hoped that future NHA estimates will adequately cover all the states in the country, as attempt is made to consolidate the institutionalization process of the NHA estimation. The resource constraint for the exercise also limited the enterprise survey size coverage. Ideally, approximately not less than 10% of enterprises in each state would have been more representative of the health funding involvement of the firms in the country.

Competing Interest

The authors declare that they have no competing interest

List of Abbreviations

CHEWs: Community Health Extension Workers
DHS:Demographic Health Survey
DFID: United Kingdom's Department for International Development
ESA-NHA: Eastern and Southern Africa - National Health Accounts (NHA)
FCT: Federal Capital Territory
FMOH: Federal Ministry of Health
LGAs: Local Government Areas
MDAs: Ministries, Departments and Agencies
MICS: Multiple Indicator Cluster Survey
NBS: National Bureau of Statistics
NGOs: Non-governmental Organisations
NHA: National Health Account
NHIS: National Health Insurance Scheme
NPC: National Population Commission
NLSS: National Living Standard Survey
OECD: Organisation for Economic Co-operation and Development
OOP: Out of Pocket
PATHS: Partnership for Transforming Health Systems
PHC: Primary health care
SNHA: Sub-National Health Accounts
WHO: World Health Organisation

Authors' Contribution

Akanni Olayinka Lawanson is responsible for the analysis and interpretation of the data as well as revision of the manuscript for substantial intellectual content.

Olanrewaju Olaniyan is responsible for the conception and design of the manuscript and is also involved in the analysis and

interpretation of the data as well as the drafting the paper.

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