

Health aid and Health Outcomes in Nigeria: The Role of Governance

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Abstract

The move towards financing of health and education to meet the Millennium Development Goals (MDGs), agreed in September 2000 at the UN Millennium Summit in New York, became the new global priority. The uncertainty of whether an aid will deliver results brought about the current strategy of disbursing funds directly to governments in LDCs. The goals behind foreign aid has undergone something of a shift, in its quantities and the way it is spent, since early 2000s. This study examine whether foreign aid for health affects the health outcomes in Nigeria and whether other factors, such as the level of transparency of the institutions, are important determinants of health outcomes in the Country. The study used ARDL econometric model to assess the said pattern of relationship and roles. The study findings indicated that foreign aid for health improve health outcomes in Nigeria in both short and long run. It also found that key governance indicators such as, Government Effectiveness, Control of Corruption, Accountability and Voice, Rule of Law, quality of regulation, play a vital role in improving the health outcome of under-five mortality as they tend to reduce it. Furthermore, the study recommends that: Donor agencies should direct health aid to specific health target like reducing under-five mortality rate than taking several health issues at a go. Government at all levels should uphold virtues of good governance as it affects the effectiveness of health aids directed to the country's health sector by donor agencies.

Keywords: Health Aid; Governance; Health outcome; under-five mortality

Introduction

Since early 21st century there is increased campaigning that massive transfer of financial resources from rich to poor countries in the form of foreign aid serve as the only panacea to the Suffering and disease found in LDCs. Many Governments of wealthy Nations responded positively to this campaigning by hugely increasing their spending on Official Development Assistance (ODA), much of which is now earmarked for improving health. The goals behind foreign aid has undergone something of a shift, in its quantities and the way it is spent, since early 2000s. Unlike in the 1980s where it emphasize on the structural adjustment, and in the 1990s, focus on conditionality and in recent years it moved towards donor financing of social services like health and education. This commensurate with the new global priority towards health and education financing of to meet the Millennium Development Goals (MDGs), agreed in the UN Millennium Summit in New York, September 2000.

However, these raised concerns as many governments of wealthy countries engaged in committing large and increasing sums of money to ODA, which is branded with a new emphasis on health and education. It is

not clear that the sum of money earmarked is being spent effectively or have much impact on health indicators in LDCs. The new focus of foreign aid – as represented by the global commitments to meeting the MDGs - is to improve human capital development by investing in schools and hospitals. The idea went on that if people are better educated and healthier, the quality and quantity of labour will improve, thereby kick starting economic growth, [1]. By the end of the year 2007, majority of sub Saharan African countries were off-track with their progress towards the health-related millennium Development Goals. Despite the injection of significant financial resources by donor nations. Access to essential medicines remains low in these parts of the world, over 50 per cent of Africans lack access to essential medicines.5 Around the world, over 10 million children in developing countries die unnecessarily from diseases that are easily preventable and increasingly cheap to treat, such as diarrhea, measles and malaria. Furthermore, majority of patients in LDCs still have to pay for healthcare out of their own pockets [2]. According to the World Bank, the infant mortality rate (IMR) for sub-Saharan Africa as a whole was 56 deaths below the age of one per 1,000 live born in 2015, compared to an average of 6 in the OECD countries.

It is against this background this study examines whether foreign aid for health affects the health outcomes in Nigeria: This raises the question of whether foreign health assistance is effective in improving health condition of the population and whether other factors, such as the level of transparency of the institutions, are important determinants of health outcomes in Nigeria.

Literature Review

Foreign aid and economic development nexus received significant attention of researchers and so far yielded mixed results. While, the issue of foreign aid for health comes along with the great amount of literature more especially regards to its effectiveness.

Health outcomes

Health outcomes can include whether a given disease process gets better or worse, what the costs of care are, and how satisfied patients are with the care they receive. The focus is not on what is done for patients but the results of what is done. Health outcomes are a function of a wide variety of factors economic, social, cultural, geographical and environmental, as well as on health sector interventions. Econometric evidence shows that most cross-country variance in outcomes is explained by per capita income (poverty level) differences and that public expenditure has limited explanatory power. [3] Study revealed that Health outcomes indicators can be measured by Life expectancy at birth, Maternal deaths per 100,000 live births, Neonatal deaths per 1,000 live births, Under-five deaths per 1,000, Youth and Adolescent death per 1,000, Adult deaths per 1,000, Elderly deaths per 1,000 and years lived with disabilities. However effects of public spending on health are usually measured by health outcomes variables such as infant or child mortality rates and life expectancy.

Foreign Aid

The history of foreign support in its different forms and dimensions to countries of the world including Sub-Saharan African nations can be traced back to financial support project to promote global development [4-6]. The World Bank, the International Monetary Funds (IMF), and the International Trade Organization (ITO) were core international organizations created to provide and facilitate foreign support after the Second World War.

Governance

Governance is a broad and multi-faceted concept, it describes the way and manner state power is exercised to manage its economic and social components [7]. It is a set of ethics and institutions that is used to exercise the power of authority with its basic dimensions of political stability and or absence of violence/terrorism, voice and accountability, government

effectiveness, regulatory quality, control of corruption and the rule of law [8].

Good governance means strong government capacity, with its available resources such as manpower and financial resources improve the capital market and investment to develop a good economic structure and political power to promote system reform in fields of science and technology, and to provide public services like medical treatment and education, which facilitates industrial upgrading and economic growth [9]. The manner in which the state exercises its power has a link to a set of institutions that engage as keys to economic growth. Political stability, the absence of terrorism and violence, proficient government policy formulation and implementation, improved regulatory mechanisms, reduced corruption and ensuring the rule of law can be recognised as high governance qualities [8].

Aid for Health and Health Outcomes

Economist and public health professionals in various literature linked health outcomes in developing countries to public health expenditure, while availability of external sources of funding for health care and environmental sanitation. Currently, healthcare is financed in Nigeria from a mixture of budgetary allocations from the Federal, States and LGAs, private out-of-pocket expenditure, external development funding, grants from corporations and charities and a small but growing social health insurance contributions. Lately, many States have also commenced programmes aimed at protecting vulnerable groups from the financial risk of ill-health, such as free maternal and child health services. Nonetheless, in order to achieve the level of funding required for meeting the health needs of the whole population, the country has to put in place mechanisms for increased funding both in absolute terms and as a proportion of the total budget. In addition, there is a need to coordinate all the resources available to the sector from all sources [10].

There are so many studies conducted that relate health aid and health outcomes, mainly among developing countries. [11,12] found that health targeted aid does have an effect on performance of health systems in developing countries. Moreover, results suggest that policy makers should promote the situation when more health targeted aid is distributed bilaterally than multilaterally. While, [13] found that health-aid does not improve health outcomes in developing countries, therefore, better monitoring of the aid disbursement and usage is required. Donors should also focus on improving basic education level which by itself can help health outcomes through increased awareness of nutrition, prevention of diseases, and treatment. According to similar studies by [14] foreign aid tends to increased health spending in high corruption countries, thereby making funds more susceptible for embezzlement by officials through corruption.

There is unreliable evidence that prevalence of good governance in recipient countries affects the allocation of international health aid, and there is no quantitative evidence on the magnitude of this effect as both corruption and political rights, excluding civil rights, have a significant impact on health aid. [15]. Democratic accountability has a diminishing positive correlation with GHE, and that levels of spending are higher when the government is more stable. Corruption is associated with less spending in developing countries, but with more spending in high-income countries, [9,16] found that increased health aid coupled with increased public health expenditure are associated with lower mortality in under five children in sub Saharan Africa. The reason for inconclusive results is that most of the empirical investigations reviewed by the researchers relied on cross country analysis, which is characterized by too high aggregated unit of analysis. Hence the conduct of this study to investigate the scenario at country level.

Methodology

This study uses an annual time series data from 1996 to 2019, sourced from world governance indicators and World Bank development indicators (WDI). Pre-estimation tests of Augmented Dickey-Fuller (ADF) unit root test and Phillip Perron were carried out before estimating the long run ARDL bound test for Co-integration and the short-run estimates. Post-estimation tests such as heteroscedasticity, serial correlation and multicollinearity tests to ensure the stability of the model were also conducted.

Model specification

$$U5m = f(FAID, PS, AV, CC, GE, QR, RL) \tag{1}$$

The above equation will be made estimable by mathematically transforming it in to the following form;

$$LnU5Mt = \beta_0 + \beta_1 LnFAID_t + \beta_2 LnPS_t + \beta_3 LnAV_t + \beta_4 LnCC_t + \beta_5 LnGE_t + \beta_6 LnQR_t + \beta_7 LnRL_t + \mu_t \tag{2}$$

Where:

β_0 = a constant

$\beta_1, \beta_2, \dots, \beta_n$ = coefficient of the independent variables

$LnU5Mt$ = under five mortality rate

$LnFAID$ = foreign aid for health % of total health expenditure

$LnPS$ = political stability

$LnAV_t$ = accountability and voice

$LnCC_t$ = control of corruption

$LnGE_t$ = government effectiveness

$LnQR_t$ = the quality of regulation

$LnRL_t$ = rule of law

Ln = logarithm

μ_t = error term

An ARDL model was specified and therefore, estimated for the cointegration relationship to among the variables as follows:

$$\begin{aligned} \Delta lnU5M = & C_0 + \delta_1 lnU5M_{t-1} + \delta_2 lnFAID_{t-1} + \delta_3 lnPS_{t-1} + \delta_4 lnAV_{t-1} + \delta_5 lnCC_{t-1} + \delta_6 lnGE_{t-1} + \delta_7 lnQR_{t-1} \\ & + \delta_8 lnRL_{t-1} + \sum_{i=1}^p \theta_i \Delta lnU5M_{t-i} + \sum_{j=0}^{q1} \theta_j \Delta lnFAID_{t-j} + \sum_{l=0}^{q2} \theta_l \Delta lnPS_{t-l} + \sum_{m=0}^{q3} \theta_m \Delta lnAV_{t-m} \\ & + \sum_{n=0}^{q4} \theta_n \Delta lnGE_{t-n} + \sum_{o=0}^{q5} \theta_o \Delta lnQR_{t-o} + \sum_{p=0}^{q6} \theta_p \Delta lnRL_{t-p} + \epsilon_t \end{aligned} \tag{3}$$

$\delta_{(i)}$ is the long run multipliers while C_0 is the intercept and ϵ_t are white noise errors.

Existence of cointegration among the variables was established hence, the conditional ARDL (p, q1, q2) long-run can be estimated as:

$$\begin{aligned} lnU5M = & C_0 + \sum_{i=1}^p \theta_i lnU5M_{t-i} + \sum_{j=0}^{q1} \theta_j lnFAID_{t-j} + \sum_{l=0}^{q2} \theta_l lnPS_{t-l} + \sum_{m=0}^{q3} \theta_m lnAV_{t-m} + \sum_{n=0}^{q4} \theta_n lnCC_{t-n} \\ & + \sum_{o=0}^{q5} \theta_o lnGE_{t-o} + \sum_{p=0}^{q6} \theta_p lnQR_{t-p} + \sum_{q=0}^{q7} \theta_q lnRL_{t-q} + \epsilon_t \end{aligned} \tag{4}$$

This contained the lag length selecting orders of the ARDL (p, q1, q2) model by Akaike Information Criteria (AIC). Followed by obtaining the short-run dynamic parameters through estimating an error correction model associated with the long-run estimates. This is specified as:

$$\begin{aligned} \Delta U5M_t = & \mu + \sum_{i=1}^p \theta_i \Delta lnU5M_{t-i} + \sum_{j=0}^{q1} \theta_j \Delta lnFAID_{t-j} + \sum_{l=0}^{q2} \theta_l \Delta lnPS_{t-l} + \sum_{m=0}^{q3} \theta_m \Delta lnAV_{t-m} + \sum_{n=0}^{q4} \theta_n \Delta lnCC_{t-n} \\ & + \sum_{o=0}^{q5} \theta_o \Delta lnGE_{t-o} + \sum_{p=0}^{q6} \theta_p \Delta lnQR_{t-p} + \sum_{q=0}^{q7} \theta_q \Delta lnRL_{t-q} + \epsilon_t \end{aligned} \tag{5}$$

φ , ϕ , and γ are the short-run dynamic coefficients of the model's convergence to equilibrium and θ is the speed of adjustment.

Measurement of Variables

Governance Indicators:

The six governance indicators include;

Voice and accountability (VA), the political stability and absence of violence (PS), Then Government Effectiveness (GE), the quality of regulation (QR), Rule of law (RL) and Control of corruption (CC). Data on these indicators (WGI) are published by World Bank team. [7] present the methodology for constructing these variables, which are considered to have a great ability to positively influence business environment and lower risk in the country. They are measured with a values between -2.5 to 2.5, higher levels indicating greater efforts for good governance.

Health Outcomes Variables

Health sector innovations and interventions, economic, and socio-

cultural, geographical and environmental features made up Health outcomes. They can be measured by Under-five deaths per 1,000, Neonatal deaths per 1,000 live births, Maternal deaths per 100,000 live births, Youth and Adolescent death per 1,000, Adult deaths per 1,000, Elderly deaths per 1,000, Life expectancy at birth and years lived with disabilities, [3].

Under Five Mortality Rate

It is the probability that a new born baby will die before reaching age five per 1,000 live births. It is widely documented as the most appropriate indicator of the cumulative exposure to the risk of death because it provides the best means of capturing mortality risks during the most vulnerable years of childhood. It has several advantages over the infant mortality rate as a composite measure of health risks at childhood. Consequently, it is a suitable outcome measure in assessing the impact of various intervention programmes intended at improving child survival [17].

Health Aid

It is an external health care's financing measured by external health expenditure percentage of total health expenditure expressed in USD.

Results and Discussion

(Table 1) Above, presents pre-estimation tests results results, the Augmented Dickey-Fuller (ADF) and Phillip Perron tests for stationary, null hypothesis is $H_0 = \beta = 0$ (β has a unit root), and the alternative hypothesis is $H_1 = \beta < 0$ were considered. The results is shown for level and differenced variables for both tests. The tests fail to reject the presence of unit root in for the data series in levels on two variables, namely government effectiveness and voice and accountability. While the null hypothesis was rejected on all other variables. This asserts, there is mixture of I(0) and I(1).

(Table 2) 9.497948 F-statistic value from the above table 2 (ARDL bound test). It is greater than the lower and upper bounds t-statistic at 1%, 5% and 10% level of significance using [18]. Hence, rejection of the null hypothesis of "no Cointegration" this confirms there exists a long-run relationship among all the variables under study. As such, the ARDL cointegration approach was used to estimate the short-run and long-run relationship.

(Table 3) Presents the short run estimated result. Under five mortality lagged one year revealed a positive and significant impact on its current value. External health expenditure has a negative and statistically significant value on under five mortality rate, that is, a unit increase in foreign aid for health will reduce under five mortality rate by -0.044% and it is statistically significant. Control of corruption has also a negative and statistically insignificant impact under five mortality rate. i.e., a unit increase in country's corruption control will reduce under five mortality rate -7.6%. Government effectiveness revealed negative and statistically insignificant relationship

Table 1: Unit root tests result.

ADF @ 5%			
Variable	Level	1st Diff.	Integration order
LnU5M	2.269034	-4.592294	I(1)
lnFAID	-0.107851	-3.917456	I(1)
lnPS	-1.485115	-5.197570	I(1)
LnAV	-6.304838	-11.05668	I(0)
LnCC	-1.840188	-4.704898	I(1)
LnGE	-3.863518	-6.774971	I(0)
LnQR	-2.628363	-5.434210	I(1)
LnRL	-1.271230	-4.351499	I(1)
PP @5%			
LnU5M	3.386363	-4.591092	I(1)
lnFAID	-0.107851	-3.892331	I(1)
lnPS	-1.198622	-5.943345	I(1)
LnAV	-3.652062	-4.561820	I(0)
LnCC	-2.028356	-4.704898	I(1)
LnGE	-3.863518	-9.646252	I(0)
LnQR	-2.650744	-5.762067	I(1)
LnRL	-1.271230	-4.341661	I(1)

Source: Researcher's Computation Using E views 10 (2021)

Table 2: Bound Tests for Co-integration.

F- statistic	Lower bound	Upper bound	K(n-1)	Sign. lev.	Remarks
9.497948	1.99	2.94	6	10%	Co integration
	2.27	3.28		5%	
	2.88	3.99		1%	

Source: Researcher's Computation Using Eviews10 (2021)

Table 3: Short Run Result ARDL.

Variable	Coefficient	Standard error	t- statistic	p. value
Constant	5.010020	0.184599	27.14009	0.0000
$\Delta \ln U5M_{t-1}$	0.684559	0.187061	3.659559**	0.0013
$\Delta \ln FAID_t$	-0.0444397	0.004307	-10.30748**	0.0000
$\Delta \ln CC_t$	-0.761867	0.138152	-5.514698**	0.0000
$\Delta \ln GE_t$	-0.137503	0.130806	-1.051200	0.3088
$\Delta \ln PS_t$	0.266437	0.026071	-10.21980**	0.0000
$\Delta \ln RL_t$	-0.189137	0.139946	1.351506	0.1953
$\Delta \ln AV_t$	-0.120061	0.034844	-3.445617	0.0033
$\Delta \ln RQ_t$	-0.235516	0.070178	-3.355967	0.0040
R-squared	0.978307			
Adjusted R-squared	0.968816			
Prob. F-statistic	0.000000			
Durbin-Watson stat:	2.897903			

Source: Researcher's Computation Using Eviews10 (2021) * level of significance

Table 4: Result of estimated Long Run Coefficients.

Variable	Coefficient	Strd.err.	t- statistic	Prob.
Constant	-0.023601	0.389376	-0.060613	0.9525
lnFAID	-0.000569	0.002854	-0.199489	0.8446
lnCC	-0.130578	0.169821	-0.768913	0.4498
lnGE	-0.030595	0.059239	-0.516460	0.6131
lnPS	0.015556	0.021663	0.718083	0.4837
lnRL	-0.049098	0.052397	-0.93704	0.3636
lnVA	-0.011329	0.020348	-0.556750	0.5859
lnRQ	0.019882	0.033390	0.595425	0.5604
ECT	-0.012101	0.001146	-10.55664**	0.0000

Source: Researcher's Computation Using Eviews10 (2021) * level of significance

with under five mortality rate. While, political stability revealed a positive and statistically significant relationship with under five mortality rate, rule of law also revealed a negative and statistically insignificant relations with under five mortality rate. Accountability and voice revealed a negative and statistically significant relationship with under five mortality rate by 1.2% while, regulation quality also revealed a negative and statically significant relationship with under five mortality rate with coefficient of 2.3%.

(Table 4) Above presents the long-run estimates of the variables, -0.000569 coefficient implies that an increase in foreign aid for health as a percentage of total health expenditure by 1%, will, on average, decrease under five mortality rate by -0.005% keeping all other variables constant. Hence, there exist a negative relationship between the variables and it's statistically significant. -0.130578 coefficient implied a unit increase in control of corruption will decrease under five mortality rate by -1.3%, as such, there exist insignificant negative relationship between the two variables. Similarly, -0.030595 coefficient implied that a percentage increase in government effectiveness will lead to a decrease in under five mortality rate by 0.03% holding other variables constant. This implied that there is insignificant negative relationship between the two. Furthermore, rule of law, accountability and voice revealed a negative relationship to under five mortality rate which is statistically insignificant with -0.049098 and -0.011329

Table 5: Validity tests.

*Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.526656	Prob. F(1,20)	0.2369
Obs*R-squared	2.261471	Prob. Chi-Square(1)	0.1326
**Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.710973	Prob. F(8,21)	0.6641
Obs*R-squared	5.729976	Prob. Chi-Square(8)	0.5716
Scaled explained SS	10.15910	Prob. Chi-Square(8)	0.1797
***Ramsey RESET Test			
Equation: UNTITLED			
Specification: U5M LU5MORTALITY(-1) FAID_HEALTH GOVT_EFFECTIVENESS POLITICAL_STABLITY REGULATOR_QUALITY RULEOFLAW VOICE_AND_ACCOUNTABILITY C			
Omitted Variables	Squares of fitted values		
	Value	Df	Probability
t-statistic	0.002423	14	0.9981
F-statistic	5.87E-06	(1,14)	0.9981
Sources: Researcher's Computation (2021) Using E Views 2010			
*Durbin Watson stat			
**indicates; model is Homoskendastic			
***Ramsey test result			

coefficients. Only political stability and regulation quality revealed a positive relationship with under five mortality rate. However, the coefficient of the Error Correction Term (-0.012101) representing the speed of adjustment towards the long-run equilibrium, is negative and statistically significant. The model adjusts itself towards equilibrium by 0.1%.

(Table 5) Above present the diagnostic tests, this confirm the stability of the model as it passes the above post estimation tests. It is free from serial correlation and normally distributed. The plots (CUSUM and CUSUMQ) remain within the critical limits of 5% significance level as proposed by [19], (see appendix).

Conclusion

The study set to determine the relationship between foreign aid for health and health outcomes in Nigeria and the role of governance. The study used ARDL econometric model to assess the said pattern of relationship and roles. Findings of the study indicated that foreign aid for health improve health outcomes in Nigeria as exist a negative and statistically relationship between foreign aid for health and under five mortality rate in both short and long run. Most of or rather the key governance indicators namely, Government Effectiveness, Control of Corruption, Accountability and Voice, Rule of Law, quality of regulation, play a vital role in improving the health outcome of under-five mortality as they tend to reduce it which is in link with the national and international health targets.

The study, however, found a long-run relationship between foreign aid for health, governance and under five mortality rate. Findings of the study, commensurate with empirical findings that show both aid for health as well as improved governance are associated with reduction in under five mortality rate such as [11,12].

The study recommends that donor agencies should direct health aid to specific health target like reducing under-five mortality rate than taking several health issues if they wish to support Nigerian government. Government at all levels should uphold virtues of good governance as it affects the effectiveness of health aids directed to the country's health sector.

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