

NUMBER 1
NIGERIAN & WEST AFRICAN
UNIVERSITY

THE **WORLD**
UNIVERSITY
WEEKLY
2019 TOP 2019



NUMBER 1
NIGERIAN & WEST AFRICAN
UNIVERSITY

THE **WORLD**
UNIVERSITY
WEEKLY
2019 TOP 2019

DEPARTMENT OF ECONOMICS & DEVELOPMENT STUDIES,
COVENANT UNIVERSITY, NIGERIA
(CEDS)

CEPDeR

Centre for Economic Policy
and Development Research

INTERNATIONAL CONFERENCE ON
SUSTAINABLE DEVELOPMENT IN AFRICA

ICSDA
2019

19TH-21ST JUNE

BOOK OF ABSTRACTS

CONFERENCE ORGANISING COMMITTEE (COC)

International Scientific Advisory Committee

Dr Simplice Asongu, African Governance and Development Institute, Cameroon
Dr Belinda Archibong, Barnard College, Columbia University, USA
Dr Magdalene Silberberger, Witten/Herdecke University, Germany
Dr Adeleke Salami, African Development Bank, Cote d'Ivoire
Prof Jann Lay, German Institute for Global and Area Studies, Germany
Dr. Seedwell Hove, Quatum Global Research Lab. Switzerland

Secretariat Committee

Dr. Olaronke Onanuga, Covenant University, Nigeria (Chair)
Dr. John Odebiyi, Covenant University, Nigeria
Mrs. Queen Oye, Covenant University, Nigeria
Mr. Ife Ogunrinola, Covenant University, Nigeria
Miss. Victoria Okafor, Covenant University, Nigeria

Programme Committee

Dr. Emmanuel Amoo, Covenant University, Nigeria (Chair)
Dr. Opeyemi Babajide, Covenant University, Nigeria
Dr. Ngozi Adeleye, Covenant University, Nigeria
Dr. Adeyemi Ogundipe, Covenant University, Nigeria
Dr. Emmanuel Oduntan, Covenant University, Nigeria
Prof. Philip Alege, Covenant University, Nigeria (Adviser)

Editorial Committee

Dr. Ola-David, Covenant University, Nigeria (Chair)
Dr. Olabanji Ewetan, Covenant University, Nigeria
Dr. Adebanke Olawole-Isaac, Covenant University, Nigeria
Prof. Isaiah Olurinola, Covenant University, Nigeria (Adviser)

Welfare Committee

Dr. Oluwatoyin Matthew, Covenant University, Nigeria (Chair)
Dr. Busayo Aderounmu, Covenant University, Nigeria
Dr. Oluwarotimi Owolabi, Covenant University, Nigeria

Dr. Oluwatomisin Ogundipe, Covenant University, Nigeria
Mr. Bidemi Alejo, Covenant University, Nigeria
Mr. Romanus Osabuohien, Covenant University, Nigeria

Finance, Partnership & Banking Operations Committee

Dr. Ebenezer Bowale, Covenant University, Nigeria (Chair)
Dr. Obinnda Gershon, Covenant University, Nigeria
Dr. Moses Akanbi, Covenant University, Nigeria
Dr. Gbemisola Samuel, Covenant University, Nigeria
Miss. Ibukun Beecroft, Covenant University, Nigeria
Prof. Gbolahan Oni, Covenant University, Nigeria (Adviser)

Publicity & Protocol Committee

Dr. Ese Urhie, Covenant University, Nigeria (Chair of P&PC)
Dr. Stephen Oluwatobi, Covenant University, Nigeria (Sub-Chair Publicity)
Dr. Oluwasogo Adediran, Covenant University, Nigeria
Mr. Uche Okorie, Covenant University, Nigeria
Mr. Jeremiah Ejemeyovwi, Covenant University, Nigeria

Publication Committee

Dr. Muyiwa Oladosun, Covenant University, Nigeria (Chair)
Dr. Henry Okodua, Covenant University, Nigeria
Dr. Adeyemi Ogundipe, Covenant University, Nigeria
Mr. Paul Adekola, Covenant University, Nigeria
Prof. Evans Osabuohien, Covenant University, Nigeria (Adviser)

COC Chair, Dr. Emmanuel Oduntan
COC Co-Chair, Dr. Emmanuel O. Amoo
COC Secretary, Dr. Olaronke Onanuga

Dr. Dominic E. Azub
Ag. Head,
Economics and Development Studies Department,
Covenant University, Ota, Nigeria

ACKNOWLEDGEMENTS

Dr. David O. Oyeslepo, Chancellor, Covenant University, Ota, Nigeria

Prof. AAA. Atayero, Vice-Chancellor, Covenant University, Ota, Nigeria

Members of the Management of Covenant University, Ota, Nigeria



2019 International Conference on Africa Development

Theme: Africa's Development Agenda: Prospects and Challenges

Date: Wednesday June 19 - Friday 21, 2019

Venue: Covenant University Centre for Research, Innovation and Discovery (CUCRID),

Covenant University, Ota, Ogun State Nigeria



Conference Events & Schedule

DAY 1: Wednesday June 19, 2019

Time	Events	Anchor
8am -10:am	Arrival and Registration	Conference Secretariat
10:00-10:05am	Introduction of Guests	Dr. Adeyemi Ogundipe (MC1); Dr. John Odebiyi (MC2)
10:05-10:15am	Welcome Address	Chair, Organising Committee, Dr. Emmanuel A. Oduntan
10:15-- 10:20am	Opening Speech	Dr. Dominic E. Azuh (Head, Department of Economics and Development Studies)
10:20-10:30am	Opening Remarks	Dean, College of Business and Social Science (CBSS), Prof. Philip O. Alege
10:30-10:50am	Welcome Remarks and Declaration of Conference Open	Prof. AAA. Atayero Vice Chancellor, Covenant University
10:50-11:20am	Keynote Address	Hon. (Dr.) Abdulmumin Jubrin Chairman, Appropriation Committee, House of Representatives, National Assembly, Abuja, Nigeria
11:20-11:40	Tea Break	
11:40-1:40pm	Plenary Session 1 Africa's Development Agenda: Prospects and Challenges:	<ol style="list-style-type: none"> 1. Prince (Barr) Johnson A. Ekhator, Central Bank of Nigeria, Lagos. 2. Prof. Rowland Worlu, Covenant University. 3. Dr. Michael Bruentrup, Senior Research Fellow, German Development Institute, Bonn, Germany.
1:40-2:10pm	Lunch Break	

Panel 3	Sub-Theme 3: Health, Wellbeing and Development Panel Chair: Prof. Gbolahan A. Oni Rapporteurs: Ms. Ibukun Beecroft Venue: CUCRID Building	
Paper No	Title & Author(s)	Abstract Page
ICSDA2019-011	INDUSTRIAL HEALTH AND SAFETY MANAGEMENT AND EMPLOYEES' ATTITUDE AMONG MANUFACTURING FIRMS IN KWARA STATE. Aliyu, Mustapha O.	6
ICSDA2019-016	EDUCATION, HEALTH AND SAFETY AMONG INFORMAL WASTE PICKERS IN SOUTH WESTERN NIGERIA. Isaac Jacob O., Olurinola Isaiah O, Amonu Ogechi C. & Aderounmu Busayo	8
ICSDA2019-027	INDIVISIBILITY OF THE SUSTAINABLE DEVELOPMENT GOALS? AN EVALUATION OF HOW HEALTH-IN-ALL-POLICIES STRATEGY CAN BE EMPLOYED TO PROGRESS THE SDGS IN THE CONTEXT OF KENYA'S VISION 2030. Mauti Joy, Tosun Jale & Jahn, Albrecht	14
ICSDA2019-028	ICSDA2019-028. COMMUNITY-BASED HEALTH INSURANCE SCHEME (CBHIS) IN RURAL KWARA STATE NIGERIA: EFFECTS ON THE HEALTH SEEKING BEHAVIOUR OF FARMING HOUSEHOLDS. Babatunde R. O., Audu R. O. & Omoniwa A. E.	14
ICSDA2019-051	PREVALENCE OF HIV/AIDS EPIDEMICS IN NIGERIA AND THE ATTAINMENT OF SUSTAINABLE DEVELOPMENT Ibikunle J.	26
ICSDA2019-093	IMPACTS OF SDGS TOWARDS THE REDUCTION OF MORTALITY RISK AND ENHANCING THE SUSTAINABLE SURVIVAL AMONG PLHIV IN ANAMBRA STATE OF NIGERIA. Okoh Benjamin Chigozie & Ifeolo, Ifeoma	47
ICSDA2019-104	ADOPTING THE PLANETARY HEALTH DIET IN NIGERIA. Amonu, Ogechi, Abuh, Uyo, Iku, Elisha, Gershon, Obindah & Okuazun Gideon	52
✓ ICSDA2019-108	PUBLIC HEALTH EXPENDITURE AND HEALTH OUTCOMES IN AFRICA. Urhie Ese, Amonu Ogechi & Tometi E-Favor	54
ICSDA2019-126	PERCEIVED QUALITY OF HEALTH CARE AND TREATMENT CHOICE AMONG PREGNANT WOMEN IN IFO, OGUN STATE, NIGERIA. Oladosun, Muyiwa, Azuh Dominic, Chinedu Shalom Nwodo, Azuh Akunna Ebere, Ayodele Ezekiel & Nwogu Fred	63
ICSDA2019-143	PREDICTORS OF HEALTH SEEKING BEHAVIOURS OF EXPECTANT MOTHERS ATTENDING ANTE-NATAL HEALTH FACILITY IN IFO LOCAL GOVERNMENT AREA OF OGUN STATE, NIGERIA. Oladosun Muiyiwa, Azuh Dominic, Chinedu Shalom Nwodo, Azuh Akunna Ebere, Nwosu Joy, Duh Emelda & Akinpelu Olubunmi	72
ICSDA2019-145	KEY DETERMINANTS OF BREASTFEEDING PRACTICES OF PREGNANT MOTHERS IN IFO LOCAL GOVERNMENT OF OGUN STATE, NIGERIA. Azuh, Dominic, Oladosun Muiyiwa, Chinedu Shalom Nwodo, Azuh Akunna Ebere, Ayodele Ezekiel, Nwogu Fred & Akinpelu Olubunmi	73

JMLC

2020

ABSTRACT 107
AIR POLLUTION AND SOCIO-ECONOMIC IMPLICATIONS OF ECONOMIC GROWTH

Afolabi, Adesola
Urhie, Ese

Department of Economics and Development Studies, Covenant University, Nigeria

Abstract

Literature is awash with empirical works that demonstrate improved socio-economic infrastructure will impact positively on the growth of an economy. However clarity is yet to be established on the second way effect of economic growth. Developing countries like Nigeria is expected to grow at a rapid rate in order to catch up with global development and contribute positively to goals set by nations of the world, but there are implications for such growth. One of such is rapid pollution of the environment caused through productive activities like powering up homes and businesses, commuting, manufacturing and service delivery e.g. telecommunications services, financial services etc. The cycle like effects of carrying out these activities effects the release of emissions into the atmosphere and environment and in turn hampers health stability, thereby causes a strain in the progress of economic activities including income generation, savings, investment and other social and economic factors. The complexity of these relationships is thus evaluated with the use of PROCESS- a tool developed by (Preacher and Hayes 2004) to identify the moderated and mediated path analysis of these intertwined relationships This study therefore provides insight on the social and economic implications of growing an economy and suggest cautionary measures in mitigating any negative effects of economic growth.

Keywords: Air pollution, infrastructure, economic growth, environmental effects

ABSTRACT 108
PUBLIC HEALTH EXPENDITURE AND HEALTH OUTCOMES IN AFRICA

Urhie, Ese
Amonu, Ogechi
Tometi, E-Favor

Department of Economics and Development Studies, Covenant University, Nigeria

Abstract

The current Human Development Report (HDR, 2018) ranked a total of 189 countries in terms of their level of human development. Thirty eight of these countries were ranked low human development. More than 85 percent of these countries are in sub-Saharan Africa. The low human development index is the outcome of low levels and quality of health, knowledge and income. At regional level, there is a wide disparity in the level of health status. Latin America and the Caribbean had the highest level of life expectancy at birth (75.7 years) in 2017, while sub-Saharan Africa had the least (60.7). This represents a large difference of 15 years. When adjusted for the years of illness, the difference between the healthy life expectancy of the two regions was 13 years. Obviously, Africa has a lot of catching-up to do in the area of health in order to improve the wellbeing of her citizens. Health has been noted to be both a resource and a final good. Aside its desirability for wellbeing, it is also important for sustainable growth and development. Health is a merit good. To this extent many countries make it an object of public investment. Available statistics shows that a higher proportion of total health expenditure is borne by the public in advanced countries; while the reverse is the case in virtually all African countries. Given the nature of health and its importance of sustainable development. African leaders must have a rethink on the priority to attach to the health sector as measured by their investment. Any paradigm shift from the current practice of African leaders should be based on the outcome of sound research. Thus, this study examines the effect of public health spending on health outcomes in Africa. The study employs a panel data of all African countries for the period of ten years to test the hypothesis that the level of public health spending does not significantly affect health outcomes Africa.

Keywords: Public health, government expenditure, human development, sustainable development, health outcomes, Africa

Government Health Expenditure, Education and Under-5 Mortality Rate in Nigeria

Ese Uhrie^{1,2}, Blessing. I. Igwe^{1,3}, Onyinyechi. G. Anosike¹

¹*Department of Economics and Development Studies, Covenant University, Ota, Ogun State, Nigeria.*

²*Centre for Economic Policy and Development Research (CEPDeR), Covenant University, Ota, Ogun State, Nigeria.*

³Corresponding Author. E-mail: blessing.igwepgs@stu.cu.edu.ng

Abstract: In view of Nigeria's persistently poor health throughout the years, this research looked into the third Sustainable Development Goal (SDG-3), which intended to ensure healthy lives and promote wellbeing for all people of all ages. One of the key goals was to bring the worldwide under-5 mortality rate down to at least 25 per 1,000 live births by 2030. Nigeria was the world's poorest performer in 2019, with a rate of 117.2 per 1000 live births. This study explored the extent to which government health expenditure in Nigeria has promoted health outcomes in the context of education level, based on existing theories that support the relevance of finance in promoting health outcomes. Time series data from 1982 to 2019 were used in the study. As a metric of health outcome, the study used the under-5 mortality rate (U5MR). Other variables in this study include the primary school enrolment rate and federal government health spending throughout the time period under consideration. To describe and analyze the impacts of health expenditure and education on the under-5 death rate in Nigeria, the study uses a quantitative research method. The interactive multiple regression model is used in this study. A Co-integration econometric approach was employed on the Eviews-9 econometric package to evaluate the interactive effect of health expenditure and education on under-5 mortality rate using Nigerian data. The analysis revealed that in the short term, neither government spending nor education alone will be sufficient to reduce U5MR in Nigeria. According to the study, econometric and statistical models used to analyse health and other social issues should be developed to reflect reality. Furthermore, because education and health are both social factors that contribute to the development of human capital in particular and human development in general, the federal government as well as state governments should ensure that the two ministries work in harmony. The ministry of health and the ministry of education are the two ministries under question. This will, without a doubt, lead to greater synergy and, as a result, higher efficiency in the use of national resources.

Keywords: Education, Government Expenditure, Health, Under-5 Mortality Rate

1. Introduction

The third sustainable development goal (SDG-3) strives to ensure that all people of all ages live healthy lives. In 2030, one of the key objectives of this goal is to reduce worldwide under-5 mortality to at least 25 per 1,000 live births. Half a decade into the pursuit of this target, global under-5 mortality stands at 37.7 per 1,000 (World Bank, 2021). Available statistics in the World Bank World Development Indicators (2021) shows that Nigeria is the worst

performing country in the world with a figure of 117.2 per 1000 live births in 2019. Another disturbing fact from available statistics is that all the African countries that had worse performance than Nigeria in 1970 have improved tremendously. Cases worth mentioning are Malawi (from 341.3 in 1970 to 41.6 in 2019) and Senegal (287.9 in 1970 to 45.3 in 2019); while that of Nigeria declined from 281.4 in 1970 to 117.2 in 2019.

Finance in general, and government health expenditure in particular, has a favorable effect on health outcomes, according to both theoretical and empirical evidence. According to an analysis of general government health spending in 2018, Norway, the United States of America, and Botswana spent \$7029, \$5355, and \$374 per capita, respectively; Nigerian government spent only \$12 per capita. Unexpectedly, health outcome (U5MR) in these countries are 2.4 (Norway); 6.5 (United States) and 40.6 (Botswana). This correlation calls for an investigation to ascertain the extent to which finance promotes health outcomes in a country.

Aside income, other non-economic factors such as education also influence health outcomes as shown by both theories and empirical findings. Income and education are considered exogenous variables in empirical research that look at them as predictors of health outcomes. However, it is logical to reason that the level of education could influence the extent to which income promotes health outcomes. Thus, education could be regarded as an interactive variable or a moderator. That is, the extent to which government spending on education reduces U5MR is contingent on the level of education.

One of the most significant factor in achieving economic growth is one's physical well-being. In light of this, there has been an agreement among researchers who view health as a public benefit, the demand and supply of which cannot be trusted to remain at the mercy of the invisible hands (Olarinde, 2010). As a result, the government must play a critical role in the provision of high-quality health-care services that the general public can both access and afford. As a result, the government must play a critical role in the provision of high-quality health-care services that the general public can both access and afford. As a result of the foregoing, the World Health Organization (WHO) proposed at the 2010 World Health Assembly topics related to health funding in order to facilitate the provision of high-quality, low-cost healthcare (Ataguba and akazili,2010). As a result, it is critical to provide high-quality, cheap, and accessible healthcare services in order to fulfill a long-term goal of improving the nation's economic development (Riman, 2012).

According to the suggestion, and in an effort to demonstrate its commitment to the restructuring of the health-care sector in its fiscal dispensation, the Nigerian government has taken on the responsibility of providing a good health-care facility for its citizens by increasing health-care allocation. Between the years 2000 and 2007, approximately 2.1 percent to 5.8 percent of total government expenditures were spent on health, according to available data (Mordi,2010). Evidence from the literature suggests that people in good health are more inclined to invest more on education because they have greater human capital and the ability to innovate and adapt to new technology (Rahman et al.,2018 cited in Osakede, 2020). As a result, public health

investment or government expenditure on public health provides some social protection and improves access to health care, particularly for the less fortunate (Noy & Sprague-Jones, 2016). It is believed that increasing government spending on health will enhance the general public's health, resulting in a more active human capital base and a multiplier effect on economic growth and development.

According to WHO (2005), quality health care is a result of widespread economic growth and a means of avoiding poor health traps in poverty. In the last few decades, the world has achieved remarkable progress in reducing child mortality. In 2016, the number of children under the age of five who died reduced to 5.6 million from 12.6 million in 1990-15,000 per day, compared to 35,000 in 1990. Furthermore, the global under-five mortality rate declined to 41 deaths per 1,000 live births in 2016, down from 93 deaths per 1,000 live births in 2015, a 56 percent decrease. In 2016, 2.6 million babies died worldwide, or 7,000 every day. Neonatal fatalities accounted for 46 percent of all deaths among children under the age of five, up from 41 percent in 2000. Astonishingly, Southern Asia (39 percent) had the highest number of neonatal deaths, followed by Sub-Saharan Africa (39 percent), (38 percent). Nigeria, Africa's powerhouse, is one of the countries that accounts for half of all infant fatalities. However, the neonatal mortality rate dropped by 49 per cent from 37 deaths per 1,000 live births in 1990 to 19 in the year 2016 (World Development Indicators, 2017).

It's worth noting that there are differences in child survival among regions and countries: In Sub-Saharan Africa, one out of every 13 children dies before reaching the age of five (Bello 2020). The ratio was found to be 1 in 189 in the world's high-income countries. In Sub-Saharan Africa, one out of every 36 newborns dies in the first month, compared to one out of every 333 in the world's high-income countries (UNICEF, 2017). If current trends continue, more than 50 nations will fall short of the Sustainable Development Goal (SDG) target for child survival, resulting in the deaths of 60 million children under the age of five would die between 2017 and 2030.

In addition, 10 million children under the age of five would be rescued between 2017 and 2030, with almost half of them being newborns (UNICEF, 2017). To further improve this condition, good governance is required for the benefit of all. The situation is concerning, as the Nigerian health sector has historically provided substandard health services. It is self-evident that the majority of Nigeria's government hospitals are little more than consultation clinics.

In light of the aforementioned, this study uses Nigeria as a case study to examine the impact of income and education, as well as their interaction, on the level of health outcomes (under-5 mortality rate)S

2. Literature Review

On the one hand under-five mortality refers to the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates. Nigeria continues to be a key contributor to worldwide under-five mortality figures. The country has one of the highest rates of under-five mortality in the world, with 156.9 per 1000 live birth (ICF Macro and NPC, 2009). Furthermore, there is a significant geographic variation in under-five mortality patterns in Nigeria, with the lowest rate of 89 per 1000 live births in the south-west and the highest rate of 222 per 1000 live births in the north-east. This massive regional disparity has been attributed to a variety of factors.

Griffiths et al. (2004), who used DHS data from seven countries, including Nigeria, to examine the multilevel comparison of the determinants of child nutritional status, emphasized the importance of individual and household-level characteristics such as age, breastfeeding duration, and child size at birth, as well as maternal education. According to recent results, formal education, as well as health education, boosts child survival dramatically (Chirdan et al., 2008; Kravdal, 2004).

Anyamele's (2009) research of DHS data from a number of Sub-Saharan African countries, including Benin and Nigeria, confirmed Chirdan's (2018) results that literacy is strongly linked to child mortality. Several other Nigerian research on under-five mortality are primarily based in hospitals. Several studies have shown the impact of drug use, treatment, and hospitalization in relation to a child's health outcomes. Adeboye et al (2010), for example, conducted a hospital-based research of infant mortality patterns within 24-hours of emergency pediatric admission in Nigeria and discovered that the majority of child deaths occur within the first day of admission due to malaria and malnutrition.

Strong positive relationships between health spending and childhood mortality have been observed by Bokhari et al. (2007), Gupta et al. (2002), and Cremieux et al. (1999). Other research, such as Lawanson (2012), Anyanwu and Erhijakpor (2009), Murthy and Okunade (2009), have found that public health spending improves life expectancy and lowers infant and under-five death rates. For the example of SSA, Mallaye and Yogo (2012) and Mishra and Newhouse (2009) revealed a positive correlation between health aid and health outcomes. For instance, Lawanson (2012) evaluated the effects of public health spending on health outcomes such as infant mortality, under-five mortality, crude death rate, and life expectancy in the case of SSA. The results showed that the link between public health expenditures and health outcomes was negative for mortality rates but positive for life expectancy when using panel data from 45 SSA nations between 2003 and 2007. They used two-stage least squares and fixed effects estimations.

Anyanwu and Erhijakpor (2007) looked at the impact of total and public health spending on two health outcome measures, namely under-five mortality and infant mortality rates, across African nations in a previous study. Their research used panel data and two-stage ordinary least squares estimation to discover that total and per capita public health spending in Africa had a

significant impact on under-five and infant death rates. According to their findings, a 10 percent increase in per capita total health expenditure reduced under-five and infant mortality by 21 percent and 22 percent, respectively, whereas a 10 percent increase in per capita public health expenditure reduced under-five and infant mortality by 25 percent and 21 percent, respectively.

Bokhari *et al.* (2007) estimated the relationship between health care expenditure, per capita income and health outcomes nexus using under five mortality and maternal mortality as health outcome measures. The study found elasticities for under five mortality ranging from -0.25 to -0.42 and maternal mortality ranging from -0.42 to -0.52, with respect to health care expenditure.

An important element that impacts health status is income, and there is usually a strong link between low income and hygienic poverty. According to studies, a decline in financial position leads to an increase in the rate of disease and mortality in society. When different criteria such as mortality, kind of serious diseases, degree of using health services, and hospital admission are used to gauge a society's health status, the reverse association between poor health and income level is valid, except in extreme situations. It is obvious that having an adequate income is a requirement for having access to other factors housing, diet, and education all play a role in defining one's health, and this issue takes on even more significance (Javadipour and Mojtahed, 2005).

Evidence suggests that the poor and their families suffer from higher rates of sickness, mortality, and injury than the general population. As a result, it is assumed that investing in poor societies' health is unavoidable. Furthermore, research shows that relative poverty, like abstract poverty, is linked to bad health, and studies demonstrating the link between (relative) poverty and health status have been conducted more frequently in industrialized countries. Because poverty prevents people from fully participating in economic and social activities, it appears that eliminating poverty is the best method to alleviate the negative effects of poverty on society's health (Byrne, 2003).

Several studies have found a strong link between the employment and income level of people who have a driver's license. Furthermore, having bad living situations at the start of one's life will reduce one's chances of getting higher scientific degrees (Javadipour and Mojtahed, 2005).

Individuals and societies with a higher level of education and knowledge will undoubtedly pay more attention to health and establish appropriate health facilities for themselves and their surroundings as a result of their education and perception of the importance of observing physical and mental health (Rosen, 1982). Because educational and scientific degrees are not lost, they would have a greater impact on individuals' health status than other effective social factors on health, implying that children with appropriate education will likely have healthier preferences for life in maturity. Attention was paid more to security and work-related health issues during working hours. Individuals' education levels and health levels clearly have a favorable and significant association.

However, education offers individuals with the opportunity for employment and income in a different way, and this might have an impact on their health (Pedrick, 2001:22). According to Robinson's (1997) idea, a cohesive society is one in which individuals work together to achieve common goals, despite the fact that diversity and distinctions exist in the society. Strong social networks in neighborhoods and small groups appear to be able to provide circumstances for a better existence in a variety of ways (Robinson, 1997).

3. Methodology

This study hinges on the theoretical framework of Rajkumar and Swaroop (2009) who modelled outcome of a public programme, for example public health expenditure as:

$$\text{Outcome} = \text{GEH}^\alpha * \text{EDU}^\beta \quad \text{where } \alpha > 0; \beta \geq 0 \quad (1)$$

GEH is government expenditure on health and EDU is primary school enrollment rate.

Outcome could for example, be indicators of health status such as life expectancy, infant mortality or under-5 mortality rates. Equation (1) implies that outcome (for example under-5 mortality rate) does the followings: (a) improves with an increase in government expenditure on health (b) improves (or does not worsen) if education improves. Taking the logs of equation (1), we have the linear form of (1) as equation (2) below.

$$\ln \text{Outcome} = \alpha \ln \text{GEH} + \beta \ln \text{EDU} \quad (2)$$

In modelling the relationship between public spending and outcome as specified in equation (2) above, a researcher would usually take the information on spending from public budget documents. But it is known that only spending on health input does not automatically guarantee perfect health. The level of literacy is important for any government intervention.

Following Pritchett (1996), α , the coefficient of public spending on programme p in equation (2) can be written as:

$$\alpha = \gamma(.) * \alpha_p \quad (3)$$

Where:

α_p = represents the productivity of public capital that is created from the spending on programme p.

3.1 Conceptual Framework

The effect of education in the relationship between government expenditure and health outcomes needs to be investigated as few studies have examined this nexus. Many studies have examined the proximate factors that exist between the main socioeconomic determinants of health and their outcome. The proximate factors often employed are mediators. This study considers education as a moderator.

Thus, the role of government spending in promoting health outcomes is dependent on the level of education as presented below.

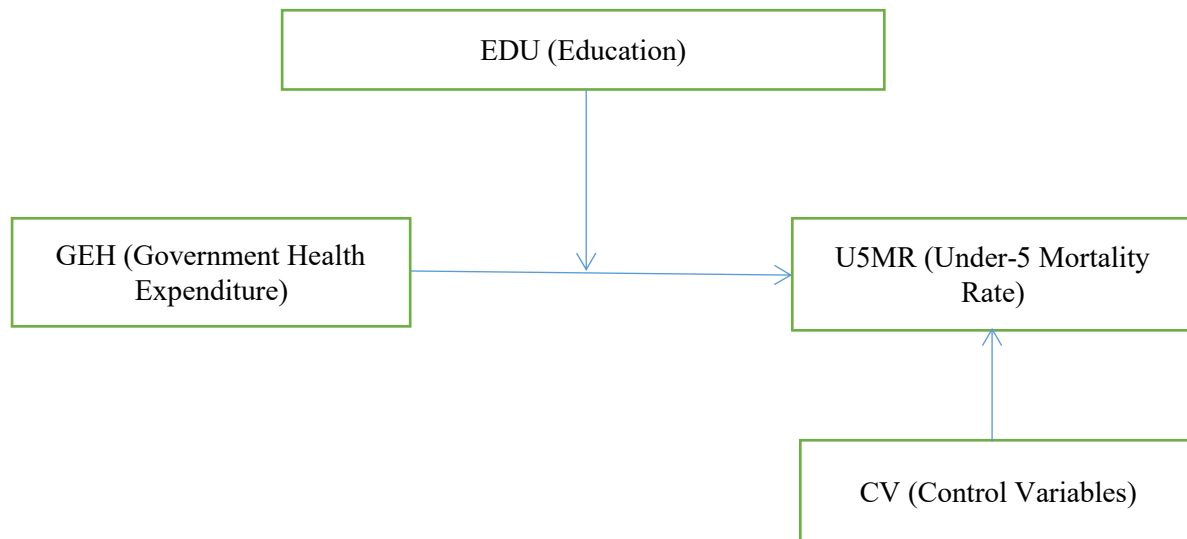


Figure 1: A Moderation Model of Government Spending, Education and Under-5 Mortality Rate.

The magnitude, direction, or presence of a link between variables is influenced by a moderation model. It reveals who, when, and under what conditions a relationship will last. Moderators typically assist you in determining the external validity of your study by pointing out the constraints of when a relationship between variables holds.

Figure 1 is a simple moderation model diagram, showing the effect of GEH (Government Health Expenditure) on the outcome of U5MR (Under-5 Mortality Rate) which is influenced or dependent on the moderator EDU(Education). That is, education moderates the relationship between government health expenditure and under-5 mortality rate.

The hypothesis to be tested in the moderation model is to show the relationship between government health spending (GEH) on under-5 mortality rate. The higher the level of education (EDU) of the people, the greater the effect of government health expenditure on under-5 mortality rate in Nigeria.

3.2. Model Specification

Given the conceptual framework above, the regression equation for the study is stated as follows:

$$HOC f(GEH, EDU, GEH*EDU)$$

Where:

HOC is health outcome measured by Under-5 mortality rate;

GEH is Amount of government spending on health;

EDU is education measured by primary school enrollment

GEH*EDU is the interactive term between government spending and education

The explicit form of the equation is as presented below.

$$HOCT = \beta_0 + \beta_1GEH_t + \beta_2EDU_t + \beta_3GEH*EDU + \mu$$

Where;

t = time period;

β_0 , β_1 , β_2 and β_3 = represent the various coefficients

μ , = stands for stochastic error term

4. Results

4.1 Descriptive Analysis of Variables

Table 1 shows the statistical properties of under-5 mortality, government expenditure on health and education in Nigeria for the period under review 1982 to 2019.

Under-5 mortality rate (U5MR) for the period under review averaged 172.4 per 1000. Its highest level for the period is 209.7 which was attained in 1989; while the least rate for the period stands at 117.2 per 1000 in 2019. Generally, there has been a downward trend in under-5 mortality rate in Nigeria as shown.

Table 1: Descriptive Analysis of Variables

	U5MR	GEH	EDU
Mean	172.4237	75.52053	84.89462
Median	180.4000	20.58000	91.52970
Maximum	209.7000	388.3700	113.0788
Minimum	117.2000	0.040000	40.94025
Std. Dev.	34.55342	103.8369	20.71477
Skewness	-0.269086	1.349911	-0.867339
Kurtosis	1.403485	3.782933	2.583382

Jarque-Bera	4.494276	12.51153	5.039240
Probability	0.105701	0.001919	0.080490
Sum	6552.100	2869.780	3225.996
Sum Sq.Dev	44175.75	398937.9	15876.76
Observations	38	38	38

Source: Researcher's Computation using Eviews (2021)

Unit Root Test for Stationarity

The Augmented Dickey Fuller test was adopted to test for the Stationarity of the variables. The result is presented as follows.

Table 2: Stationarity Test

VARIABLE	t-statistic at Levels	t-statistic at first difference	Test critical value	Level of Significance
U5MR	0.26	-4.34	-3.64	1
GEH	2.93	-3.71	-3.56	5
EDU	-2.44	-3.15	-2.95	5

Source: Researcher's Computation from Eviews (2021)

The table above shows that all the variables are co-integrated of order 1. That is they are all I(1) series.

Short Run Autoregressive Distributed Lag (ARDL) Result

ARDL Result (Short run Analysis)

Prior to estimation, a maximum lag of 6 was selected. The model was evaluated after 2058 estimations. The selected lag length for each variable are 6, 6, 5, 6, for U5MR, GEH, EDU and GEHEDU respectively. The ARDL estimation of the relationship between health outcomes, represented with under-5 mortality rate (UMR) on one hand and GEH, EDU and GEHEDU on the other, shows an R^2 and \bar{R}^2 of 0.999 each. This shows that the model represents a good fit. The F-statistic of 222977 shows that the model is significant. The result is presented in Table 3 below.

Table 3: The Results of Autoregressive Distributed Lag (ARDL) Short Run Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
U5MR(-1)	3.051946	0.352440	8.659475	0.0003
U5MR(-2)	-3.297316	0.728747	-4.524636	0.0063
U5MR(-3)	2.97E-05	0.974946	3.05E-05	1.0000
U5MR(-4)	3.534145	0.778420	4.540152	0.0062
U5MR(-5)	-3.300020	1.006504	-3.278695	0.0220
U5MR(-6)	1.027143	0.577476	1.778677	0.1354
GEH	0.052877	0.017220	3.070732	0.0278
GEH(-1)	-0.195056	0.071927	-2.711867	0.0422
GEH(-2)	0.276599	0.085894	3.220240	0.0235
GEH(-3)	0.024923	0.071051	0.350771	0.7401
GEH(-4)	-0.131659	0.042964	-3.064385	0.0280
GEH(-5)	0.004108	0.119285	0.034435	0.9739
GEH(-6)	0.201901	0.099918	2.020677	0.0993
EDU	0.018134	0.008574	2.114995	0.0881
EDU(-1)	-0.044737	0.011735	-3.812296	0.0125
EDU(-2)	0.069394	0.013585	5.108111	0.0037
EDU(-3)	-0.080701	0.020093	-4.016350	0.0102
EDU(-4)	0.053219	0.019894	2.675084	0.0441
EDU(-5)	-0.019117	0.017669	-1.081945	0.3287
GEHEDU	-0.000864	0.000196	-4.400977	0.0070
GEHEDU(-1)	0.002439	0.000750	3.252250	0.0226
GEHEDU(-2)	-0.003049	0.001017	-2.997436	0.0302
GEHEDU(-3)	-0.000337	0.000706	-0.476369	0.6539
GEHEDU(-4)	0.001459	0.000449	3.248809	0.0227
GEHEDU(-5)	-0.000344	0.001069	-0.321592	0.7608
GEHEDU(-6)	-0.001565	0.000834	-1.875514	0.1196
C	-3.415102	18.11789	-0.188493	0.8579
R-squared	0.999999	Mean dependent var		165.9156
Adjusted R-squared	0.999995	S.D. dependent var		33.88180
S.E. of regression	0.078348	Akaike info criterion		-2.424103
Sum squared resid	0.030692	Schwarz criterion		-1.187388
Log likelihood	65.78564	Hannan-Quinn criter.		-2.014167
F-statistic	222977.8	Durbin-Watson stat		2.971292
Prob(F-statistic)	0.000000			

*Note: p-values and any subsequent tests do not account for model selection

Bounds Test

The Bounds test was conducted to determine whether or not long run relationship exist among health status (U5MR) and health expenditure as well as education (EDU) in Nigeria

In order to select the optimal lag length for each variable the Akaike's Information Criteria (AIC) was employed. The computed F-statistic is 7.2 which is greater than the upper bound critical value of 5.62 at 1% level of significance. This means that the null hypothesis of no cointegration can be rejected at 1%. Therefore, there is a long run relationship between health status (U5MR) and the explanatory variables in Nigeria The result is presented in the Table 4

Table 4: The Result of Autoregressive Distributed Lag (ARDL) Bounds Test

Test Statistic	Value	K
F-statistic	7.202241	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Co-Integration Results (Long Run Results)

The long run model corresponding to ARDL (6, 6, 5, 6) for the relationship among health outcomes, health expenditure and education in Nigeria can be written as follows:

$$U5MR = 214.4 - 14.6721*GEH + 0.2390*EDU + 0.1419*GEHEDU$$

The estimated coefficients of the long run relationship is negative for income (GEH), government spending on health. It is positive for Education (EDU) and the interaction between GEH and EDU. While GEH conformed to a priori expectation, EDU and GEHEDU did not conform in the long run. This means that in the long run, increase in government expenditure on health will bring about reduction in under-5 mortality rate. The positive coefficient of GEHEDU implies that in the long run education is not able to moderate the effect of government health spending on health outcomes in Nigeria. This is contrary to the findings in the short run.

The result presented above implies that in the long run, holding all other factors constant, an increase in government health expenditure by N1 billion will reduce under-5 mortality rate by 14.6 per 1000 in Nigeria.

Error Correction Model (ECM) Estimation

The ECM corresponding to the long run estimates for the model is shown in Table 4.5 below. The estimated ECM has two parts. The first part consists of the estimated coefficients of short run dynamics and the second part contains the estimates of the error correction term that measures the speed of adjustment whereby short run dynamics converge to the long run equilibrium path in the model.

The short run coefficients for DGEH, DEDU, and DGEHEDU are statistically significant at either 5%, 10 % and 1% level respectively. The coefficient of the error correction term is negative, though not significant. The negative value of the ecm implies that the model converges in the long run.

Table 5: Bounds Test
ARDL Co-integrating and Long Run Form

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\delta(U5MR(-1))$	2.036019	0.401594	5.069839	0.0039
$\delta(U5MR(-2))$	-1.261297	0.595237	-2.118983	0.0876
$\delta(U5MR(-3))$	-1.261268	0.517400	-2.437703	0.0588
$\delta(U5MR(-4))$	2.272877	0.521755	4.356213	0.0073
$\delta(U5MR(-5))$	-1.027143	0.577476	-1.778677	0.1354
$\delta(GEH)$	0.052877	0.017220	3.070732	0.0278
$\delta(GEH(-1))$	-0.276599	0.085894	-3.220240	0.0235
$\delta(GEH(-2))$	-0.024923	0.071051	-0.350771	0.7401
$\delta(GEH(-3))$	0.131659	0.042964	3.064385	0.0280
$\delta(GEH(-4))$	-0.004108	0.119285	-0.034435	0.9739

$\delta(\text{GEH}(-5))$	-0.201901	0.099918	-2.020677	0.0993
$\delta(\text{EDU})$	0.018134	0.008574	2.114995	0.0881
$\delta(\text{EDU}(-1))$	-0.069394	0.013585	-5.108111	0.0037
$\delta(\text{EDU}(-2))$	0.080701	0.020093	4.016350	0.0102
$\delta(\text{EDU}(-3))$	-0.053219	0.019894	-2.675084	0.0441
$\delta(\text{EDU}(-4))$	0.019117	0.017669	1.081945	0.3287
$\delta(\text{GEHEDU})$	-0.000864	0.000196	-4.400977	0.0070
$\delta(\text{GEHEDU}(-1))$	0.003049	0.001017	2.997436	0.0302
$\delta(\text{GEHEDU}(-2))$	0.000337	0.000706	0.476369	0.6539
$\delta(\text{GEHEDU}(-3))$	-0.001459	0.000449	-3.248809	0.0227
$\delta(\text{GEHEDU}(-4))$	0.000344	0.001069	0.321592	0.7608
$\delta(\text{GEHEDU}(-5))$	0.001565	0.000834	1.875514	0.1196
CointEq(-1)	-0.015928	0.088730	-0.179506	0.8646

$$\text{Cointeq} = \text{U5MR} - (-14.6721 * \text{GEH} + 0.2390 * \text{EDU} + 0.1419 * \text{GEHEDU} + 214.4137)$$

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEH	-14.672113	63.08897	-0.232562	0.8253
EDU	0.238968	0.824088	0.289979	0.7835
GEHEDU	0.141903	0.621163	0.228447	0.8283
CONSTANT	214.413724	60.74165	3.529929	0.0167

Discussion of Results

Both the short run and long run estimations present mixed results in terms of the relationship among government health spending, education and health outcomes.

Expenditure on Health and Under-5 Mortality Rate

The short run ARDL result shows that current government health expenditure has a positive effect on U5MR in Nigeria. The 2nd, 3rd, 5th and 6th lags also affect U5MR positively. On the other hand, the 4th and 6th lags had an inverse effect on U5MR. In terms of level of significance, all the lags including the contemporaneous values were statistically significant except the 3rd and 5th lags. The positive correlation between GEH and U5MR changed to adverse effect when GEH was interacted with EDU. This implies that educations speeds up the effect of expenditure on health. In other words, education acts as a catalyst to the health expenditure.

This result has brought to the fore that finance alone is not sufficient to ensure health outcomes. When many of the citizens are uneducated, the efforts of government at ensuring good health through expenditure on health will be limited. Therefore, any plan to enhance the health status of the citizens especially in less developed countries which are characterized with low level education, the literacy level of the citizens must be taken into consideration.

Education and Under-5 Mortality Rate

Holding all other factors constant, the effect of education on U5MR is similar to that of GEH. Contrary to a priori expectation, education was found to have a positive effect on U5MR in Nigeria. The 2nd and 4th lags also had a similar effect. However, the 1st, 3rd and 5th lags all have an inverse relationship with U5MR. All the coefficients were statistically significant except that of the 5th lag.

However, as observed, the interaction between GEH and EDU was found to conform to a priori expectation. It therefore follows that any plan to enhance the health status of Nigerians especially with respect to under-5 mortality rate, it must be considered within the context of the education of the citizens.

The result from this study has confirmed Todaro's proposition that both health and education are interrelated in development. They complement each other either as final goods or as factors of production. As final goods, the utility derived from health inputs cannot be maximized fully in the absence of education and vice versa.

5. Conclusion and Recommendations

This study adopts under-5 mortality rate (U5MR) as its measure of health outcome. Using the time series data for the period 1982 to 2019. The other variables for this study are primary school enrolment rate and health expenditure by the federal government during the period under review.

Quantitative research method was employed to describe and analyze the effects of health expenditure and education in under-5 mortality rate in Nigeria. The interactive multiple regression model was also adopted. A Co-integration econometric approach was employed on the Eviews econometric package to evaluate the interactive effect of health expenditure and education on under-5 mortality rate using Nigerian data.

Based on the analysis conducted, it was discovered that in the short run neither government expenditure nor education had alone is sufficient to bring about meaningful reduction in U5MR in Nigeria. The study confirmed the claim by Todaro that both education and health play complementary roles in human capital development.

This study recommends that firstly, econometric and statistical models used to analyse health and other social issues should be designed such that they capture reality. If this is not the case, the results obtained from such models and inferences drawn from them could be misleading. Secondly, since education and health are both social variables that contribute to the development of human capital specifically and human development in general, the federal government as well as the various state governments should

ensure a conscientious harmony between the two ministries. That is the ministry of health and the ministry of education. This will no doubt result in greater synergy, thus leading to greater efficiency of national resources.

Acknowledgments

The authors appreciate the publication support received from the Management of Covenant

Reference

- Akinkugbe, O., & Mohanoe, M. (2009). Public Health Expenditure as a Determinant of Health Status in Lesotho. *Social Work in Public Health, 24*(1-2), 131–147. <https://doi.org/10.1080/19371910802569716>
- Anyanwu, J. C., & Erhijakpor, A. E. O. (2009). Health Expenditures and Health Outcomes in Africa. *African Development Review, 21*(2), 400–433. <https://doi.org/10.1111/j.1467-8268.2009.00215.x>
- Arun, J., & Kumar, D. (2016). Public health expenditure of BRICS countries - an empirical analysis. *International Journal of Medical Science and Public Health, 5*(11), 2212. <https://doi.org/10.5455/ijmsph.2016.13032016457>
- Baldacci, E., Guin-Siu, M. T., & Mello, L. D. (2003). More on the effectiveness of public spending on health care and education: a covariance structure model. *Journal of International Development, 15*(6), 709–725. <https://doi.org/10.1002/jid.1025>
- Barenberg, A. J., Basu, D., & Soyulu, C. (2016). The Effect of Public Health Expenditure on Infant Mortality: Evidence from a Panel of Indian States, 1983–1984 to 2011–2012. *The Journal of Development Studies, 53*(10), 1765–1784. <https://doi.org/10.1080/00220388.2016.1241384>
- Berger, M. C., & Messer, J. (2002). Public financing of health expenditures, insurance, and health outcomes. *Applied Economics, 34*(17), 2105–2113. <https://doi.org/10.1080/00036840210135665>
- Bokhari, F. A. S., Gai, Y., & Gottret, P. (2007). Government health expenditures and health outcomes. *Health Economics, 16*(3), 257–273. <https://doi.org/10.1002/hec.1157>
- Braveman, P. A., Cubbin, C., Egerter, S., Williams, D. R., & Pamuk, E. (2010). Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us. *American Journal of Public Health, 100*(S1), S186–S196. <https://doi.org/10.2105/ajph.2009.166082>
- Byaro, M. (2021). Commentary: on the effects of health expenditure on infant mortality in sub-Saharan Africa: evidence from panel data analysis. *Health Economics Review, 11*(1). <https://doi.org/10.1186/s13561-021-00310-6>
- Crémieux, P.-Y., Meilleur, M.-C., Ouellette, P., Petit, P., Zelder, M., & Potvin, K. (2004). Public and private pharmaceutical spending as determinants of health outcomes in Canada. *Health Economics, 14*(2), 107–116. <https://doi.org/10.1002/hec.922>
- Dorrington, R. E., & Bradshaw, D. (2015). Acknowledging uncertainty about maternal mortality estimates. *Bulletin of the World Health Organization, 94*(2), 155–156. <https://doi.org/10.2471/blt.15.155036>
- Gani, A. (2008). Health care financing and health outcomes in Pacific Island countries. *Health Policy and Planning, 24*(1), 72–81. <https://doi.org/10.1093/heapol/czn044>
- Grossman, M. (1972). On the Concept of Health Capital and the Demand for Health. *Journal*

- of Political Economy*, 80(2), 223–255. <https://doi.org/10.1086/259880>
- Gupta, S., Verhoeven, M., & Tiongson, E. R. (2002). The effectiveness of government spending on education and health care in developing and transition economies. *European Journal of Political Economy*, 18(4), 717–737. [https://doi.org/10.1016/s0176-2680\(02\)00116-7](https://doi.org/10.1016/s0176-2680(02)00116-7)
- Gupta, S., Verhoeven, M., & Tiongson, E. R. (2003). Public spending on health care and the poor. *Health Economics*, 12(8), 685–696. <https://doi.org/10.1002/hec.759>
- Hamidi, S., Narci, H., Akinci, F., & Nacakgedigi, O. (2015). Examining health care spending trends over a decade: The Palestinian case. *Eastern Mediterranean Health Journal*, 21(12), 861–870. <https://doi.org/10.26719/2015.21.12.861>
- Hanmer, L., Lensink, R., & White, H. (2003). Infant and child mortality in developing countries: Analysing the data for Robust determinants. *Journal of Development Studies*, 40(1), 101–118. <https://doi.org/10.1080/00220380412331293687>
- Hanson, K., Gilson, L., Goodman, C., Mills, A., Smith, R., Feachem, R., ... Kinlaw, H. (2008). Is Private Health Care the Answer to the Health Problems of the World's Poor? *PLoS Medicine*, 5(11), e233. <https://doi.org/10.1371/journal.pmed.0050233>
- Harriss, C. L., Musgrave, R. A., & Peacock, A. T. (1959). Classics in the Theory of Public Finance. *The Journal of Finance*, 14(1), 129. <https://doi.org/10.2307/2976138>
- Ibukun, C. O. (2021). The role of governance in the health expenditure–health outcomes nexus: insights from West Africa. *International Journal of Social Economics*, 48(4), 557–570. <https://doi.org/10.1108/ijse-06-2020-0404>
- Kiross, G. T., Chojenta, C., Barker, D., & Loxton, D. (2020). The effects of health expenditure on infant mortality in sub-Saharan Africa: evidence from panel data analysis. *Health Economics Review*, 10(1). <https://doi.org/10.1186/s13561-020-00262-3>
- Kofi Boachie, M., Ramu, K., & Põlajeva, T. (2018). Public Health Expenditures and Health Outcomes: New Evidence from Ghana. *Economies*, 6(4), 58. <https://doi.org/10.3390/economies6040058>
- Kojo Edeme, R. (2017). Public Health Expenditure and Health Outcomes in Nigeria. *American Journal of Biomedical and Life Sciences*, 5(5), 96. <https://doi.org/10.11648/j.ajbls.20170505.13>
- Makuta, I., & O'Hare, B. (2015). Quality of governance, public spending on health and health status in Sub Saharan Africa: a panel data regression analysis. *BMC Public Health*, 15(1). <https://doi.org/10.1186/s12889-015-2287-z>
- Newbrander, W., Carrin, G., & Touze, D. L. (1994). Developing countries' health expenditure information: what exists and what is needed? *Health Policy and Planning*, 9(4), 396–408. <https://doi.org/10.1093/heapol/9.4.396>
- Nicholas, A., Edward, N.-A., & Bernardin, S. (2016). The effect of health expenditure on selected maternal and child health outcomes in Sub-Saharan Africa. *International Journal of Social Economics*, 43(12), 1386–1399. <https://doi.org/10.1108/ijse-08-2015-0199>
- Novignon, J., Olakojo, S. A., & Nonvignon, J. (2012). The effects of public and private health care expenditure on health status in sub-Saharan Africa: new evidence from panel data analysis. *Health Economics Review*, 2(1). <https://doi.org/10.1186/2191-1991-2-22>

- Olalekan, W. (2012). Awareness and attitude of health care workers in a teaching hospital in southwestern Nigeria towards nosocomial infections. *Journal of Public Health and Epidemiology*, 4(10), 285–289. <https://doi.org/10.5897/jphe11.106>
- Opit, L. (1994). World Development Report 1993: Investing in Health. The World Bank, Oxford University Press, Oxford, 1993. No. of pages: 329. ISBN 0-19-520890-0. *Health Economics*, 3(2), 127–128. <https://doi.org/10.1002/hec.4730030209>
- Ovseiko, P. V. (2013). Health care reform and globalisation: The US, China and Europe in comparative perspective. *Critical Public Health*, 23(2), 237–238. <https://doi.org/10.1080/09581596.2012.761808>
- Oyinlola, A. (2013). Public expenditure and economic growth nexus: Further evidence from Nigeria. *Journal of Economics and International Finance*, 5(4), 146–154. <https://doi.org/10.5897/jeif2013.0489>
- Rajkumar, A. S., & Swaroop, V. (2008). Public spending and outcomes: Does governance matter? *Journal of Development Economics*, 86(1), 96–111. <https://doi.org/10.1016/j.jdeveco.2007.08.003>
- Ranis, G., Stewart, F., & Ramirez, A. (2000). Economic Growth and Human Development. *World Development*, 28(2), 197–219. [https://doi.org/10.1016/s0305-750x\(99\)00131-x](https://doi.org/10.1016/s0305-750x(99)00131-x)
- Richards, J., & Vining, A. R. (2016). Under-Five Mortality: Comparing National Levels and Changes over the Last Decade Across Low-Income Countries. *Journal of Comparative Policy Analysis: Research and Practice*, 18(4), 419–438. <https://doi.org/10.1080/13876988.2016.1151135>
- Sachs, J. D. (2002). Macroeconomics and health: investing in health for economic development. *Revista Panamericana de Salud Pública*, 12(2), 143–144. <https://doi.org/10.1590/s1020-49892002000800017>
- Sede, P. I., & Ohemeng, W. (2015). Socio-economic determinants of life expectancy in Nigeria (1980 – 2011). *Health Economics Review*, 5(1). <https://doi.org/10.1186/s13561-014-0037-z>
- Sirag, A., Mohamed Nor, N., Law, S. H., Abdullah, N. M. R., & Lacheheb, M. (2016). The impact of health financing and CO2 emission on health outcomes in Sub-Saharan Africa: A cross-country analysis. *GeoJournal*, 82(6), 1247–1261. <https://doi.org/10.1007/s10708-016-9749-4>
- Orji, A., Okafor, J. C., & Umesiobi, S. (2015). Progressive Health Spending and Health Outcomes in Nigeria: The Case of Malaria. *International Journal of Academic Research in Business and Social Sciences*, 5(12). <https://doi.org/10.6007/ijarbss/v5-i12/1924>
- Verhoeven, M., Gupta, S., & Tiongson, E. (1999). Does Higher Government Spending Buy Better Results in Education and Health Care? *IMF Working Papers*, 99(21), 1. <https://doi.org/10.5089/9781451843897.001>
- Weisbrod, B. A. (1966). Investing in Human Capital. *The Journal of Human Resources*, 1(1), 5. <https://doi.org/10.2307/145011>
- Yardim, M. S., Cilingiroglu, N., & Yardim, N. (2010). Catastrophic health expenditure and impoverishment in Turkey. *Health Policy*, 94(1), 26–33. <https://doi.org/10.1016/j.healthpol.2009.08.006>

