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Impact of Government Health Sector Expenditure on Infant Mortality in Nigeria (1981-2018)

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ABSTRACT

This study examined the impact of government health expenditure on infant mortality rate for the period 1981-2018. A linear model which specified infant mortality rate as a function of government expenditure and per capita income was formulated. Time series data was obtained from the Central Bank of Nigeria Statistical Bulletin. The Augmented Dickey-Fuller and Phillip Peron Unit root test and Johansen Cointegration techniques were used for the preliminary tests. The time series data were all stationary at first difference, and the existence of cointegration was confirmed. The Vector error correction modeling technique was used to estimate the parameters of the linear model. The result reveals that government expenditure on health has a positive and significant impact on infant mortality in Nigeria in the long run (t = 5.87913). It also found that per capita income has a negative and significant impact on capital expenditure in Nigeria over the period under study (t = 2.53173). The study reveals that a uni-directional causality relationship runs from government expenditure on health to infant mortality $(P(X^2)$ = 0.0033). The study suggests that there is need for the establishment of a health insurance scheme that would be inclusive for all Nigerians irrespective of where one comes from or the type of work the person does. This health scheme should be funded by the federal, state and local governments.
Keywords: Government, Health Sector, Infant Mortality and Nigeria.

INTRODUCTION

The risk of a child dying before the age of one was highest in the World Health Organization African Region (51 per 1000 live births), which is over six times higher than that in the WHO European Region (8 per 1000 live births) [1]. Although sub-Saharan African (SSA) countries have achieved remarkable improvement in infant survival rates since the introduction of the Millennium Development Goals (MDGs), infant mortality in SSA continues to be the highest among all global regions [1, 2]. Different socioeconomic factors are considered responsible for the high rate of infant mortality in developing countries; the most commonly sighted factors in previous studies have been the level of female education, per capita income, general environmental cleanliness and expenditure on health, [3]. Among the SDGs, which are targets that all countries agreed to try to achieve by 2030, is the goal to "ensure healthy lives and promote wellbeing for all at all ages" [4]. More specifically, it focuses on a substantial reduction in the global child mortality rate as well as "substantially increase health financing" [4]. Public expenditure on health represents one of the key drivers in meeting these important elements of the SDGs [5]. Health expenditure is fundamental to the ability of health systems to maintain and improve human welfare; without financing, skilled and appropriate health workers would not be employed, medical equipment would not be available and health promotion or prevention of disease would not take place [5]. Health expenditure reflects the overall level of consumption of health goods and services by the population across countries [6]. Investing in the health care system will not only lead to healthier lives, it also creates employment, enhances political

and social stability, and contributes to economic growth and productivity [7], According to the Abuja Declaration in 2001, the African Union member heads of state agreed to allocate at least 15% of annual expenditure to health care. Fifteen years later in 2014, most African countries had increased the proportion of total public expenditure allocated to health care [8]. Although, health expenditure in SSA is the lowest compared with other regions, most African countries have improved their budget allocations to health over the past 15 years [9]. The source of health care financing in the SSA region was mostly from private sources and largely out-of-pocket (OOP) expenditure; WHO estimates that up to 10% of the population in the region suffer a financial catastrophe each year due to out of pocket OOP expenditure, with up to 4 % pushed under the poverty line of the region. Government health expenditure in Africa does not always go up with increasing national income or government revenues. For instance, high-income countries in Africa did not systemically allocate higher priority to health care in their government spending [10]. In contrast, a few lower income countries have allocated more than 15% of their public spending to the sector (Ethiopia, Gambia, and Malawi) [11].

In Nigeria, with the increase in government's health expenditure from Nl 5.22 billion in 2000 and Nl 79.99 billion in 2013 to N257.72 billion in 2015, to N296.44 in 2018 first quarter accounting for 3.30%, 5.60%, 6.73% and 5.22% respectively of the total recurrent expenditure , infant and child mortality has remained seemingly high in Nigeria. In 2015, about 9 per cent deaths of new-born babies in the world occurred in Nigeria, thus placing Nigeria as the third country with highest infant mortality aside India and Pakistan [12], as it records 69.4% death rate per 1,000 infants, although this rates are higher in rural areas compared to their urban counterparts. In most developing economies like Nigeria, increase in budgetary allocation to social services, like health expenditure is highly desirable, though the increase by itself is not sufficient to guarantee enhancement in service delivery, even with the advancement in medicine and technology which have aided the identification and fight against major childhood diseases, [13]. Although there is a bread consensus that economic growth can definitely lead to improvement in health [14], the growth of Nigeria's economy in term of its GDP have not made the health condition in the country any better with continuous increase in infant mortality and even under-5, neonatal and maternal mortality. A cross-country study on infant mortality-public health expenditure nexus usually shows income as the major determinant of a population's health status [14], which is likely due to inefficiency, funds mismanagement and absence of professionals which characterized the public health sector of most developing economies like Nigeria, compared to its private counterpart which is perceived to be unaffordable by the citizen as a result of the high incidence of poverty.

Generally, countries with high incidence of corruption have high tendency of experiencing high level of child and infant mortality rates [15]. The lack of access to basic health facilities and resources due to environmental and social barriers (such as the isolation of those in rural areas, the absence of health facilities in rural areas and poverty) contribute immensely to the increase in infant mortality. In the world, about 99% of the incidence of infant deaths occurs in developing countries, and 86% of these deaths are due to infections, premature births, complications during delivery, and pre-natal asphyxia and birth injuries [16]. There is need for current studies to establish the impact of government health expenditures on health outcomes, especially infant mortality in Nigeria.

STATEMENT OF THE PROBLEM

Health care spending in Nigeria is segmented into private and public spending. While public health expenditures in Nigeria account for just

20-30% of total health expenditures, private expenditures on health account for 70-80% of total health expenditure, [17]. The dominant private health expenditure is out-of-pocket expenses, and this accounts for more than 90% of private health expenditures. This implies that households bear the highest burden of health expenditure in Nigeria. The $5 per capita expenditure on health in Nigeria is far below the $14 recommended by World Bank for Africa and much lower than the $34 per capita recommended by WHO Macroeconomic Commission for Health for low income countries to provide basic health care services [18]. One can infer that out-of- pocket expenditure is the major source of funding for childhood illnesses. The expenditure appears grossly inadequate as the annual per capita out-of- pocket expenditure per under-five child was $1.8 [19].

The comparatively low patronage of public health facilities may be a reflection of the level of poverty in Nigeria. This puts a serious doubt on the government ability to improve accessibility, reliability and affordability of health services in the country. It is expected that budgetary allocations to health sector would improve health outcome and reduce all kinds of mortality rate. [20], observed that increased budgetary allocation to health has assisted some heavily-indebted poor countries to fight poverty, and raise the living standard of people in these countries. Remarkably, the federal budgetary component of health expenditure has increased over the years. Nevertheless, the budgetary allocation for health is still below the 14 to 15% signed by the Nigerian government in the Abuja declaration [21]. Given this level of government spending, it will be very difficult to provide the essential health care services, and with the unpredictable change of the oil prices in the world market and low tax base, health care will always be at the peril of underfunding by the Nigerian government. Low level of life expectancy is explained by inadequate finances meant for health sector in Nigeria. This is blamed on uneven distribution of finance and facilities, especially in the primary health care. On the other hand, despite the budgetary provision for health, many of the health institutions still lack adequate personnel and facilities to provide quality care for the citizenry. There is gross inadequacy in the number of these facilities, and the few available are unevenly distributed. The reality is that public spending, governance and development outcomes are interlinked. The nature of the relationship between government expenditure on health and infant mortality has generated a lot of debate among economic scholars, policy makers and health economists [22]. As a result of the controversy from the foregoing as regards the trend of the impact of government health expenditure on infant mortality rate, there is need to empirically examine such argument as it relates specifically to infant mortality in Nigeria for the period 1981-2019 in order to present the state of the art as it affects the issue, hence the need for this present study.

Research Questions

i. What is the effect of government health expenditure on the reduction of infant mortality rate in Nigeria?

ii. What is the effect of per capita income on the reduction of infant mortality rate in Nigeria?

iii. What is the causality relationship between health expenditure and reduction of infant mortality rate in Nigeria?

Objectives of the Study

The general objective of the study is to find out the effect of government health expenditure on infant mortality in Nigeria. Specifically, the study intends

i. To evaluate the effect of government health expenditure on the reduction of infant mortality rate in Nigeria.

ii. To estimate the effect of per capita income on the reduction of infant mortality rate in Nigeria.

iii. To assess the direction of causality between health expenditure and reduction of infant mortality rate in Nigeria.

Hypotheses of the Study

The research hypotheses are formulated after the order of the research objectives to include:

H_{o1}: government expenditure has no significant effect on the reduction of infant mortality rate.

H_{o2}: per capita income has no significant effect on the reduction of infant mortality rate.

H_{o3}: there is no causality relationship between government and reduction of infant mortality rate.

Significance of the Study

This study is bent on contributing to the literature available in infant mortality. It will go further in establishing reasons why subsequent research in this area will contribute to the growth and development of health sector in Nigeria. The following users will find this study useful and pertinent. The outcome of study will be of immense benefit to government agencies and bodies who are engaged in the task of health policies and formulation. They will find the result highly revealing. The recommendations in this study will help the government to understand the need for quality tool that will serve as direction on areas to charge their expenditures to elicit better welfare outcomes in our society. An advancement of knowledge is achieved when series of researches are being carried out in the academic environment. Thereby the scope and horizon of the readers or researchers are widened in order to achieve academic excellence through series of researches, development of the intellectual faculty and planning. This also led to the gathering and update in the volume of literature for various field of study that are applicable majorly to economics students and the likes.

Scope and limitations of the Study

The scope of this study is restricted on the effect of government health expenditure on infant mortality in Nigeria from 1981 to 2019 using the annual time series data on infant mortality rate, government health expenditure and per capita income. Capital expenditure on health was not considered in this study due to paucity of data.

METHODOLOGY

Research Design

The research design that will be adopted for this research is the *ex-post facto* research design. This is because according to [21], the *ex-post facto* research design also called causal comparative research is used when the researcher intends to determine cause-effect relationship between the independent and dependent variables with a view to establishing a causal link betweenthem.

Method of Evaluation

The study employs econometric methodology for the purpose of data analysis. The Unit Root test will be conducted to test the stationarity of the time series data. Cointegration and Error correction model will also be conducted to verify the existence and degree of the dynamic nature of the model.

Unit Root Test

The prerequisite for Ordinary Least Square (OLS) is the stationarity of each individual time series over the same time period. Hence, before turning to the analysis of the long-run relationships between the variables, the researcher will check for the unit root properties of the single series, as non-stationary behaviour

is a prerequisite for including them in the co-integration analysis [22]. If the time series are stationary in their first differences, then they are said to be integrated at order one, i.e., I (1); if stationary in their second differences, then they are integrated at order two, i.e., I (2). The order of integration of the variables is investigated using the Augmented Dickey-Fuller (ADF) [11] unit root test for the presence of unit roots. It is given as:

$$y_t = p_1 y_{t-1} + p_2 \Delta y_{t-1} + p_3 \Delta y_{t-2} + \varepsilon_t \quad (3)$$

Where $p_1 y_{t-1}$ indicates the first difference of Y. and P is the lag length of the augmented terms for Y.. The equation above allows the researcher to test whether the variable Y. is a stationary series. The null hypothesis in the ADF test is that Y. is non-stationary or has a unit root. *Decision Rule:*

Reject Ho, if the absolute value of the ADF test statistic exceeds the 5% critical value, otherwise do not reject Ho.

Co-integration test

The co integration test will be tested using the Johanson co-integration technique. The issue of co-integration, the error correction model is to measure the speed of short-run adjustment to long-run equilibrium. The long-run equilibrium relationship is estimated with the following equation:

$$X_t = a_0 + a_1 z_t + \varepsilon_t$$

If there is co-integration, a. and a, estimates reveal "super-consistent" estimators in the OLS regression. In this estimation fitted values of ε_t series is tested for stationarity. In this analysis DF or ADF may be used. However, in hypothesis testing, critical values constructed by [2] is used. If this series is stationary, we can conclude that there is co-integration between X. and Z.. The fitted values ε_t of may be used as error correction term of the model.

Decision Rule:

Reject Ho, if the absolute value of the ADF test statistic exceeds the 5% critical value, otherwise do not reject Ho, for Johnson co-integration technique, reject Ho, if the value of trace statistic exceeds the 5% critical value, otherwise do not reject Ho.

Vector Error Correction Model (VECM)

VECM was applied once the co-integration test shown the existence of the long-run relationship among the variables of interest. The objective of VECM is to investigate the dynamic behavior of the model and describe how it is adjusting to each period towards its long-run equilibrium state. Once the variables are co-integrated in the short-run deviation from long-run equilibrium will feedback on changes in the dependent variables in order to force their movement towards long-run equilibrium state.

Data Required and Sources

The annual time series data used in this study were be sourced from the Central Bank of Nigeria statistical Bulletin various issues and Index Mundi. These data include the following; Infant Mortality Rate (IMR), Government Health Expenditure (GHE), and Per Capita Income (PCI).

Econometric Software

The data will be analyzed using Eviews 9.0 software.

PRESENTATION AND ANALYSIS OF RESULTS

The results of the various tests specified in the previous chapter are presented here.

Unit Root Test of the Time Series Variables

The variables of interest were subjected to unit root test in order to ensure stationarity of the series. Four techniques were used for testing the stationarity qualities of the data. We begin with Table 1 which shows that result of Phillip-Perron and Augmented Dickey-Fuller Stationarity tests.

Table 1: Result of ADF unit root test of the variables

	At levels				*At first Difference*				
Variables	*ADF test statistic*	*5% critical values*	*PP test statistic*	*5% critical values*	*ADF test statistics*	*5% critical values*	*PP test statistics*	*5% critical values*	*Order of integration*
IMR	0.033512	-2.9484	0.692725	2.94115	-3.80806	-2.9484	-0.7297	1.95012	Id)
LREXH	-1.51138	1.95291	0.585347	1.94986	-0.75955	1.95291	-8.91079	1.95012	1(1)
PCI	-1.08906	2.94343	-0.64368	1.94986	-3.70794	2.94343	-3.70794	2.94343	1(1) .

Source: Eviews 9 Output for the Result of PP and ADF unit root test

Table 1 above presents the result of the ADF unit root tests of stationarity of the time series data. The results show that all the times series data at stationary at first difference 1(1). As a result of this, the study goes ahead to test and determine if there is a long run relationship among the time series variables, hence the Johansen Test for Co-integration as presented in Table 2 and Table 3 below.

Cointegration Analysis

Johansen Cointegration

The Johansen Cointegration, unlike the Engle-Granger Cointegration, is a multi-residual unit root test of the time series variables. This test will involve the use of Trace statistic and the Maximum eigen value statistic. The result is shown on Table 2 below

Table 2: Result of Johansen Cointegration

Series: [MR PCI LREXH				
Unrestricted Cointegration Rank Test (Trace) (Panel A)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.849578	84.90833	29.79707	0.0000
At most 1	0.300840	14.81884	15.49471	0.0630
At most 2	0.041737	1.577439	3.841466	0.2091
Trace test indicates 1 cointegratingeqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue) (Panel B)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.849578	70.08949	21.13162	0.0000
At most 1	0.300840	13.24140	14.26460	0.0721
At most 2	0.041737	1 .577439	3.841466	0.2091

Max-eigenvalue test indicates 1 cointegratingeqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Source: Eviews 9 Output for the Result of Trace test and Maximum Eigenvalue test

Table 2 presents the result of the Johansen Cointegration. Panel A (The Trace statistic) shows the presence of one cointegrating equation, at those three null hypotheses where the probability values are less than 0.05. Panel B (Max Eigenvalue) indicates the presence of one cointegrating equations at those two null hypotheses where the probability values are less than 0.05. These results indicate that there is a long run relationship among the variables involved in the model

Regression Results

Result of the Cointegration Models

Having reached this stage, the study goes ahead to estimate the regression parameters using the Vector Error Correction Modeling since the variables are stationary at first difference. However, before estimating the VAR model was estimated and the lag length criteria estimated. The result is presented on Table 3 below.

Table 3: LAG LENGTH CITERIA

VAR Lag Order Selection Criteria
Endogenous variables: IMR PCI LREXH

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-467.8025	NA	45906097	26.15570	26.28766	26.20175
1	-304.6642	290.0237	8791.927	17.59246	18.12030	17.77669
2	-241.4410	101.8596*	437.6734*	14.58006	15.50378*	14.90246*
3	-232.2037	13.34283	445.0600	14.56687*	15.88647	15.02745

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC; Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Eviews 9 Output for the Lag length criteria

In Table 3, the selected lag length of 2 was selected by for criteria. As a result, the VECM analysis is specified at 2 lags. We went ahead to check the stability of the VAR model. The result is presented in figure 1 below:

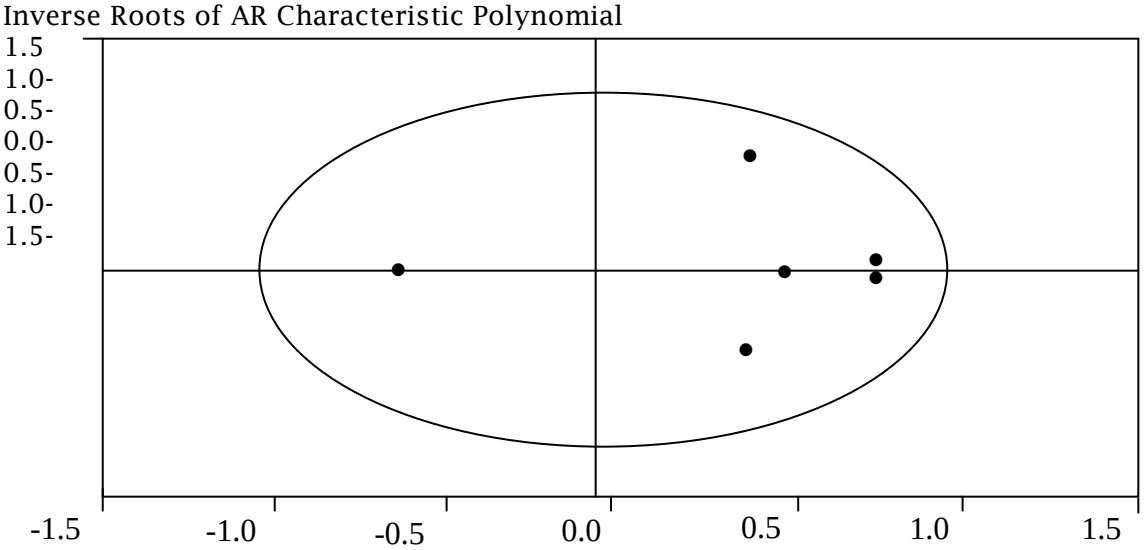

Figure 1: Inverse roots of AR Characteristics Polynomial

Figure 1 above shows that all the roots lie within the unit circle. This evidences that the VAR model used in estimating the VECM model is a dynamic model. The result of the VECM is presented in Table 4 below:

Table.4 Result of VECM analysis

Vector Error Correction Estimates			
Standard errors in ( ) & t-statistics in [ ]			
CointegratingEq:	CointEql		
IMR(-1)	1 .000000		
LREXH(-1)	12.66879		
	(2.14830)		
	[5.89713]		
PCi(-l)	-0.015507		
	(0.00613)		
	[-2.53172]		
C	-113.1663		
Error Correction:	D(IMR)	D(LREXH)	D(PCI)
CointEql	-0.010287	-0.024475	4.951989
	(0.00462)	(0.02339)	(7.23366)
	[-2.22616]	[-1.04647]	[0.68458]

Source: Eviews 9 Output for the VECM analysis

Table 4 presents the abridged result of the VECM analysis. The result shows that in the long run, expenditure on health has a positive and significant impact on infant mortality rate in Nigeria over the period under study. With the coefficient of 12.66879, it implies that an increase in government expenditure on health by 1 per cent leads to 12.67 percent increase in infant mortality. This implies that despite the increase in government expenditure on health, infant mortality is not reducing. This is a pointer that all is not well with the health sector. This is because it is expected[1] that with the humongous expenditure on the health sector, infant mortality keeps rising instead of falling. Does it mean that the money being spent on the health sector are not well managed or not productive. These are questions to be addressed.

The relationship between Per capita income and infant mortality rate is negative. This outcome meets *a priori* expectations. When people's income increases, they are able to take care of their health needs. An increase in per capita income by 1 per cent leads to 0.015 percent reduction in infant mortality rate. In this study, we move ahead to provide answers to the third hypotheses which seeks to determine the causality relationship between government expenditure and infant mortality rate. The result VAR Granger Causality/Block Exogeneity Wald Tests is presented in Table 5.The error correction term presented in table 4 is negatively signed and shows that the model is well behaved and statistically significant. The restoration of the equilibrium of the rate of infant mortality after a shock In the dependent variables is 0.010 per cent.

Table 5: VAR Granger Causality/Block Exogeneity Wald Tests

VAR Granger Causality/Block Exogeneity Wald Tests			
Dependent variable: IMR (PANEL A)			
Excluded	Chi-sq	Df	Prob.
PCI	1 1 .44025	2	0.0033
LREXH	28.81470	2	0.0000
All	63.18442	4	0.0000
Dependent variable: PCI (PANEL B)			
Excluded	Chi-sq	Df	Prob.
IMR	5.44441 1	2	0.0657
LREXH	0.694965	2	0.7065
All	15.98604	4	0.0030
Dependent variable: LREXH (PANEL C)			
Excluded	Chi-sq	Df	Prob.
IMR	2.679750	2	0.2619
PCI	3.711571	2	0.1563
All	4.446990	4	0.3489

Source: Eviews 9 Output for Causality analysis

Table 5 presents the result of the causality analysis. With focus on Panel A, the probability values of both government expenditure (LREXH) and per capita income (PCI) were both below 0.05 (significant at 5 per cent). This implies that there is a uni-directional causality relationship running from government expenditure to infant mortality rate. Again, in Panel C, the probability value for infant mortality rate (IMR) was greater than 0.05 (not significant at 5 per cent). The implication of this outcome is that a uni-directional causality relationship runs from government expenditure to infant mortality rate. This outcome follows *a priori* expectation.

Evaluation of Research Hypotheses

Hypothesis 1 (H_{o1}): H_{o1}: government expenditure has no significant effect on the reduction of infant mortality rate.

Decision Rule: Reject the null hypothesis if the value of the t-statistics for the coefficient for government expenditure (LREXH) is greater than ±2.0. Otherwise, the null hypothesis is not to be rejected at 5 percent level of significant.

Conclusion: The result presented in tables 4 shows that the value of the coefficients for government expenditure (LREXH - 5.89713) seems to be greater than 2.0 rale of the thumb. This implies that the null hypothesis is to be rejected. This implies that government expenditure on health has significant impact on the reduction of infant mortality rate in Nigeria over the period under study.

Hypothesis 2 (H_{o2}): H_{o2}: per capita income has no significant effect onthe reduction of infant mortality rate.

Decision Rule: Reject the null hypothesis if the value of the t-statistics for the coefficient for per capita income (PCI) is greater than ±2.0. Otherwise, the null hypothesis is not to be rejected at 5 percent level of significant.

Conclusion: The result presented in tables 4 shows that the value of the coefficients for per capita income (PCI - 2.53172) seems to be greater than ±2.0rule of the thumb. This implies that the null hypothesis is to be rejected. This implies that per capita income has significant impact OH the reduction of infant mortality rate in Nigeria over the period under study.

Hypothesis 3 (H_{o3}): H03: there is no causality relationship between government expenditure and reduction of infant mortality rate.

Decision Rule: Reject the null hypothesis if the probability value of the Chi-square statistic for the coefficient of government expenditure and infant mortality rate is less than 0.05. Otherwise, the null hypothesis is not to be rejected at 5 percent level of significant.

Conclusion: The result presented in tables 4.5 shows the probability value the Chi-square statistic for the coefficient of government expenditure on health (LREXH) to be less than 0.05 (0.0033< 0.05). This implies that a causality relationship runs from government expenditure on health to infant mortality rate. This means that changes in the level of per capita income, brings about reduction in infant mortality rate over the period under study.

Discussion of the Results

The present study has revealed that government expenditure on health has a positive and significant impact on the reduction of infant mortality rate in Nigeria over the period under study. The implication is that as government expenditure on health increases, the health sector suffers. Similarly, The result of the study by [6] showsthat government health expenditure per capita has positiverelationship with neonatal mortality rate, child mortality rate and infant mortality rate in Nigeria. The positive relationship here shows that infant mortality rate is not reduced as a result of increase in government expenditure on health. On the contrary, the results of the study by [8] show that an increase in public health expenditure improves life expectancyand reduces infant mortality rates. The outcome in this study is at variance with some studies. [8], showed that public health spending lowers child mortality rates more in countries with good governance. When we look at this result, we can attribute the outcome in this study to the inability of the government to effectively spends the funds meant for the sector are not productively spent, because there is no good governance. Supporting this view is the results by [7] which show that health care expenditure has no significant effect on both infant mortality and under-five mortality.Second, per capita income has a negative and significant relationship with the reduction in infant mortality in Nigeria over the period under study. [9], disagrees with the present study, when they claimed that per capita income exhibits no effect on health outcomes in Nigeria. Third, a uni-directional causality

relationship runs from government expenditure on health to infant mortality rate over the period under consideration.

CONCLUSION AND RECOMMENDATIONS

Based on the result of data investigation in this study, the following findings are discernible:

1. Government expenditure on health has a positive and significant relationship with economic growth in the long run in Nigeria, *((t)* =(LREXH - 5.89713))
2. Per capita Income has a negative and significant impact on infant mortality in Nigeria over the period under study *((t)* =(PCI - 2. 53172)).
3. There is a uni-directional causality relationship government health expenditure and infant mortality in Nigeria over the period under study *($P(X^2)$* — (0.0033< 0.05)).

CONCLUSION

Healthcare is an important input in the health production function. This is premised on the fact that it is one of the important means to reduce infant mortality towards welfare improvement. In most developing countries where child mortality, communicable diseases, income poverty and inequality remain high, private expenditures on healthcare dominate. Government expenditure on health has been declining in recent years when compared to allocation to other sectors of the economy and the needs of the health sector. Consequently, it is on records that despite efforts to stem the tide of newborns and infants, the trends of death continue to soar. The present study examines the impact of government health expenditure on infant mortality rate for the period 1981-2018. After an exhaustive review of current literature relating capital formation to economic growth, the study adopted as *Ex Post Facto* research design. Three null hypotheses that sought to establish to guide the study. A linear model which specified infant mortality rate as a function of government expenditure and per capita income was formulated. Time series data was obtained from the Central bank of Nigeria Statistical Bulletin. The Augmented Dickey-Fuller and Phillip Peron Unit root test and Johansen Cointegration techniques were used for the preliminary tests. The time series data were all stationary at first difference, and the existence of cointegration was confirmed. The Vector error correction modeling technique was used to estimate the parameters of the linear model. The result reveals that government expenditure on health has a positive and significant impact on infant mortality in Nigeria in the long run. It was also found per capita income has a negative and significant impact on capital expenditure in Nigeria over the period under study. The study reveals that a uni-directional causality relationship runs from government expenditure on health to infant mortality

RECOMMENDATION

Based on the result of data analysis, the study makes the following recommendations:

1. Having observed that infant mortality rises as government expenditure on health increases, there is a need for closer examination of the funds spent on this sector by the government. The reason for such is that the funds are not wisely or productively spent. Close attention should be paid by the government by establishing a fund-tracking team of specialists or a separate agency that should specialize in monitoring funds spent on this sector.
2. It is observed that per capita income is well behaved in the model. This implies that Nigerians meet their health challenges from their out-of-pocket expenses mainly, rather than government welfare provisions. There is need for the establishment of a health insurance scheme that would be inclusive for all Nigerians irrespective of where one comes from or the type of work the person does. This health scheme should

be funded by the federal, state and local governments.

3. Having observed that causality runs from government health expenditure to infant mortality rate, there is a need for a change in policies relating to government health expenditure that would reduce infant mortality rate. Just like we have the Tetfund programme established to cater for the higher educational sector in Nigeria, a similar policy that would mandate at least 5 per cent of all government receipts should be dedicated to the health sector.

SUGGESTIONS FOR FURTHER STUDIES

The following areas which were not examined in this study are suggested for further examination:

1. Impact of government capital health expenditure on infant mortality
2. Impact of out-of-pocket health expenditure on infant mortality

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