Government Fiscal Health, Family Planning and Poverty Rate in Nigeria: Evidence from VECM

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Abstract

This study focuses on government fiscal health, family planning and poverty rate in Nigeria. Previous studies failed to link health expenditure appropriately to family planning and poverty alleviation in Nigeria. This study addresses this theoretical gap by employing the vector error correction mechanism (VECM) in analysing the inter-relationship between government fiscal health, family planning and poverty rate in Nigeria by employing time series data from1977 to 2019. The data were tested for stationarity and found to be statistically significant at 0.05 level of significance. The result of the VECM showed that GDPP, SGHE, POVR and MMORR significantly explain 44.49% variation in family planning, while the ECM coefficient indicates a speed of adjustment of 5.372%; and it is statistically significant. The FEVD of family planning (FP) indicated that the variability of the SGHE was also rising between 0.193528% in the second period to 2.811% in the tenth period. The variability in POVR accounted for 1.008% of the variation in FP in the second period. The variation in poverty rate fell relatively over the forecast horizon such that at the tenth period it was 1.888%. The study concluded that the government's fiscal health expenditure has a positive but insignificant impact on FP, but a negative impact on POVR and MMORR in Nigeria. It is recommended that the government should increase its fiscal health expenditure significantly. This can be achieved via an increase in the budgetary allocation for the health sector.

Keywords: government, fiscal health, family planning poverty rate**.**

Introduction

It is a fundamental fact that the quality of human capital in a nation is a function of the health sector. Hence, a good health fiscal plan that enhances the state of family health and alleviation of poverty in Nigeria has become an urgent necessity. There is no doubt in the fact that government fiscal health affects the level of expenditure that is directed to family planning programmes and poverty alleviation in Nigeria. Healthcare expenditure has serious implications for the welfare of Nigerians (Hyacinth & Chijioke 2015).According to Hyacinth and Chijioke (ibid.), fiscal space for health financing refers to the ability of governments to increase spending for the health sector without compromising government's long-term solvency or crowding out expenditure in other sectors needed to achieve other development objectives.

The high proportions of total income of developed countries to health contrast sharply with the situation in low-income countries (LICs), particularly in Sub-Saharan Africa (SSA). For example, Burundi has the lowest public expenditure per

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capita in the world of US$0.70. The annual total government expenditure on health in the Republic of Benin is US$86m or US$10.5 per capita. Many African countries, including Nigeria, devote meagre percentage of their income to health, which in turn accounts for the dismal health profiles in these countries (ibid.). For instance, the recurrent health expenditure for the year 2009 in Nigeria was ₦90.20bn in a total recurrent expenditure of ₦2,127.97bn. This amount was just 4.24% of the total recurrent expenditure in that year. In 2014 it rose to 5.72%, and further rose to 6.73% in 2015 (CBN, 2015).

The poor health expenditure in Nigeria has also affected the level of the availability of family planning materials, and also the level of poverty prevailing in Nigeria's economy. According to the USAID (2015), in Nigeria—the most populous country in Africa—fewer than one out of every five married women use family planning. An additional 16% want to delay or limit childbearing, but are not using contraception. Also, limited access to family planning prevents women from safely spacing their pregnancies, which fuels unsustainable population growth, and puts the health of women and children at risk.

To the best of our knowledge, most previous studies treated the impact of government expenditure on health in Nigeria without linking it to family planning and poverty alleviation. This study aims to bridge this gap by empirically linking government's health expenditure, family planning, and poverty in Nigeria using the vector error correction model (VECM).

Following this introductory part, the next section reviews related literature. The third section deals with the research method, while the fourth analyses data. The fifth and last section concludes the study and gives recommendations.

Literature Review

Theoretical Literature

Theory of Increase Public Spending on Health

Buchanan developed a theoretical model in 1965 that encourages government investment on healthcare to increase public spending on health. The central point of the theory is that efficiency in the provision of healthcare should be observed, not only providing healthcare services but by reducing congestion and unequal distribution of personnel, and improving the quality of infrastructure and free care provided by the National Health Service (NHS).

Theory of Demand for Health Capital

The human capital model of demand for health proposed by Grossman's in (1972) shows that an individual is assumed to maximize utility subject to wealth/income, time constraints, and a health depreciation function. Grossman distinguishes between the uses of health as a consumption good, which is the demand for good health; and as an investment good, which is a derived demand for good health necessitating the use of medical services. The core assumption of the theory is that an individual inherits an initial stock of health capital that depreciates with time and can be increased through investment. In the model, health is treated as endogenous variables that people could improve through consumption and production. In addition, an investment in health increases one's stock of health, which improves health outcomes such as: healthy time, life expectancy, and reduced child mortality.

Empirical Literatures

Hyacinth and Chijioke (2015) carried out a study on fiscal space for health financing in Nigeria. They employed a descriptive technique of analysis, and concluded that Nigeria is unlikely in the short-term to see dramatic increases in the fiscal space for health, expand the NHIS towards achieving universal coverage, and sign into law the Health Bill, which stipulates the setting aside of 2% of the annual appropriation to fund PHC.

Mathias et al. (2013) investigated health care expenditure, health status and national productivity in Nigeria for the period between1999 to 2012. The study made use of both primary and secondary data. The study findings revealed that there is a weak causal relationship between public healthcare expenditure, health status, and poverty reduction in Nigeria. They further asserted that if people are a country's principal asset, then their health status defines the course of development, and their health characteristics determine the nature and direction of sustainable human development (ibid.).

In analysing family planning in Nigeria, John et al. (2010) found that the promotion of family planning in countries with high birth rates has the potential to reduce poverty and hunger, avert 32% of all maternal deaths, and reduce nearly 10% of childhood deaths. It would also contribute substantially to women's empowerment, achievement of universal primary schooling, and long-term environmental sustainability. In the past 40 years, family-planning programmes have played a major part in raising the prevalence of contraceptive practice from less than 10% to 60%, and reducing fertility in developing countries from six to about three births per woman. However, in half of the 75 larger low-income and lower-middle income countries (mainly in Africa), contraceptive practice remains low; while fertility, population growth, and unmet need for family planning are high.

Anyanwu et al. (2013) investigated the extent of family planning, methods and contraceptive devices in use, and the influence of education on family planning among couples in the Nkanu Local Government Area of Enugu State. The study adopted a descriptive survey research design. The result shows that family planning practice among couples in the area is high; and that the contraceptive methods used were mainly traditional. They concluded that educational status had a positive influence on family planning in the area.

Quamrul et al. (2013) assessed, quantitatively, the effect of exogenous reductions in fertility on output per capita. They made use of a simulation model that allows for effects that run through schooling, the size and age structure of the population, capital accumulation, parental time input into child-rearing, and crowding of fixed natural resources. They applied the model to examine the effect of change in fertility from the UN medium-variant to the UN low-variant projection in Nigeria for a base case set of parameters. They found that such a change would raise output per capita by 5.6% at a horizon of 20 years, and by 11.9% at a horizon of 50 years.

Olarinde and Bello (2014) employed co-integration in an empirical analysis of the long-run relationship of Nigeria's public healthcare expenditure, institutions, and health sector performance outcome. The analysis employed the use of annual data for the sample period from 1970 to 2011. The purpose of the study was to investigate and explain the impact of government healthcare expenditure and the quality of institutions on sector performance outcomes, as well as provide a more in-depth analysis of the importance of institutions in determining a sustainable positive health sector outcome with its multiplier effects on development. The empirical results from the ARDL bound testing approach provide strong evidence of the existence of a long- and short-run stable relationship among the variables; supporting the hypothesis that good institutions are germane to positive health sector outcome.

Baldacci (2004) investigated the relationship between health expenditures and health outcomes by using a panel data set for 120 developing countries from 1975-2000. He discovered that spending on health within a certain period affects growth within the same period; while lagged health expenditures appear to have no effect on growth. He inferred from this result that the direct effect of health expenditure on growth is a flow, and not a stock effect. Similar studies in other countries -- e.g., by Greiner (2005), Strauss and Martins (2005), and Agenor (2007) -- all affirmed that health expenditure is positively related to economic growth. What differs from one country to another is the extent and magnitude of its contributions.

Imoughele (2013) empirically examined the determinants of public health expenditure in Nigeria using the error correction techniques and time series data from 1986 to 2010. The results showed that demand for health in Nigeria is price inelastic. Further, they concluded that the total population of children that falls within the age of 14 years and below and health expenditure share in GDP (proxy for government developmental policy on health), are the major determinants of health expenditure in Nigeria.

Theoretical Framework and Research Methodology

Theoretical Framework

This study adopts the Buchanan's theory (1965) of health care expenditure. Buchanan's view is that the free care provided by the National Health Service (NHS) in the United Kingdom caused people to seek health care relative to two benchmarks (Pauly, 1999). On the one hand, people seek health care more frequently than they would have done if they have to pay for it out of pocket. In itself, this encouragement to use the supposedly beneficial care would not have been regarded as a bad thing, since presumably the reason for enacting the NHS was to encourage people in using health care that they formerly eschewed. The paradox was that, if such a motive (presumably related to what might be termed 'altruistic externalities') was behind the creation of the NHS, why were voters then unwilling to support a budget large enough to satisfy all demand at a zero price? Buchanan's answer was that, even if the price at the point of use was zero, the tax price for expanding the budget to a level consistent with that demand was definitely not zero (ibid.). Buchanan hypothesized that, at some point, the marginal benefit from spending more would be judged by taxpayers as of less value than the marginal (opportunity) costs of taxes they would have had to pay. As a result, taxpayers would choose a budget so limited that demand at a zero price could not be satisfied. Thus, the waiting lists, antiquated facilities, and arbitrary limits on health care that characterized the NHS were to be expected. This theory almost vividly describes the current health situation in Nigeria, where inefficiency in healthcare is linked not in the inability to allocate funds to PHCE, but in the reduced quality of healthcare systems in the country.

Empirical Model

The general functional form of the empirical model for this study is:

$$FP = f(GDP, SGHE, POVR, MMORR) \qquad (1)$$

The econometric technique of vector autoregression (VAR) was pioneered by Christopher Sims (1980), and provides a flexible and traceable estimation technique for analysing time series. It is an econometric model used to capture linear interdependencies among multiple time series. VAR models generalize the univariate autoregressive (AR) model by allowing for more than one evolving variable. All variables in a VAR enter the model in the same way: each variable has an equation explaining its evolution based on its own lagged values, the lagged values of other model variables, and an error term. However, where the variables are found to be cointegrated, the VAR becomes unsuitable; and this justifies the use of the vector error correction model (VECM). The VECM is specified as:

$$\Delta Y = \Pi Y_{t-1} + \Gamma X + \mu (2)$$

$$\Delta Y_t = \Pi Y_{t-1} + \Gamma X + \mu_1 (3)$$

$$\Delta Y_t = \Pi Y_{t-k} + \Gamma_1 \Delta Y_{t-1} + \Gamma_2 \Delta Y_{t-2} + \Gamma_{k-1} \Delta Y_{t-(k-1)} + \mu_1 \qquad (4)$$

Where Π_{t-1} is the long-run path vector operator; ΓX is the error correction operator and coefficients; and Δ is the first difference operator.

The compact form of the model is specified as:

$$\Delta V_t = \delta_{it} + \sum_{i=1}^{n} \beta_i \Delta \ln V_{t-i} + \phi_i ECM_{t-i} + \mu_{it} \qquad (5)$$

Where V_t is the vector of variables, while V_{t-i} is the vector of lagged variables as shown in equation (5) and (6), respectively.

$$V_t = f(FP, GDPP, SGHE, POVR, MMORR) \qquad (6)$$

$$V_{t-1} = f(FP_{t-1}, GDPP_{t-1}, SGHE_{t-1}, POVR_{t-1}, MMORR_{t-1}) \qquad (7)$$

Where: ECM_t = Error Correction term, δ_{it} = vector of intercept term, Δ = the first difference operator, δ_{it} = matrix of coefficient, μ_{it} = Stochastic error term.

The specification of the theoretical over-parameterized models are:

$$\Delta GDPP_t = \alpha_{2t} + \sum_{i=1}^{n} \alpha_i \Delta FP_{t-i} + \sum_{i=1}^{n} \beta_i \Delta SGHE_{t-i} + \sum_{i=1}^{n} \delta_i \Delta POVR_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta MORR_{t-i} + \gamma_2 ECM_{t-1} + \varepsilon_{2t} \qquad (9)$$

$$\Delta SGHE_t = \alpha_{3t} + \sum_{i=1}^{n} \alpha_i \Delta GDPP_{t-i} + \sum_{i=1}^{n} \beta_i \Delta FP_{t-i} + \sum_{i=1}^{n} \delta_i \Delta POVR_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta MMORR_{t-i} + \gamma_3 ECM_{t-1} + \varepsilon_{3t} \qquad (10)$$

$$\Delta POVR_t = \alpha_{4t} + \sum_{i=1}^{n} \alpha_i \Delta GDPP_{t-i} + \sum_{i=1}^{n} \beta_i \Delta SGHE_{t-i} + \sum_{i=1}^{n} \delta_i \Delta FP_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta MMORR_{t-i} + \gamma_4 ECM_{t-1} + \varepsilon_{4t} \qquad (11)$$

$$\Delta MMORR_t = \alpha_{5t} + \sum_{i=1}^{n} \alpha_i \Delta GDPP_{t-i} + \sum_{i=1}^{n} \beta_i \Delta SGHE_{t-i} + \sum_{i=1}^{n} \delta_i \Delta POVR_{t-i} + \sum_{i=1}^{n} \lambda_i \Delta FP_{t-i} + \gamma_5 ECM_{t-1} + \varepsilon_{5t} \qquad (12)$$

Equation(8) to equation (12) can be expressed in matrix form as:

$$\begin{bmatrix} \Delta FP_t \\ \Delta GDPP_t \\ \Delta SGHE_t \\ \Delta POVR_t \\ \Delta MMORR_t \end{bmatrix} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \\ \alpha_4 \\ \alpha_5 \end{bmatrix} + \sum_{i=1}^{n} \begin{bmatrix} \beta_{11} & \cdots & \beta_{51} \\ \vdots & \ddots & \vdots \\ \beta_{15} & \cdots & \beta_{55} \end{bmatrix} \begin{bmatrix} \Delta FP_{t-1} \\ \Delta GDPP_{t-1} \\ \Delta SGHE_{t-1} \\ \Delta POVR_{t-1} \\ \Delta MMORR_{t-1} \end{bmatrix} + \begin{bmatrix} \gamma_1 \\ \gamma_2 \\ \gamma_3 \\ \gamma_4 \\ \gamma_5 \end{bmatrix} ECM + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \\ \varepsilon_5 \end{bmatrix}$$

Where: *FP* is family planning, *GDPP* is per capita income, *SGHE* is share of government's health expenditure on total expenditure, *POVR* is poverty rate, *MMORR* is maternal mortality rate, γ is error correction coefficient, β is the coefficient of the vector matrix variables, α is the first order difference operator, and ε is the stochastic error term.

Methodology and Sources of Data

The study makes use of annual time series data spanning between 1977 to 2019, which is a period of 35 years. The data are sourced from the Central Bank of Nigeria Statistical Bulletin (various issues), National Bureau of Statistics, and World Bank Development indicators.

This study adopts the Phillip Perron unit root test to determine the integrational properties of the series selected, which helps to avoid spurious regression results. This is a unit root test used in time series analysis to test the null hypothesis that a time series is integrated of order 1. The Johansen and Juselius (1990) trace and maximum eigen statistics were employed because they are known to be useful for system equations that connote homogeneity. Cointegration and error correction modelling were followed by the vector error correction model (VECM), which investigates the short-run impact of variables. The VECM offers a possibility to the VAR model to integrate multivariate time series. For the sake of proper analysis, other tests such as the forecast error variance decomposition (FEVD), arithmetic root mean stability test, and the impulse response function (IRF) were done.

Interpretation of Results

Unit Root Test

The integrational properties of the series are investigated by employing the unit root test. This is carried out with the Phillip Perron (PP) unit root test. The PP tests correct for any serial correlation and heteroscedasticity in the errors μ_t non-parametrically by modifying the Dickey Fuller test statistics.

Table 1: Unit Root Test with Phillip Perron Statistic

Variables	Phillip Perron Test Statistic at Level	Phillip Perron Test Statistic at First Difference	Order of Integration	Remark
FP	-0.679	-8.785*	1(1)	Stationary at first difference
GDPP	-4.817*	-	1(0)	Stationary at level
SGHE	-4.942*	-	1(0)	Stationary at level
POVR	-0.902	-6.746*	1(1)	Stationary at first difference
M*MORR*	-1.312	-7.994*	1(1)	Stationary at first difference

Source: Author's computation using Eview 7, (2020). Critical Values: 5%=-2.957.

Table 1 presents the unit root test base on PP unit root test at level, and at first difference. At level, *GDPP* and *SGHE* are stationary. Hence, the null hypothesis that *GDPP* and *SGHE* have a unit root at level is rejected. At first difference, *FP, POVR* and *MMORR* are stationary. As such, the null hypothesis that each of the series (i.e., *FP, POVR* and *MORR*) has unit root is rejected at first difference.

Johansen Cointegration Test

Based on the fact that all the selected series are integrated multivariate time series, a cointegration analysis was carried out on the series to determine if there is a long-run relationship among the variables. The Johansen cointegration test is employed for this purpose, and based on the lag order length criterion in Table 2, a lag interval of 2 is employed in the test. Table 2 presents the result of the Johansen cointegration test. Based on the trace statistics, the null hypothesis for no cointegrating equation is rejected on the ground that the trace statistic is greater than the critical value (i.e., 112.656 > 69.819) at 0.05 level of significance.

Table 2: Johansen Cointegration Test

Series: *FP GDPP SGHE POVR MORR* Lags interval (in first differences): 1 to 2

Cointegrating Equations	Trace Statistics	0.05 Critical Value (*for Trace Statistic)*	Max Eigen Statistics	0.05 Critical Value (*for Max Eigen Statistic)*
$r = 0$	112.656*	69.819	49.591*	33.877
$r \leq 1$	63.065*	47.856	31.482*	27.584
$r \leq 2$	31.583*	29.797	20.646*	21.132
$r \leq 3$	10.937	15.495	10.742	14.265

Source*:* Author's computation using Eview 7, (2020).*significant at 0.05 level.

In the same vein, the null hypothesis of at most 1 cointegrating equation is also rejected at 0.05 level of significance. The null hypothesis of at most 2 cointegrating equations has a trace statistic of 31.583, with a critical value of 29.797. Since the trace statistic is greater than the critical value, it implies that the null hypothesis of at most 2 cointegrating equations is rejected. But the null hypothesis of at most 3 cointegrating equations is accepted based on the fact that the trace statistic is less than the critical value at 0.05 level of significance. Hence, the trace statistic indicates 3 cointegrating equations. Based on the same line of interpretation, the Max-eigen statistic also indicates at most 3 cointegrating equations.

Vector Error Correction Mechanism

Impact of the Two Lags of the Vectors of Variables on Family Planning (D(FP))

From Table 3, the coefficient of determination (R^2) indicated that 44.94% of the systematic variation in family planning is explained by per capita income (*GDPP*), share of government's health expenditure on total expenditure (*SGHE*), poverty rate (*POVR*), and maternal mortality rate (*MMORR*). The F-statistic is statistically significant at 0.05 level since the empirical F-statistic is greater than the critical F-statistic (i.e., 2.410042 > 2.23642). This implies that the explained variation is statistically significant. Hence, the two lags of the vectors of variables jointly significantly explain family planning in Nigeria.

The ECM coefficient has the correct negative sign, and it lies between zero and unity as required by theory. Based on the coefficient of the ECM, it implies that there is a speed of adjustment of 5.3718%, which is considerably slow. Hence, in the event of a temporary disequilibrium, the system will adjust back to equilibrium with a speed of 5.3718%.

Impact of the Two Lags of the Vectors of Variables on Per Capita Income (D(GDPP))

The explanatory variables were able to explain 57.7302% of the systematic variation in per capita income (*GDPP*). This joint impact has an F-statistic of 2.359029, which is found to be statistically significant at 0.05 level. Hence, the explained variation is statistically significant. The ECM coefficient is -8.525178. It is correctly signed and statistically significant at 0.01 level. However, it fails to fall within zero and unity as theoretically expected. Hence, the speed of adjustment is over-blown, and the speed of restoration to equilibrium in case of a temporary disequilibrium may overheat the system.

Table 3: Vector Error Correction Estimates

Vector Error Correction Estimates: t-statistics in [ ]

System Equations					
Explanatory Variables	**D(FP)**	**D(GDPP)**	**D(*SGHE*)**	**D(*POVR*)**	**D(*MORR*)**
Constant	-0.008352	0.556784	-0.144440	1.761922	-0.006853
	[-0.64594]	[0.39514]	[-0.19547]	[1.22608]	[-0.63188]
D(FP(-1))	-0.560894	40.38795	-13.96972	13.56040	0.284625
	[-2.43632]**	[1.60977]	[-1.06175]	[0.52997]	[1.47398]
D(GDPP(-1))	-0.006106	0.516059	0.253259	0.073789	0.005952
	[-1.69082]*	[1.31124]	[1.22708]	[0.18384]	[1.96507]*
D(*SGHE*(-1))	0.003292	-0.370968	-1.039366	-0.211626	-0.003681
	[1.03244]	[-1.06773]	[-.70453]***	[-0.59726]	[-1.37674]
D(*POVR*(-1))	-0.000154	0.015581	-0.174070	0.042783	-0.000766
	[-0.07520]	[0.06997]	[-1.49067]	[0.18840]	[-0.44674]
D(M*MORR*(-1))	0.314296	-9.858356	-32.91643	37.33913	-0.370084
	[1.34080]	[-0.38591]	[-2.45709]**	[1.43323]	[-1.88231]*
D(FP(-2))	-0.084001	24.89644	-13.75134	4.789999	0.162677
	[-0.36123]	[0.98241	[-1.03473]	[0.18534]	[0.83404]
D(GDPP(-2))	-0.003825	0.165663	-0.085855	-0.101512	0.001376
	[-1.53715]	[0.61096]	[-0.60378]	[-0.36709]	[0.65942]
D(*SGHE*(-2))	0.001904	-0.296581	-0.441821	-0.106839	-0.003302
	[0.67266]	[-0.96128]	[-2.73073]**	[-0.33955]	[-1.39066]
D(*POVR*(-2))	0.002960	-0.282762	-0.049129	-0.195787	0.001892
	[1.47906]	[-1.29642]	[-0.42952]	[-0.88019]	[1.12704]
D(*MORR*(-2))	0.245890	-66.17180	-34.00323	-21.07413	0.218152
	[0.90990]	[-2.24691]**	[-2.20169]**	[-0.70166]	[0.96245]
ECM(-1)	-0.053718	-8.525178	-3.410956	-0.048836	-0.039256
	[-2.00787]*	[-2.92400]***	[-2.23088]**	[-0.01642]	[-1.74939]*
Summary Statistics					
R-squared	0.449442	0.577302	0.784825	0.206341	0.589305
Adj. R-squared	0.130698	0.332582	0.660250	-0.253145	0.351535
S.E. equation	0.067815	7.390417	3.875643	7.537037	0.056880
F-statistic	2.410042**	2.359029**	6.300014***	0.449070	2.478463**
Akaike AIC	-2.259419	7.122891	5.831946	7.162181	-2.611095
Schwarz SIC	-1.704327	7.677982	6.387037	7.717272	-2.056003
Mean dependent	-0.006452	0.143548	0.140323	1.388387	-0.003226
S.D. dependent	0.072735	9.046276	6.649115	6.732866	0.070635

Source: Author's Computation using Eview 7, (2020).

Note: t-statistics are in brackets: [ ], *Significant at 0.1 with critical value of 1.69236, ** Significant at 0.05 with critical value of 2.03452, *** Significant at 0.01 with critical value of 2.73328, F-statistics:*/**/*** significant at 0.1, 0.05, and 0.01 levels with critical values 1.86593, 2.23642 and 3.1682 respectively.

Impact of the Two lags of the Vectors of Variables on Share of Government's Health Expenditure on Total Expenditure (D(SGHE))

The ECM coefficient is -3.410956. It has the correct negative sign as expected by theory, and is statistically significant at 0.05 level of significance. Based on the ECM coefficient, there is a speed of adjustment of 341.0956%, which is against theory. Theoretically, the speed of adjustment is expected to be within zero to 100%. Hence, with 341.0956%, the speed of restoration to equilibrium in case of a temporary disequilibrium may overheat the system.

The selected indicators for the model were able to explain 78.4825% of the systematic variation in the share of government's health expenditure on total expenditure (*D(SGHE)*). The F-statistic is 6.300014 and is statistically significant at 0.01 level of significance. This is an indication of the fact that the explained variation is statistically significant at 0.01 level of significance.

Impact of the Two Lags of the Vectors of Variables on Poverty Rate (D(POVR))
The explanatory variables were able to explain only 20.6341% of the total variation in poverty rate (*D(POVR)*). The F-statistic is statistically insignificant, and as such implies that the joint impact of the explanatory variables (i.e., the explained variation) is insignificant. The coefficient of the ECM is rightly signed and lies between zero and unity as theoretically expected. But it is statistically insignificant. Hence, the speed of adjustment towards equilibrium in the event of any disequilibrium is not significant.

Impact of the Two Lags of the Vectors of Variables on Maternal Mortality Rate (D(MMORR))
The ECM coefficient is -0.039256. It possesses the right negative sign and lies between zero and unity, in-line with *a priori* expectations. It is also statistically significant at 0.1 level of significance. Hence, any disequilibrium will be adjusted back to equilibrium, with a speed of adjustment of 3.9256%. Based on the coefficient of determination (R^2), the explanatory variables were able to explain 58.9305% of the total variation in maternal mortality rate (*D(MMORR)*). The F-statistic is statistically significant at 0.05 level: as such, the explained variation is statistically significant.

The two lags for family planning both have direct relationship with mortality rate. This conforms to theoretical expectations, but is statistically insignificant. Similarly, both lags for per capita income also have direct impact on maternal mortality rate. The first lag of per capita income is statistically significant at 0.1 level. Both lags for share of government's health expenditure on total expenditure have inverse relationship with maternal mortality rate. The first lag for poverty rate and the first lag for mortality rate both have inverse relationship with the current level of maternal mortality rate. On the other hand, the second lag for poverty rate and maternal mortality rate both have direct relationship with maternal mortality rate.

Forecast Error Variance Decomposition Estimates
The study examined forecast error variance decomposition to measure the proportion of its total variability due to shocks in the variable itself, relative to shocks in all other variables in the VEC model, at various forecasting horizons in the study. From Table 4, the shock in *GDPP* explains about 98.86854% of its own shock in the first period within the forecast horizon, and subsequently decline to 65.40485% in the tenth period; while FP account for a low but rising variance in GDPP that ranges between 1.131461% in the first period, to 7.505016% in the tenth period.

Table 4: Forecast Error Variance Decomposition

Vector Error Correction Estimates: t-statistics in [ ]							
			System Equations				
Explanatory Variables	**Horizons**	**FP**	**GDPP**	***SGHE***	***POVR***	***MORR***	**S.E.**
FP	1	100.0000	0.000000	0.000000	0.000000	0.000000	0.067815
	2	91.92721	0.550917	0.193528	1.007893	6.320450	0.079302
	3	89.66149	2.005618	1.333428	2.479652	4.519811	0.099711
	4	86.47061	3.260682	2.213558	2.133149	5.922000	0.116281
	5	86.67432	3.751910	2.005837	1.973437	5.594492	0.134542
	6	85.78420	4.253792	2.613305	1.860016	5.488683	0.148409
	7	85.37440	4.350016	2.512487	1.987372	5.775726	0.162033
	8	84.44848	5.177044	2.770946	1.895395	5.708133	0.175569
	9	84.43159	5.187834	2.818216	1.932506	5.629853	0.187598
	10	84.15885	5.437580	2.810489	1.887992	5.705091	0.199171
GDPP	**Period**	**FP**	**GDPP**	***SGHE***	***POVR***	***MORR***	**S.E.**
	1	1.131461	98.86854	0.000000	0.000000	0.000000	7.390417
	2	8.931256	85.24248	0.211019	1.464242	4.151000	8.147946
	3	8.360801	76.19063	3.908841	2.834026	8.705699	8.676618
	4	10.36846	72.69987	5.931476	2.706215	8.293977	8.922974
	5	8.815938	72.95412	5.125908	2.304315	10.79971	9.678367
	6	8.557131	70.96789	6.616456	2.222349	11.63617	9.856010
	7	7.951378	68.88742	7.980585	2.493713	12.68691	10.22457
	8	8.186176	67.23466	8.277564	2.397551	13.90405	10.42774
	9	7.777815	66.23790	9.190594	2.296830	14.49686	10.70810
	10	7.505016	65.40485	9.588919	2.268244	15.23297	10.93598
SGHE	**Period**	**FP**	**GDPP**	***SGHE***	***POVR***	***MORR***	**S.E.**
	1	24.87338	0.007337	75.11928	0.000000	0.000000	3.875643
	2	19.62244	3.055387	59.73872	2.907734	14.67572	4.575816
	3	13.75059	11.73996	61.34792	1.799013	11.36252	5.907375
	4	12.59359	11.21832	62.59480	3.438718	10.15456	6.456161
	5	10.57415	9.539663	59.71637	3.651974	16.51784	7.085916
	6	8.807295	9.210198	62.74540	4.252456	14.98465	7.875858
	7	8.779506	8.041794	62.83091	5.135950	15.21184	8.428735
	8	8.291674	7.360403	62.23757	5.131590	16.97876	8.940216
	9	7.636436	6.712385	63.79707	5.529719	16.32439	9.493784
	10	7.322024	6.102751	63.48702	5.996099	17.09211	9.973831
POVR	**Period**	**FP**	**GDPP**	***SGHE***	***POVR***	***MORR***	**S.E.**
	1	3.664153	0.304922	0.433012	95.59791	0.000000	7.537037
	2	3.203018	1.614575	3.055268	90.52984	1.597304	11.04398
	3	2.375204	1.792996	3.326659	91.19821	1.306926	12.82629
	4	2.060063	2.562557	3.493819	89.84967	2.033887	14.75448
	5	1.723395	2.199665	3.876289	90.09833	2.102324	16.46515
	6	1.450394	2.271511	4.269737	89.81176	2.196601	18.11729
	7	1.254526	2.271234	4.280539	89.84806	2.345638	19.52128
	8	1.130508	2.270493	4.507333	89.65977	2.431892	20.89991
	9	1.016086	2.256642	4.602999	89.64334	2.480932	22.20162
	10	0.923473	2.235337	4.688406	89.56781	2.584977	23.42042

MMORR	Period	FP	GDPP	SGHE	POVR	MORR	S.E.
	1	3.715687	42.51350	9.249076	0.872788	43.64895	0.056880
	2	3.604641	44.34322	12.45821	1.232570	38.36136	0.067090
	3	2.396222	56.84937	8.995021	1.423548	30.33584	0.105753
	4	1.878575	57.77959	9.167560	1.374175	29.80010	0.125045
	5	1.844333	58.81490	9.868016	1.882705	27.59005	0.152543
	6	1.521402	59.41351	9.572163	2.067782	27.42514	0.172658
	7	1.437954	59.51924	9.817644	2.258385	26.96677	0.194449
	8	1.310768	59.98307	9.829803	2.460748	26.41561	0.213188
	9	1.253872	59.95974	9.790960	2.611123	26.38430	0.232148
	10	1.183877	59.98776	9.921030	2.733472	26.17386	0.248534

Source: Author's Computation using Eview 7, (2020)

Shocks in *SGHE* explain a rising variance in *GDPP*, which is between 0.211019% to 9.588919% within the forecast horizon. In the same vein, *POVR* follows the same rising variance as *SGHE,* which rises between 1.464242% to 2.268244%. Shocks in *MORR* predominantly explains an increasing variance in *GDPP*, which rose between 4.151000% in the second period to 15.23297% in the tenth period. The values of the *FEVD* indicate that maternal mortality rate (*M,MORR*) account for the highest variance in GDPP.

The shock in *SGHE* accounts for about 75.11928% of its own shock in the first period. It declines relatively to 63.48702% in the tenth period. The variability in *FP* accounted for 24.87338% of the variation in *SGHE* in the first period, and declined subsequently to 7.322024% in the tenth period within the forecast horizon. The variation in the shock of the value of *GDPP* is 0.007337% in the first period. The shock in *GDPP* account for a rising variance in *SGHE* that was 6.102751% in the tenth period. Shocks in *POVR* explain a variance of 2.907734% in *SGHE* in the second period. The variance fell to 1.799013% in the third period, but subsequently rose after the third period to 5.529719% in the tenth period within the forecast horizon, that is, between 0.211019% to 9.588919% within the forecast horizon. The shock in *MMORR* shows a relatively irregular variance in *SGHE*. The variance was 14.67572% in the second period, but fell to 10.15456% in the fourth period. It rose to 16.51784% in the fifth period; and in the tenth period it was 17.09211%.

The forecast error variance of *POVR* explained by its own shock ranges between 95.59791% in the first period to 89.56781% in the tenth period within the forecast horizon. The shocks in *FP* accounts for declining variance in *POVR* that ranges between 3.664153% in the first period to 0.923473% in the tenth period. Shocks in *GDPP*, *SGHE* and *MMORR* explain a rising variance in *POVR* for the forecast horizon. The shocks in *GDPP* had a variance that ranges from 0.304922% in the first period to 2.235337% in the tenth period. The variance of *SGHE* is within the range of 2.235337% to 4.688406% within the forecast horizon. The shock in *MORR* account for a variance of 1.597304% in *POVR* in the second period, to 2.584977% in the tenth period.

The forecast error variance of *MMORR*, explained by its own shock, ranges between 43.64895% in the first period to 26.17386% in the tenth period within the forecast horizon. The variances in *MORR* triggered by the shocks in *GDPP, SGHE* and *POVR* all have a rising variances for the forecast horizon. The shock in *FP* accounts for 3.715687% in *MORR* in the first period. In the tenth period, the shock in *FP* explains 1.183877% in the variance of *MORR*. The shocks in *GDPP* accounted for the largest variance in *MORR*; ranging from 42.51350% to 59.98776% between the first to the tenth period.

Impulse Response Test

An impulse response is the reaction of any dynamic system in response to some external change. The impulse response describes the reaction of a system as a function of time (or possibly as a function of some other independent variable that parameterizes the dynamic behaviour of a system).

From Table 5, a one positive standard deviation shock on *FP* makes *FP* to respond positively for the period of the forecast horizon. But the trend of the response of *FP* to a shock in itself was relatively constant for the period of the forecast horizon. Variations in the response of *FP* ranges from 0.067815 to 0.060589 for the forecast horizon. *FP* had a zero response to a positive one standard deviation shock in *GDPP*. But after the first year, *FP* responded positively with slight variations within the forecast horizon. *FP* responded negatively from the second period after a shock in *SGHE* for the forecast period. But the response of *FP* to a shock in *POVR* was negative in the second period.

Table 5: Impulse Response Test

		Explanatory Variables				
Response of *FP*:	**Period**	***FP***	***GDPP***	***SGHE***	***POVR***	***MORR***
	1	0.067815	0.000000	0.000000	0.000000	0.000000
	2	0.034383	0.005886	-0.003489	-0.007961	0.019937
	3	0.055976	0.012836	-0.010973	0.013533	0.007204
	4	0.052703	0.015540	-0.012912	0.006473	0.018745
	5	0.063226	0.015436	-0.007987	0.008294	0.014559
	6	0.056610	0.016055	-0.014577	0.007242	0.014007
	7	0.059333	0.014324	-0.009168	0.010588	0.017535
	8	0.060135	0.021301	-0.013946	0.007904	0.015592
	9	0.060689	0.015164	-0.011734	0.009791	0.014893
	10	0.060589	0.018201	-0.011094	0.008297	0.016788
Response of *GDPP*:	**Period**	***FP***	***GDPP***	***SGHE***	***POVR***	***MORR***
	1	0.786120	7.348488	0.000000	0.000000	0.000000
	2	2.304645	1.609775	0.374291	0.985949	-1.660063
	3	0.604108	0.876056	1.674104	-1.077712	-1.948888
	4	-1.400356	0.723968	1.334125	0.145309	-0.222820
	5	-0.051413	3.233180	0.280836	-0.061610	-1.874182
	6	0.233494	0.775996	1.275072	-0.018446	-1.089638
	7	0.006701	1.754237	1.384113	-0.669451	-1.399873
	8	-0.767429	1.045602	0.811041	-0.008317	-1.362289
	9	-0.129760	1.685565	1.239921	-0.163029	-1.226224
	10	-0.239505	1.506887	0.964199	-0.281243	-1.263080

Response	Period	*FP*	*GDPP*	*SGHE*	*POVR*	*MORR*
Response of *SGHE*:	1	1.932908	0.033196	3.359073	0.000000	0.000000
	2	-0.610271	-0.799148	1.106694	-0.780272	-1.752945
	3	-0.830655	-1.859345	2.983368	-0.137764	-0.944654
	4	-0.671350	0.760999	2.163826	-0.897510	-0.517144
	5	-0.245029	-0.337434	1.973053	-0.632721	-2.015196
	6	-0.392155	-0.960792	2.989434	-0.896715	-1.000605
	7	-0.879878	-0.013100	2.391002	-1.005485	-1.229709
	8	-0.624540	-0.412075	2.259998	-0.672895	-1.662426
	9	-0.505512	-0.408680	2.785072	-0.939411	-1.069016
	10	-0.633154	-0.144390	2.377737	-0.990310	-1.513037
Response of *POVR*:	**Period**	***FP***	***GDPP***	***SGHE***	***POVR***	***MORR***
	1	-1.442738	-0.416193	-0.495964	7.369276	0.000000
	2	-1.351004	-1.340176	-1.865614	7.490831	1.395788
	3	0.028801	-0.990169	-1.321482	6.294022	0.449276
	4	-0.759680	-1.621366	-1.460496	6.750147	1.509169
	5	-0.433009	-0.620298	-1.703763	6.975653	1.127725
	6	-0.297616	-1.221722	-1.872474	7.108945	1.229070
	7	-0.141530	-1.095126	-1.515739	6.899165	1.314810
	8	-0.396709	-1.123578	-1.837393	7.017555	1.297646
	9	-0.265104	-1.098000	-1.732174	7.086844	1.267342
	10	-0.238723	-1.066734	-1.740093	7.030717	1.396496
Response of *MMORR*:	**Period**	***FP***	***GDPP***	***SGHE***	***POVR***	***MORR***
	1	-0.010964	-0.037087	-0.017299	-0.005314	0.037579
	2	0.006483	-0.024909	-0.016171	-0.005219	0.017734
	3	-0.010283	-0.066045	-0.021100	0.010185	0.040816
	4	-0.005075	-0.051737	-0.020676	0.007461	0.035594
	5	-0.011637	-0.068200	-0.029373	0.014941	0.041957
	6	-0.004938	-0.063450	-0.023608	0.013354	0.041901
	7	-0.009495	-0.069230	-0.029301	0.015410	0.044951
	8	-0.007213	-0.068972	-0.027485	0.016263	0.042537
	9	-0.008945	-0.071080	-0.028444	0.016995	0.047049
	10	-0.007451	-0.068846	-0.029180	0.016770	0.044137

Source*:* Author's Computation using Eview 7, (2020).

From the third period, the response of *FP* was positive for the forecast period. A one positive standard deviation on M*MORR* made *FP* to respond positively. A positive one standard deviation shock on GDPP made GDPP respond positively with an irregular trend for the forecast period. A shock in *FP* and *SGHE* also left *GDPP* with a positive response for the period of the forecast horizon. But a shock in *POVR* and *MMORR* rate made *FP* to respond negatively for the forecast period. A positive one standard deviation shock in *SGHE* made *SGHE* to respond positively for the forecast period. A shock in *FP*, *GDPP*, *POVR* and *MMORR* made *SGHE* to respond negatively from the second period to the tenth period within the forecast period. A positive shock in *POVR* made *POVR* to respond positively with a variance that range from7.369276 in the first period to 7.030717 in the tenth period. A one positive standard deviation shock on *FP*, *GDPP* and *SGHE* made *POVR* rate to respond negatively for most part of the forecast period. But a shock on *MORR* made *POVR* rate to respond positively.

A shock on *MMORR* rate had a positive variance in the response of *MMORR* for the forecast period. However, the variance in the response of *MMORR* due to a shock on *FP*, *GDPP* and *SGHE* were negative for most periods of the forecast horizon. A shock on *POVR* made *MMORR* to respond negatively for the first two periods, after which it subsequently had a positive variance for the rest of the period within the forecast horizon.

Implication and Discussion of Findings

The two lags of the vectors of variables jointly explain that family planning *(D(FP*)) in Nigeria is significant, while the coefficient of the ECM shows that there is a speed of adjustment that is considerably slow. Hence, in the event of a temporary disequilibrium the system will adjust back to equilibrium.

The two lags of the vectors of variables on per capita income *(D(GDPP*)) were able to explain the systematic variation in per capita income (*GDPP*), whose joint impact is found to be statistically significant; while the ECM coefficient is also correctly signed and statistically significant.

The two lags of the vectors of variables on the share of government's health expenditure on total expenditure (*D*(*SGHE*)) show that the systematic variation is statistically significant, while the ECM coefficient has the correct negative sign as expected by theory, and statistically significant. Based on the ECM coefficient, there is a speed of adjustment, which is against theory. Theoretically, the speed of adjustment is expected to be within zero to 100%. Hence, with 341.0956%, the speed of restoration to equilibrium in the case of a temporary disequilibrium may overheat the system.

The two lags of the vectors of variables on poverty rate *(D(POVR*)) show that the explanatory variables were able to explain the total variation in poverty rate *(D(POVR*)); and the F-statistic is statistically insignificant. This implies that the joint impact of the explanatory variables is insignificant, while the coefficient of the ECM is rightly signed and lies between zero and unity as theoretically expected. But it is statistically insignificant. Hence, the speed of adjustment towards equilibrium in the event of any disequilibrium is not significant.

The two lags of the vectors of variables on maternal mortality rate *(D(MMORR*)) explain that the variation is statistically significant. The ECM coefficient possess the right negative sign and lies between zero and unity in-line, with *a priori* expectation. It is also statistically significant. Hence, any disequilibrium will be adjusted back to equilibrium with its speed of adjustment.

The two lags for family planning both have direct relationship with maternal mortality rate. This conforms to the theoretical expectation, but is statistically insignificant. Similarly, both lags for per capita income also have direct impact on maternal mortality rate. The first lag of per capita income is statistically significant at 0.1 level. Both lags for the share of government's health expenditure on total expenditure have inverse relationship with maternal mortality rate. The first lag for poverty rate and the first lag for maternal mortality rate both have inverse relationship with the current level of maternal mortality rate. On the other hand, the second lag for poverty rate and maternal mortality rate both have direct relationship with maternal mortality rate.

The shock in *GDPP* explains 98.9% of its own shock in the first period within the forecast horizon and subsequently decline to 65.4% in the tenth period, while *FP* account for a low but rising variance in *GDPP* that ranges between 1.1% in the first period to 7.5% in the tenth period. Shocks in *SGHE* explains a rising variance in *GDPP* that is between 0.2% to 9.6% within the forecast horizon, while *POVR* follows the same rising variance as *SGHE* that rises between 1.5% to 2.3%. Shock in *MMORR* predominantly explains an increasing variance in *GDPP* that rose between 4.2% in the second period to 15.2% in the tenth period. The values of the *FEVD* indicate that maternal mortality rate (*M,MORR*) account for the highest variance in *GDPP*.

The shocks in *SGHE* accounts for about 75.1% of its own shock in the first period. It declines relatively to 63.4% in the tenth period. The variability in *FP* accounted for 24.9% of the variation in *SGHE* in the first period, and declines subsequently to 7.3% in the tenth period within the forecast horizon. The variation in the shock of the value of *GDPP* is 0.007% in the first period. The shock in *GDPP* account for a rising variance in *SGHE* that was 6.1% in the tenth period. Shocks in *POVR* explains a variance of 2.9% in *SGHE* in the second period. The variance fell to 1.8% in the third period, but subsequently rose after the third period to 5.5% in the tenth period within the forecast horizon. The shock in *MMORR* for a relatively irregular variance in *SGHE* is between 0.2% to 9.6% within the forecast horizon. The variance was 14.7% in the second period, but fell to 10.2% in the fourth period. It rose to 16.5% in the fifth period; and in the tenth period it was 17.1%.

The forecast error variance of *POVR,* explained by its own shock, ranges between 95.6% in the first period to 89.6% in the tenth period within the forecast horizon. The shocks in *FP* accounts for the declining variance in *POVR* that ranges between 3.7% in the first period to 1% in the tenth period. Shocks in *GDPP*, *SGHE* and *MMORR* explain a rising variance in *POVR* for the forecast horizon. The shocks in *GDPP* had a variance that ranges from 0.3% in the first period to 2.2% in the tenth period. The variance of *SGHE* is within the range of 2.2% to 4.7% within the forecast horizon. The shock in *MMORR* account for a variance of 1.6% in *POVR* in the second period, to 2.6% in the tenth period.

The forecast error variance of *MMORR,* explained by its own shock, ranges between 43.6% in the first period to 26.2% in the tenth period within the forecast horizon. The variances in *MMORR* triggered by the shocks in *GDPP*, *SGHE* and *POVR* all have a rising variances for the forecast horizon. The shock in *FP* accounts for 3.7% in *MMORR* in the first period. In the tenth period the shock in *FP* explains 1.2% of the variance of *MMORR*. The shocks in *GDPP* accounted for the largest variance in *MMORR*. It ranges from 42.5% to 60% between the first to the tenth period.

An impulse response shows that a one positive standard deviation shock on *FP* makes *FP* to respond positively for the period of the forecast horizon. But the trend of the response of *FP* to a shock in itself was relatively constant for the period of the forecast horizon. *FP* had a zero response to a positive one standard deviation shock in *GDPP*. But after the first year, *FP* responded positively with slight variations within the forecast horizon. *FP* responded negatively from the second period after a shock in *SGHE* for the forecast period. But the response of *FP* to a shock in *POVR* was negative in the second period. From the third period the response of *FP* was positive for the forecast period. A one positive standard deviation on *MMORR* made *FP* to respond positively. A positive one standard deviation shock on *GDPP* made *GDPP* to respond positively with an irregular trend for the forecast period. A shock in *FP* and *SGHE* also left *GDPP* with a positive response for the period of the forecast horizon. But a shock in *POVR* and *MMORR* rate made *FP* to respond negatively for the forecast period. A positive one standard deviation shock in *SGHE* made *SGHE* to respond positively for the forecast period. A shock in *FP*, *GDPP*, *POVR* and *MMORR* made *SGHE* to respond negatively from the second period to the tenth period within the forecast period. A positive shock in *POVR* made *POVR* to respond positively with a variance that range from7.4% in the first period to 7.0% in the tenth period. A one positive standard deviation shock on *FP*, *GDPP* and *SGHE* made *POVR* rate to respond negatively for most part of the forecast period. But a shock on *MMORR* made *POVR* rate to respond positively.

A shock on *MMORR* rate had a positive variance in the response of *MMORR* for the forecast period. However, the variance in the response of *MMORR* due to a shock on *FP*, *GDPP* and *SGHE* were negative for most periods of the forecast horizon. A shock on *POVR* made *MMORR* to respond negatively for the first two periods, after which it subsequently had a positive variance for the rest of the period within the forecast horizon.

Conclusion and Recommendations

Conclusion

Based on the empirical analysis carried out in the course of this study, we can conclude that government's fiscal health expenditure has a positive but insignificant impact on family planning; but a negative impact on poverty rate and mortality rate in Nigeria. Also, we can conclude that poverty rate has an inverse relationship with family planning, government's fiscal health expenditure, and mortality rate in Nigeria.

Based on the forecast error variance decomposition, it can be inferred that the variability of *GDPP*, *SGHE*, *POVR* and *MORR* account for a significant fraction of family planning in Nigeria. Also, from the result of the impulse response analysis, one can conclude that a shock on government's fiscal health expenditure will make family planning, poverty rate, and mortality rate to reacts negatively. This indicates that an increase in government's fiscal health expenditure will significantly reduce poverty rate, mortality rate, and birth rate in Nigeria. It will also significantly increase the level of per capita income in the country. A shock on poverty rate will conclusively cause the government's fiscal health expenditure and per capita income to fall, and mortality rates rise. A fall in government's fiscal health expenditure is an indication that the government will tend to reduce its health expenditure even with a rise in the level of poverty rate in Nigeria. This conforms to the Buchanan's theory. Also, from the impulse response result we can conclude that a shock on family planning will make government's fiscal health expenditure and poverty rate fall.

Recommendations

From the foregoing the study makes two major recommendations. First, the government should increase its fiscal health expenditure significantly. This can be achieved via an increase in budgetary allocations for the health sector, which will subsequently improve health status in Nigeria, and also allow for other economic benefits such as the multiplier effects that will be generated from increased health expenditure. Not spending an adequate amount in health may weaken the sector to the extent that it would, in the future, be costly and time consuming to 'rebuild' it.

Second, the government should initiate a fiscal health expenditure that will allow an integration of healthcare expenditure into comprehensive and well-conceived poverty and mortality-sensitive strategies targeted at improving healthcare status. This will not only help reduce the poverty and mortality rates in Nigeria, but also improve the quality of human capital development in the country.

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