ASSESSMENT OF ECONOMIC IMPACT OF PRIMARY HEALTHCARE EXPENDITURE ON HIV-AIDS, HEPATITIS, MEASLES AND LIFE EXPECTANCY RATE IN NIGERIA

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Abstract

In the last three decades, the Nigerian government has shown stylized evidence of huge amount of fund spent in combating the HIV-AIDS, hepatitis and measles scourge yet the challenge is still unmitigated. This study evaluated the effect of government spending on these three common health pandemic on Nigeria's health outcome proxied by life expectancy.. The study made use of time series data from 1990 to 2020 on life expectancy and primary health spending on Tetanus (Teta), measles, HIV and Hepatitis (Hepa). The study adopted standard econometrics method by employing Auto Regression Distribution Lag (ARDL) estimation technique. The test of unit root and Pesaran and Shin (2001) bound testing procedure of test of cointegration. The unit result revealed a mixed order of integration and long run relationship of the variables under study. The findings revealed the coefficient of HIV is (1.52) with a p-value of (0.0009) indicating a positive significant relationship between expenditure on HIV and healthcare outcomes which implies that one per cent increase in government expenditure on HIV-AIDS raises the scourge by about 1.52 per cent. On the other hand, and Measles had significantly improved life expectancy in Nigeria with coefficients of 0.588% and 1.52 per cent respectively and evidence from the result suffices that coefficient of government healthcare spending on measles is (0.0005) with a corresponding p-value of (0.000) less than 5 per cent minimum threshold. In effect, government spending on measles has positive and significant effect on life expectancy rate. Finally, the coefficient of public expenditure on hepatitis is (-0.0718) with a corresponding p-value of (0.32) greater than the (0.05) level of significance. This means that Healthcare expenditure on hepatitis increases life expectancy in Nigeria by 0.07%. Since government expenditure on these aspects of health needs do not increase life expectancy, the government should diversify health spending in the area that have the potentials of increasing life expectancy rate such as nutrition support programmes, hygiene and safe living sensitization.

Keywords: HIV-AIDS, Measles, Hepatitis, government spending, ARDL

Introduction

Nigerian government has continued to recognize the importance of health in the growth determinants of developing nation, no wonder it has placed top priority in the fight against some dreaded pandemics such as HIV-AIDS, Measles and hepatitis. Over the years the government has responded to the WHO policy of increasing annual budgetary allocations to boost healthcare provisions and deliverables. Health is regarded as one of the most important factors to the achievement of growth in an economy. In the light of this, there has been a consensus among researchers who have recognized health as a public good; the demand and supply of which are not considered safe to be left at the mercy of the invisible hands (Olarinde, 2014). Therefore, in facilitating the achievement of a long-term goal of enhancing the nation's

economic development, quality, affordable, and accessible healthcare services must be provided (Riman, 2012). In line with this maxim, and in an attempt to demonstrate its obligation to restructure the healthcare sector in its fiscal dispensation, the Nigerian government has assumed the responsibility of providing a good health care facility for its citizens by increasing the allocation to health sector. Available data has shown that on average, about 2.1% to 5.8% of the total expenditure of government was expended on health sector between the years 2000 and the year 2007 (Mordi, 2010). Evidence from literature revealed that persons with good health are more likely to make more investments in education, as they possess higher human capital by implication as well as the ability to innovate and adapt to new technology (Rahman, Khanam & Rahman 2018; Osakede, 2020). Hence, investment in public health or government spending on public health gives some social protection and improves access to health care, especially for the less privileged (Noy & Sprague-Jones, 2016). It was believed that the improvement in the allocation of the government expenditure to health would in turn improve the health of the general populace which can translate into an energetic human capital base and this will accelerate economic expansion and development. This assertion agrees with the work of Achim (2020); Makute and O'Hare (2015); Yaqub, Ojapinwa and Yussuff (2012);and Rajkumar and Swaroop (2007).

Primary health care expenditure is among the factors affecting the improvement of a society's health status and recognizing the effects of public and private health expenditure on health status is vital for making the relevant decisions (Rezapour, Mousavi, Movahed, & Alipour (2019). The positive result of Primary health care expenditure can be seen in better provision of health opportunities, which can strengthen human capital and improve productivity, thereby contributing to economic performance.

Nigeria, as a leading developing economy in Sub-Saharan Africa, has maintained an increase in health expenditure on average in recent decades. The amount spent on health by the Nigerian government went from N0.52 billion in 1981 to N5.06 billion in 1993, N132.21 billion in 2007, and N364.25 billion in 2018 (CBN, 2018). Additionally, from 2 percent in 2002 to 4 percent in 2018, the value of Current Health Expenditure (CHE) as a percentage of the Gross Domestic Product (GDP) has increased (GHED, 2019).This notwithstanding, spending on health in Nigeria is still lower than what is obtainable in other developing countries as indicated in Figure 1, located in the appendix:

From the foregoing, it is argued that inadequate health expenditure may be responsible for the not-too-impressive health outcomes recorded in Nigeria in recent times. Nigeria has been consistently rated poorly with regards to her expenditure on health and the consequent outcomes even among other developing countries. The 2019 Global Health Security Index and the World Health Organization's Joint External Evaluation of International Health Regulations core capacities provide evidence of Nigeria's poor performance in responding to disease outbreaks (Center for Health Security, 2020; Kandel, Chungong & Mahjour, 2019; WHO, 2017).For instance, while the global mortality rate of children under five (5) years of age (per 1000 live births) fell from 91.7 in 1991 to 37.7 in 2019, that of Nigeria remains much higher than the world average at 117.2. Compared with other developing countries with a high population as Nigeria, the country still lags behind.

This indicates that much is still left to be desired concerning Nigeria's health outcomes and its effect on the economy. As primary health care expenditure increases in Nigeria, a commensurate improvement in health systems and outcomes is expected. However, the Nigerian health system is bedeviled by issues and challenges including poor health infrastructure, obsolete medical equipment, strike actions, and engagement of unqualified or poorly qualified health personnel due to socio-political affiliation among others. .These impediments have constrained health service delivery by the public health care system leading to a proliferation of private health care facilities and products sometimes exposing the people to

the risk of purchasing substandard healthcare provisions and services which deteriorates their health further. Other effects include high rates of medical tourism by wealthy Nigerians and political office holders, which contributes to the issue of capital flight, poor medical care for the majority of middle- and low-income earners, an increase in the appalling state of public health care facilities, insufficient staff, and a poor attitude of health workers toward patients or those seeking care, as well as rising out-of-pocket health expenses and poor health outcomes (Obisike, 2021).

Nigeria's response to disease outbreaks was rated poorly by the 2019 Global Health Security Index and World Health Organization's Joint External Evaluation of International Health Regulations core capacities (Center for Health Security, 2020; Kandel, Chungong & Mahjour, 2019; WHO, 2017). The report shows that global spending on health continually rose between 2000 and 2018 and reached US$ 8.3 trillion or 10% of global GDP. The data also show that out-of-pocket spending has remained high in low and lower-middle-income countries, representing greater than 40% of total health spending in 2018. In 2001, heads of African States meeting in Abuja, Nigeria, agreed to start allocating at least 15% of their subsequent annual national budgets to the health sector (Mburu, 2014). Only Rwanda and South Africa 2011 allocated more than 15% of their general government expenditure to health, and only Swaziland complied with the call for the minimum allocation in 2013 and 2014 (Mburu, 2014; WHO, 2013, 2014). Also 2014, the total annual government budget allocated to the health sector in Nigeria was only 8%, which went against the 2001 Abuja agreement of an annual minimum of at least 15% (Mburu, 2014; WHO, 2011, 2014).

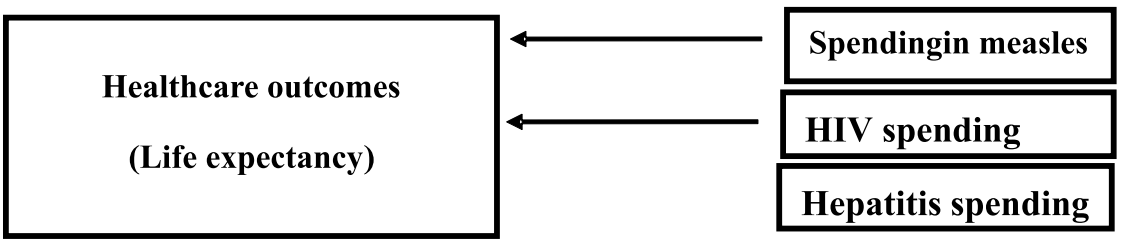
In the past decade, national budgetary allocation to the health sector has greatly declined to all time low, in fact, below the endorsed fifteen percent (15%) threshold as stated in the Abuja declaration of 2001 (NDHS, 2013), leading to the national health sector being saddled with a gross shortage of needed funds and medical supplies. The financing structure of a healthcare system can be linked with several adverse effects on households' living standards; which severely threaten their income sufficiency, and disrupt their socio-economic status. Thus, deepening overall inequalities in the distribution of income due to out of pocket expenses (Sataru, Twumasi-Ankrah, & Seddoh 2022). The primary issues with healthcare financing in Nigeria and most Sub-Saharan African (SSA) nations are not a severe lack of resources, but rather a lack of risk management systems and intermediation (Onwujekwe, 2010).Over the past three years (2019 – 2021), the health ministry received about 1.385.36 trillion naira showing that only 2,178 naira was allocated to each citizen based on the current population of about 206 million. This is highly unacceptable as what can a person do with such an amount annually for his or her healthcare needs. Additionally, the primary source of funding for healthcare in Nigeria is out-of-pocket spending. According to the World Health Organization (WHO), 77 percent of Nigerians pay for their own medical expenses, which means that the majority of Nigerians lack any form of health insurance, the poorest people have very little access to high-quality care, and many people cannot afford private hospitals due to the high cost (Aregbeshola & Khan, 2018; Ibeh., Enitan., Akele., Isitua., & Omorodion, 2020). Despite improvements in vaccine coverage, an estimated 47 million women globally do not have tetanus protection (Njuguna, Yusuf, Raza, Ahmed & Tohme 2020). Tetanus in pregnant women is a rare disease, mainly because it occurs after miscarriages, which makes surveillance more difficult. World Bank, WHO, UNICEF, and UNFPA (2016). Only one in four children in Nigeria received all the advised vaccinations, according to a new Multiple Indicator Cluster Survey undertaken by the government of Nigeria in 2016–17 (UNICEF,2018). The government is overly dependent on foreign assistance for the fight against HIV and AIDS, according to the National Agency for the Control of AIDS (NACA). 18 percent came from the federal and state governments, and 1% came from private sector (Premium Times, 2021).

To examine the impact of public health care spending on health outcomes in Nigeria, the study poses the

following questions. Is there any significant impact of public spending on Tetanus, on health care outcomes in Nigeria? To what extent has public spending on HIV impacted health outcomes in Nigeria. Is there any significant impact of public spending on measles on Health care outcomes in Nigeria? To what extent does public expenditure on Hepatitis impacted on health care outcomes in Nigeria?

Literature Review

Conceptual Framework



Healthcare Outcomes

Health outcomes, which are an essential component of goals for health promotion, economic development, and growth, are not ends in themselves but rather a requirement for a plan for increased output in the workplace and economic development. Nations (both developed and developing) have prioritized health promotion interventions through spending on health as a strategy to promote quality health due to the importance of good health in economic growth and development agenda. The World Health Organization (WHO) recommended that governments in developing nations increase their spending on the health system since it came to the conclusion that governments are ultimately responsible for the functioning of a country's health systems

Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. Life expectancy at birth stands as an appropriate measure of indicator of health status for countries which might also capture the efficiency of necessary health services for the elderly population. The previous studies show that there appears to be a correlation between health expenditure and health outcomes in the OECD countries (Kyropoulos & Soulotis, 2008).

HIV-AIDS

This is referred to as human immune deficiency virus that attacks the body immune system especially the white blood cells called CD4 cells. HIV/Aids has adversely affected most SSA countries, Nigeria not excluded. The whole World bodies attach high premium to the scourge that is the reason it is No. 6 in the sustainable development goals (SDG) initiative (Amuko, 2010). In Nigeria the share of public spending on HIV/Aids increased from 27 per cent in 2007 to 77 per cent in 2014. Nigeria has expended about €4 billion on HIV since 2006. However, more than 80 per cent of this fund came from donor agencies (NASA, 2021).

The empirical literature is research works closely related to the study under review which tried to examine the impact of public health spending on health outcomes in Nigeria with a diverse technique of analysis.

Obisike, Iwuchukwu, Unegbu and Achumie (2021), used Auto regressive Distributed Lag (ARDL) approach to cointegration and empirically examined the impact of Public Health Spending on Health outcomes in Nigeria. The study used annual data time series for the period 1981 – 2018. The data used was collected from World Development Indicators (WDI), Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). The result empirically obtained indicated that Public Health Expenditure (PHE), Private Health Expenditure (PVHE), Foreign Assistant on Health (FAH) and Health Education (HEDU) had positive impact on newborns protected against Tetanus, Tuberculosis treatment success rate and prevention of Mealses via immunization in Nigeria. The result obtained revealed that PUHE, PVHE, FAH and HEDU have impacted positively on health outcomes in Nigeria.

Ebhotemhen and Hezekiah (2021), examined the impact of public health expenditure on Nigeria's health sector performance beginning from 1981 to 2020, using a secondary source of data and employing Autoregressive Distributed Lag. The results of the Error Correction Mechanism (ECM) accentuated the connection between Public Healthcare Expenditure and Health Sector Performance in Nigeria through the establishment of a stable long-term equilibrium relationship among the variables employed in the model. Therefore, this study recommends not only an increase in the budgetary allocation to the health sector but also establishing a platform that will ensure probity and accountability in the Health Sector.

Olayiwola, Bakare-Aremu, and Abiodun (2021) re-examined the connection between public health expenditure and economic growth in Nigeria within the context of Wagner's theory of ever-increasing State activities. Data for this study are annual time series data from 2000 to 2016 sourced from World Development Indicators and publications of the World Health Organization regarding health and public health expenditures. The study employed the Autoregressive redistributed Lag (Bounds Testing) Approach to test the long-run relationship between human capital formation and sustainable development in Nigeria. The study found evidence of a long-run relationship between public health expenditure and economic growth. Thus, the study suggested that health insurance should be expanded to cover more people to mobilize more resources for the health sector. These may engender the required impact of health care expenditure on economic growth in Nigeria.

Rufai, Ogunniyi, Abioye, Birindwa, Olagunju, and Omotayo (2021), in their study to know if economic shocks influence a household's healthcare expenditure, evidence from rural Nigeria employed a two-step Heckman selectivity model to examine factors influencing the decision to spend on health and the effects of economic shocks on health expenditure. The study used a primary source of data obtained from a general house survey. The results from the first stage show that the likelihood of spending on health increased with age, education, and income, and decreases if the household is living in the northern region of Nigeria and uses a mosquito bed net. The findings from the second stage estimation show that a fall in the price of food items, an increase in the price of inputs for household enterprises, and loss of a job are the significant shocks that affect household health expenditure. The study, therefore, concluded that a fall in the prices of major food items consumed within the household increased the income available for health care among the farmers. The study further recommends the provision of holistic health-economic-welfare interventions for the marginalized rural populace in Nigeria.

Osemwengie and Shaibu (2020), investigated the impact of public health expenditure on diseases/epidemics in Nigeria particularly as development assistance for HIV/AIDS decreases. Data were sourced from the World Development Indicator (WDI) from the period of 1982 to 2016 and analysis was done using a vector autoregressive (VAR) methodology. The findings from the VAR analysis indicate

a negative significant relationship between HIV prevalence and government expenditure on health. The paper further recommends that government expenditure on health would be a viable alternative for the management and control of epidemics/diseases in Nigeria cum to achieve the HIV/AIDS goal by 2030 compared to the per capita income of households.

Anochiwa, Obila and Enyoghasim (2019), empirically analyzed health outcomes and economic growth; proxied by life expectancy at birth and gross domestic product per-capita respectively using quantitative analysis. The data for the study was obtained from secondary sources, particularly from Central Bank of Nigeria (CBN) publications such as the CBN Statistical Bulletin, CBN Economic and Financial Review Bulletin, and data from World Bank economic indicators. The study employed the three-stage -least - square (3SLS) regression to estimate the result. The result showed simultaneity between health outcomes and economic growth. The results equally show that health expenditure is significant in determining health outcomes but has no significant relationship with economic growth. The study has the recommendation that government must increase budgetary allocation to the health sector and effectively monitor its utilization.

Hamzat, Ebeh and Ali (2019) undertook a study to investigate the impact of health expenditure on the child mortality rate in Nigeria from the period of 1980-to 2015. The study made use of secondary sources of data from the World Development Index under the World Bank and World Economic Outlook (WEO). The study employed the Autoregressive Distributed Lagged (ARDL) model using the unit root test, co-integration test, and error correction mechanism. The results obtained revealed that all the variables used have negative impacts on infant mortality rate and also are statistically significant. Thus, in reducing the infant mortality rate in Nigeria, there is a need for government and private stakeholders to invest adequately in the health sector to ensure health service that is accessible and affordable to the teeming population of the country.

Nwani and Kelikume (2019), investigated the causal linkages between public expenditure on health, health status, and economic growth in Nigeria using the Toda-Yamamoto technique. The study collected annual time series data from 1981 to 2018 obtained from the Central Bank of Nigeria's Statistical bulletin and the World Development Indicator. The study employed the co-integration test and the result of the study indicated that public health expenditure, health status, and economic growth have a long-run association. The study further recommended that there is a need to develop better national health policy and programs such as compulsory national health insurance that are capable of resolving the fundamental problems in the health sector.

Aluko and Aigbedion (2018), examined the impact of public health expenditure on economic growth in Nigeria from 1995-to 2016. The data used for this research was obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin Publication, National Bureau of Statistics (NBS), and Annual Abstract of Statistics for various years, and the World Bank online Databank. Ordinary Least Squares (OLS) and Error Correction Model (ECM) was adopted for this study. The results from this study showed that public health expenditure has the potency to faster economic growth in Nigeria but government health expenditure and Corruption Perception Index have little or no significant impact on economic growth in Nigeria. To this effect, the study recommended that the government should put in place a monitoring and evaluation mechanism to ensure that the money released is utilized for the right projects in the health sector for effective health service delivery and sustainable economic growth in Nigeria.

Boachie, Ramu, and Polajeva (2018) re-examined the link between government health expenditures and health outcomes to establish whether government intervention in the health sector improves outcomes. The study used annual data for the period 1980 to 2014 in Ghana. Employing the ordinary least squares

(OLS) and the two-stage least squares (2SLS) estimators found that aside from income, public health expenditure contributed to the improvements in health outcomes in Ghana for the period., overall, increasing public health expenditure averts infant and under-five deaths in every 1000 live births while increasing life expectancy at birth despite that the health effect of income outweighs that of public health spending.

David (2018), used Autoregressive Distributed Lag (ARDL) bounds testing approach to co-integration and the Granger causality technique to empirically examine the nature of the relationship between infant mortality and public expenditure on health in Nigeria from 1980 to 2016. The data used was collected from the Central Bank of Nigeria (CBN) statistical bulletin and the World Bank Development Indicators (WDI). Among other things, the empirical results showed the presence of a significant cointegrating (long-run) relationship between infant mortality and government health expenditure (and private health expenditure, immunization, and external health resources), coupled with the existence of a bi-directional causal relationship between infant mortality and government health expenditure. In addition, the results also demonstrated that government health expenditure, private health expenditure, immunization, and external health resources significantly influence infant mortality negatively both in the long and short term. In essence, it was recommended for the total overhaul of the Nigerian health sector, to improve the efficiency of the sector, as well as curb the incidents of fund mismanagement which has plagued the sector over time, coupled with the intensifying of immunization programs and activities.

Igbinedion and Olele (2018), investigated the nexus between public health expenditure and health outcomes in Nigeria (using maternal mortality as a proxy for the latter). The study used time-series data for the period covering 1981-2014, obtained from the Statistical Bulletin of the Central Bank of Nigeria, National Bureau of Statistics (NBS), World Development Indicators (WDI) of the World Bank, and other sundry sources. Co-integration and error correction models were employed in the cause of this analysis. The results of the analysis revealed that the maternal mortality rate declines as both public health spending and private health expenditure rise, suggesting that public health spending does not crowd out private health financing within the Nigerian context. The study, therefore, recommended the need for policymakers to adopt a multi-pronged approach which should include but is not limited to, the diversification of the productive base of the economy to raise the revenue trajectory of the nation, economic status of women as well as guarantee the provision of good quality facility-based delivery care system will ultimately reverse the mortality rate in the country.

Boachie and Ramu (2017), in their research, reviewed the literature on the impact of public expenditure on health outcomes between 2013 and 2016 using the Boolean search criteria. The study states that the effect of public health expenditure on health outcomes is inconclusive. While some developing countries experienced an improvement in health conditions due to public health expenditure, others recorded little or no beneficial impact of public health spending. Estimation techniques and control variables have differed as there is no standard methodology for estimating the effectiveness of public health expenditure. This study, therefore, recommends the development of a standardized methodological framework for studying the impact of public health spending on health outcomes.

Ilori, Olalere and Babatola (2017) examined empirical evidence of the specific impact of public health expenditure on life expectancy in Nigeria using time series data spanning between 1981 and 2014. Data used for this analysis were secondary sources obtained from the Central Bank of Nigeria (Statistical bulletin World Bank World Development Indicator. The study employed the Autoregressive Distributed Lag (ARDL) for the cause of estimates. Results from the estimates showed that Public Health Expenditure (PHEXP) and Carbon-dioxide Emission (CAREM) significantly and directly influenced the

rate of life expectancy in Nigeria. The study, therefore, recommended that government should introduce programs that will enable people to be aware of the effect of carbon-dioxide emissions on individual health and should advise people and industries on the appropriate measure to be taken and as well to separate residential and industrial areas, to avoid any hazard caused by carbon-dioxide emissions. Also, the government should increase and restructure the public expenditure allocation to the health sector.

Novignon and Lawanson (2017), analyzed the relationship between child health outcomes and health spending while investigating lagged effects. The study employed panel data from 45 Sub-Saharan African countries between 1995 and 2011 obtained from the World Bank's World Development Indicators. The fixed and random effect panel data models were used. From the study, public health expenditure was found to be relatively more significant than private expenditure. Positive and significant lagged effects were also estimated between health expenditure and child health. The findings suggest that, while health expenditure is crucial for the improvement of child health, it is equally important for this expenditure to be sustainable as it also has delayed effects.

In another study, Okeke (2014) found that government expenditure is significant in improving health and expenditure outcomes in Nigeria. This was discovered in the study of the impact of expenditure of government on health and education sector outcomes. The study, however, employed the health and education production function and OLS technique in estimating the parameters of the model. Vector error correction mechanism (VECM) and Engle-Granger was used to check for short-run and long-run relationship and co-integration between the time series variable. Data for the study are secondary data ranging from 1980 to 2010 and the under-5 mortality ratio and total school enrolment rate were used as proxies to measure health and education outcomes. The results reveal that the expenditure on health reduces the under-5 mortality rate significantly while spending made by the government on education had no significant effect on total school enrolment in Nigeria. It was also discovered from the study that female education and per capita GDP has a negative relationship with the under-5 mortality rate in Nigeria. This shows that an increase or improvement in GDP per capita is necessary for improving health outcomes in the economy. Also, from the result educating the females in the economy is suggested to be a powerful tool for reducing under-5 mortality and improving health outcomes in the economy.

Ude and Ekesiobi (2014), investigated the effect of per capita health spending on child mortality in Nigeria using secondary data from 1980-to 2012, sourced from the National Bureau of Statistics (NBS) and Central Bank of Nigeria. The study employed a multiple regression methodology. Results from the study showed that per capita health spending has no significant effect on infant mortality rate and neonatal mortality rate in Nigeria. Results also show that per capita health spending and per capita education expenditure have a significant effect on the under-five mortality rate in Nigeria. The study further recommended that government should increase and sustain health spending, especially on programs aimed at reducing child mortality it is this study believes that child mortality could significantly be reduced with increased health spending in Nigeria.

Theoretical Framework

This study employed the public expenditure theory. There are two ways to approach the theory of public expenditures. We can adopt a normative perspective and consider the part that government spending ought to play in an economy that works efficiently. Alternately, we may look at the sociology or politics of fiscal behavior, which would explain the forces at play in the current historical and institutional context when determining real expenditure policy. The two major aspects are allocation and distribution function.

Public expenditure theory and public finance theory borders more on how to determine proper level and pattern of public service. In other words, the issue is how to allocate available resources between satisfying "private" and "social" desires. This instantly raises a second concern when seen from an economic perspective. The theory of expenditure-making and the theory of expenditure-financing are inextricably linked since public services must be justified in terms of their opportunity cost.

Intervention-based theory

Andrew (1980), forwarded a health promotion theory titled Intervention-Based Theory (IBT) which consists of three overlapping intervention spheres of activity: health education, disease prevention, and health protection. Health education is designed to change knowledge, beliefs, attitudes, and behavior in a way that facilitates health outcomes. Disease prevention aims to decrease risk factors and minimize the consequences of diseases; it includes primary, secondary, and tertiary prevention. Health protection focuses on fiscal or legal controls and policies and voluntary codes of practice aimed at preventing ill health and enhancing well-being. Tannahill (2009) asserts that health protection includes public policies, public spending that addresses fair access to Health Infrastructure, provision of drugs, employment, education, and health care. The Tannahill theory has been criticized for not providing a detailed explanation of fiscal or legal controls and policies. These concepts are broad and hence require concrete explanation. Second, the theory did not model its state for better mathematical and statistical analysis. However, since it fractionally explains the relationship between health prevention (which may be in form of government spending, foreign and private donation, aid, health-education orientation, etc..) and health outcomes, is proposition offers support to the work under review as the intent of this study is to examine the impact of government spending on health outcomes in Nigerian context with recognition to other health interventions obtainable in Nigeria.

Methodology

The study applied econometric technique of estimation using ex-post facto research design because the study made use of already existing data. The variables used in this study are primary health care expenditure on tetanus, measles, HIV and hepatitis are the explanatory variables while life expectancy is the dependent variable. The study also tested for unit root and cointegration test to ascertain the stationary status of the variable and to determine whether the variables have long run relationship. However, the stationarity test or the unit root test was used to dictate the appropriate model adopted.

Model Specification

$$LFEXP_t = \alpha_0 + \alpha_1 Teta_{t-1} + \alpha_2 HIV_{t-1} + \alpha_3 Measles_{t-1} + \alpha_4 Hepa_{t-1} + \mu_t$$

When Y is representing the dependent variable Health Outcome index which is represented with a proxy as Life expectancy (LFEXP) and S (Primary Health Care Expenditure (PHCEXP)) represents the independent variables, PHCEXP is represented with proxies like Teta, HIV, Measles, and Hepa.

There, the econometric form is written as:

Where,

LFEXP = Life Expectancy

Teta = Tetanus

HIV = Human Immunodeficiency Virus

Measles = Measles

Hepa = Hepatitis

μ = error term

α = intercept

Estimated Model Result

Table 5: Estimated Long-Run Coefficients of ARDL Model

Dependent variable: LFEXP

Long Run Coefficients				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob. (0.05)**
(Teta)	-0.488311	0.0547	-8.915303	0.0000
(Measles)	0.588573	0.0734	8.008981	0.0000
(HIV)	1.525722	0.3751	4.066436	0.0009
(Hepa)	-0.071889	0.0705	-1.018780	0.3235
C		0.06563	697.0798	0.0000
R-squared	0.999964			
Adjusted R-squared	0.999936			
F-statistic	36725.05			
Prob(F-statistic)	0.000000			

Source: Aurthor's computation from E-views

Interpretation of Result

The study found that the coefficient of tetanus is (-0.4883) with a corresponding p-value of ((0.00) less than the critical value of 0.05 significant value. Thus increase in government spending on tetanus by one per cent increased life expectancy by 0.48 per cent. On the other hand, the coefficient of HIV is (1.525) with a p-value of (0.0009) indicating a positive significant relationship between expenditure on HIV and healthcare outcomes. This implies that one percent increase in the Health Expenditure on HIV brought about 1.52% decrease in life expectancy in Nigeria. Thirdly, evidence from the result suffices that coefficient of government healthcare spending on measles is (0.0005) with a corresponding p-value of (0.000) less than 5 per cent minimum threshold. In effect, government spending on measles has positive and significant effect on the rate of life expectancy. Finally, the coefficient of public expenditure on hepatitis is (-0.0718) with a corresponding p-value of (0.32) greater than the (0.05) level of significance. The study also found a negative correlation between health spending on hepatitis vaccination and life

expectancy in Nigeria. Hepatitis has a negative insignificant relationship with healthcare outcomes in Nigeria. This means that Healthcare expenditure on hepatitis increases life expectancy in Nigeria by 0.07%.

Discussion of Results

The current study looked at the impact of public health spending on a key health metric: life expectancy (Tetanus, Measles, HIV, and Hepatitis) The findings demonstrated that public health spending enhanced health status at various levels and had a substantial impact on health outcomes in all categories. Our approach is based on the latter, understanding health as a product of a public health expenditure system, with differences explained by a combination of healthcare and lifestyle and environmental variables. Given the practical issues raised at the outset, as well as the unique context of the country under examination, certain intriguing findings and important implications arising from our empirical analysis are worth mentioning.

However, because public health spending is a political variable (Linden & Ray, 2017; Panahi & Aleemran, 2016), it may not be evenly distributed, resulting in a heterogeneous influence on health status.

Health Expenditure on Tetanus: with a critical evaluation of the short-run effect of tetanus spending and life expectancy in the country, it is seen that there exists negative relationship between health expenditure on tetanus and life expectancy at birth. The short-run result concurs with the longrun analysis result which shows that Health Expenditure on Tetanus has a negative significant impact on health outcomes in Nigeria. This implies that a percentage increase in the Health Expenditure on Tetanus decreases health outcomes in Nigeria by 0.48%. The result is in line with the study of David (2018) which found a negative relationship between public health expenditure on immunization and health outcome. But in contradiction with the study of Obisike et al. (2021) which revealed that Public Health Expenditure (PHE), had positive impact on newborns protected against Tetanus and prevention of Mealses via immunization in Nigeria. And the work of Nwani et al. (2018), the result showed that Public Expenditure on Health has a positive and significant impact on health outcomes in Nigeria. A deductive approach can be reached from the result gotten from the analysis of tetanus variable which shows that several persons have lost their lives due to poor concern and negligence towards the eradication of the disease. These changes can be deduced from the negligence gotten from lack of information both from the healthcare personnel and populace. This negligence is harnessed due to lack of follow ups from the medical practitioners on the dosage consumptions.

Health Expenditure on Measles: evidence from thee short-run analysis has shown a positive relationship between health expenditure on measles and life expectancy at birth. This evidence is in conformation with the long-run analysis result which indicate Health Expenditure on Measles has a positive significant impact on health outcomes in Nigeria. This indicates that a percentage increase in Health Expenditure on Measles tends to increase health outcomes in Nigeria by 0.58%. The finding is in line with the studies of Okeke (2014), Obisike et al. (2021) and Igbinedion and Olele (2018) that Public Expenditure on Health has a positive and significant impact on health outcomes in Nigeria. In line with the disagreement in empirical research, David (2018) also found a negative relationship between public health expenditure on immunization and health outcome. This provokes a recommendation plan for the government to overhaul the health system and checkmate areas with loopholes. This loopholes are as a result of immunization dropout rate, this indicate that many are not using the services.

Health Expenditure on HIV: the results showed that Health Expenditure on HIV has a positive significant impact on health outcomes in Nigeria. This implies that one percent increase in the Health Expenditure on HIV brought about 1.52% increase on health outcomes in Nigeria. This result did not conform to the findings of Osemwengie and Shaibu (2020), whose findings indicated a negative significant relationship between HIV prevalence and government expenditure on health. Due to the speed of death associated with the disease, health extensionist prioritized the sensitization. This includes strategies such as abstinence (not having sex), never sharing sharp objects (needles), and the effective use of condoms the right way every time you have sex. The advancement of HIV prevention medicines such as pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) were also prioritized.

Health Expenditure on Hepatitis: the results showed that Health Expenditure on Hepatitis has a negative insignificant relationship with health outcomes in Nigeria. This means that Health Expenditure on Hepatitis decreases health outcomes in Nigeria by 0.07%. It is observed that positive negligence exists in the health system which paves way for chronic hepatitis, cirrhosis, and primary liver cancer, as well as a considerable increase in morbidity and mortality. Hepatitis is a "silent" infection, its influence on worldwide morbidity and mortality is frequently underestimated. For a variety of reasons, the empirical findings in this study are usually not compatible with some of the findings of prior studies covering diverse places and countries. This is due to a lack of research disintegration in the line of newborn protective diseases. According to Boachie and Ramu (2015) in a recommendation made why examining the relationship between public health expenditure and health status in Ghana, it was pointed out that government and private bodies should assist researchers in achieving in-depth research which will curb the negative association in the health outcomes (life expectancy at birth, infant mortality rates, neonatal mortality rates).

Conclusion and Recommendations

The study explored the effect of public spending on HIV-AIDS, measles and hepatitis on life expectancy rate in Nigeria. The result obtained showed that public health spending on HIV, measles, and hepatitis are correlated with healthcare outcomes but do not spur increase in life expectancy. The study recommends that government should diversify health spending in the area that have the potentials of increasing life expectancy rate such as nutrition support programmes, hygiene and safe living sensitization. It should also plug the leakages of health funds and ensure that it is properly and efficiently channeled and utilized.

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