

Capital Market Development and Nigerian Economy

BABATUNDE O. BINUYO, DUROJAIYE OLUWATIMILEHIN,
UDUAKOBONG EDY-EWOH, ADEKUNLE O. BINUYO,
Babcock University, Ilisan Remo, Nigeria

Abstract. This research work examined the effects of capital market development on the Nigerian economy from 1987 to 2018. Most recent literatures on the Nigeria capital market have recognized the tremendous performance the market has recorded in recent period. However, the vibrant role of the capital market in economic development has not been empirically investigated thereby creating a research gap in this area. This study was motivated by the fact that some studies have reported negative effects of capital markets on economic growth in some developing nations instead of positive effect on growth and development. Ex-post-facto research design was adopted for the study. The study used time series data, and the ordinary least squares technique was adopted for analysis. The result showed that market capitalization has a positive influence on the gross domestic product (GDP) while value of transactions has a negative and insignificant influence on GDP. Based on the findings, the study recommends that Government should encourage participation of foreign investors in the capital market, and a lasting solution should be found to control the current state of insurgency in the North-Eastern part of the country. Major instruments such as derivatives, convertibles, future and Swaps-options among others could be introduced to enhance the development of the capital market.

Keywords: Capital market, , Economy, , Foreign investors, Gross domestic product, Market capitalization

1. Introduction

In the last two decades, studies on the capital market have received numerous attention from contemporary finance and economics literature resulting from its major role in the provision of long-term, non-debt financial capital which facilitate companies to avoid over-dependence on debt financing, thus improving corporate debt-to-equity ratio and also in the mobilization of resources for national growth. According to Ndako (2010), the capital market is viewed as a complex institution imbued with natural mechanism through which long-term funds of the major sectors of the economy comprising households, firms, and government are mobilized, harnessed and made available to various sectors of the economy.

For sustainable economic growth, funds must be effectively mobilized and allocated to enable businesses and the economies harness their human, material, and management resources for optimal output. Hence, the capital market is an economic institution, which promotes efficiency in capital formation and allocation.

Prominent among the functions of the capital market are mobilization of savings, creation of liquidity, risk diversification, improved dissemination and acquisition of information, and enhanced incentive for corporate control. Improving the efficiency and effectiveness of these functions, through rapid delivery of their services can supplement the rate of economic growth (Okereke-Onyiuke, 2000; Levine and Servos, 1996; Obadan, 1995; McKinnon, 1973)

According to Adewuyi and Olowookere (2011), a capital market is a segment of a nation's financial system where the main article of trade is medium and long-term financial instruments. Such instruments are generally referred to as securities because of the level of confidence and assurance or guarantee it gives to the investor on the repayment of their principal. The rate of economic growth of any nation is intimately linked to the sophistication of its financial market and specifically its capital market efficiency. Financial markets assist the nations of the world to muster needed financial resources and skills for growth and development of their various economies.

According to Adebisi and Olasupo (2005), equity markets in developing countries until the mid-1980s generally suffered from the classical defects of bank-dominated economies that are shortage of equity capital, lack of liquidity, absence of foreign institutional investors, and lack of investor's confidence in the stock market. The importance of capital market lies in its financial intermediation capacity to link the deficit sector with the surplus sector of the economy. The absence of such capacity robs the economy of investment and production of goods and services for societal advancement.

Olawoye (2011) noted that the capital market is an essential agent of economic growth because of its ability to facilitate and mobilise savings and investment. The ability to mobilise and invest lies in the nation's strength in effective resource mobilization, which enables internal wealth generation and domestic savings as well as inflows of foreign capital. Thus, the consideration of the capital market as the institution for financial management from surplus sectors of the economy to the sectors that are seeking to be financed.

Odetayo and Sajuyigbe (2012) opined that capital market is an engine of economic growth and development in the whole world. Capital market is made up of markets and institutions which facilitate the issuance and secondary trading of long-term financial instruments. The history of Nigeria's capital market could be traced to 1946 when the British colonial

administration floated a N600,000 local loan stock bearing interest at 3 % for the financing of developmental projects under the Ten-Year Plan Local Ordinance. The loan stock, which had a maturity of 10-15 years, was oversubscribed by more than ₦1 million, yet local participation of the issued was terribly poor. Recently, capital market has experienced unprecedented growth which was attributed to the banking sector reform of 2004-2005. The Nigerian capital market which started operations in mid-1961 with eight stocks and equities; with about seven United Kingdom (UK) firms quoted on the Nigerian Stock Exchange (NSE) which had, at the same time, dual quotations on the London Stock Exchange. At the commencement of operations, the market started with 0.3 million shares worth N1.5 m in 334 deals and the value continued to grow steadily to N16.6m in 634 deals by 1970 (CBN 2004).

According to Nigerian Stock Exchange report (NSE, 2009), in 1995 the Federal Government liberalized the capital market with the abrogation of Laws that prevent foreign investors from participating in the domestic capital market. This includes: The Foreign Exchange; Monitoring and Miscellaneous Provision Decree No: 17, 1995; Nigerian Investment Promotion Commission Decree No:16, 1995; Companies and Allied Matters Decree of 1990 and Securities and Investment Act (SIA) 45 of 1999.

The capital market plays a vital role in the economy considering that capital is a very important factor of production without which economic transactions cannot effectively take place,. Therefore the ability of a nation to mobilise savings and transform such savings into investment depends on the type of capital market that exists at a particular period of time. Since the introduction of the Nigerian capital market, several problems have been discovered, some of which includes poor economic development that hampers a conducive investment environment to sustain vibrant capital market to the economy. Also, the problem of buy-and-hold strategy, i.e., stocks are being bought without being sold or traded on the stock market.

2. Literature Review

According to Al-Faki (2006), the capital market is a network of specialized financial institutions, series of mechanism, processes and infrastructure that, in various ways facilitate the bringing together of suppliers and users of medium to long term capital for investment in economic developmental project. Mbat (2001) described it as a medium through which long-term funds are made available by the surplus to the deficit economic units. It must, however, be noted that although all the surplus economic units have access to the capital market, not all the deficit economic units have the same easy access to it. The restriction on the part of the borrowers is meant to enforce the security of the funds provided by the lenders. In order to ensure that creditors are not subjected to undue risks, borrowers in the capital market need to satisfy certain basic requirement, it has very profound implication for socio economic development of any nation. Companies can finance their operations by raising funds through issuing equity (ownership) or debenture/bond borrowed as securities. Equities have perpetual life while bond/debenture issues are structured to mature in periods of years varying from the medium to the long-term of usually between five and twenty-five years.

Henry (2000) finds a strong relationship between the growth rate of investment and changes in stock market valuation measured by returns on the stock market, the turnover ratio, and the traded value as a share of GDP. On the other hand, McCauley and Remolona (2000) and Shah and Thomas (2001) find that the size of the economy is an important factor in the development of liquid and well-functioning securities markets. Mishkin (2001) argues that financial liberalization promotes transparency and accountability, which reduces adverse selection and moral hazard. It thus tends to reduce the cost of borrowing in stock markets, which eventually increases their liquidity and size. Obamiro (2005) investigated the role of the Nigeria stock market in the light of economic growth. He suggested that government should create more enabling environment so as to

increase the efficiency of the stock market to attain higher economic growth. Ezeoha, Ebele and Ndidi (2009) investigated the nature of the relationship that exists between stock market development and the level of investment (domestic private investment and foreign private investment) flows in Nigeria. The authors discovered that stock market development promotes domestic private investment flows thus suggesting the enhancement of the economy's production capacity as well as promotion of the growth of national output. However, the results show that stock market development has not been able to encourage the flow of foreign private investment in Nigeria.

Yartey and Adjasi (2007) observed that political risk and institutional quality are strongly associated with growth in stock market capitalization. The results suggest that the establishment of quality institutions can be an important factor in the development of stock markets. Other institutional factors as well, such as law and order, democratic accountability and bureaucratic quality are important determinants of stock market development. Chami, Fullenkamp and Sharma (2009) argue that financial markets will develop if borrowers and lenders are willing and able to enter into contracts, and liquidity providers find conditions conducive to trading created financial instruments. They also emphasize the importance of regulatory structure in supporting this process by removing obstacles that render potential borrowers, lenders and liquidity providers unwilling or unable to play their roles and by creating an appropriate incentive for each agent to fulfill their end of the bargain.

North and Weingast (1989) show that improved checks and balances, credible commitments and upgraded property rights in England during the seventeenth century led to the development of stable capital markets. Pagano (1993) shows that regulatory and institutional factors could influence the efficient functioning of stock markets. That is, compulsory disclosure of reliable information and financial data on listed companies may increase investor participation, while regulations that enhance investor confidence in brokers could enhance investment

and trading in stock markets. Erb, Harvey and Viskanta (1996) show that expected returns and the magnitude of political risk are positively related. They find that both in developing and developed countries, the lower the level of political risk, the lower and the required returns on investment. The results suggest that political risk plays an important role in investment decisions and decreases the cost of equity, and consequently may have important implications for stock market development. La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998) argue that the origin of a country's legal system affects the level of financial development. A common law basis is more conducive to the development of capital markets than a civil law basis, as the flexibility of the common law legal system allows for protection of small investors. Moreover, they find that countries with a lower quality legal regime and poorer law enforcement exhibit smaller and narrower capital markets and that the listed companies on their stock markets are characterized by more concentrated ownership

Also, Olawoye (2011), in his work made use of the multiple regression analysis to test whether the capital market indices have impact on the economic growth of Nigeria proxy by Gross Domestic Product (GDP). He found out that there is a positive relationship between capital market and economic growth and he suggested that there should be improvement in the declining market capitalization by encouraging more foreign investors to participate in the market, maintaining state of the art technology like automated trading and settlement practice, electronic fund clearance and eliminate physical transfer of shares. There is also need to restore confidence to the market by regulatory authorities through ensuring transparency and

4. Results and Discussions

This section provides in detail the analysis of data used in the study and interpretation of the empirical results.

Table 4.1: Results of the Regression Analysis

fair trading transaction and dealing in the stock exchange.

3. Methodology

This section provides information about the research design, source of data, research variables, and model specification.

- Research Design: The study used ex post facto research design. The study used a time series data for the period 1987 to 2018.
- Sources of Data: The data used in this study were sourced from the Central Bank of Nigeria Statistical Bulletin, Nigerian Stock Exchange Fact Book, Securities and Exchange Commission data base
- Model Specification: For the purpose of the study, a multivariate econometric model will be specified and estimated. The model examines the relationship between the capital market and economic growth using selected capital market variables such as Market capitalization and Value of Transactions.

The model in its functional relationship is given as:

$$GDP = f(MACP, VOT)..... (1)$$

Where Y is economic growth or GDP = dependent Variable, X₁- X₂ are independent variables. F represents the functional notation. This can be specifically stated as:

MACP = Market Capitalization, VOT = Value of Transactions,

$$GDP = \beta_0 + \beta_1 MACP + \beta_2 VOT + e.....(2)$$

where β_0 = intercept of the relationship in the model β_1 - β_2 = coefficient of each of the independent variables, e = stochastic / error term.

The a priori expectations of the coefficient of the model are: $\beta_0, \beta_1, \beta_2 > 0$.

Variable	Coefficient	Std. Error	t-statistic	Prob.	R ²	Adjusted R ²	F-statistic	DW-statistic
C	352.4329	17.15234	20.54722	0.0000				
MACAP	0.040994	0.007083	5.787575	0.0000	0.857548	0.846996	81.26905	0.874407
VOT	-5.85E-05	6.70E-05	-0.873612	0.3900				

Source: Authors' computation (2018)

4.1 Estimated Model and Interpretation

$$GDP = 352.4329 + 0.040994MACP - 0.0000585VO + \varepsilon$$

From the estimated regression model above, it was observed that the variables were rightly signed except for value of transaction. They satisfied the a priori expectations to an extent except for the value of transactions. The coefficients of the explanatory variable, Market Capitalisation is positive; indicating that a unit increase in market capitalisation will result, on the average, about 41% increase in the value of gross domestic product (GDP). On the other hand, an increase in the value of transactions at the capital market by one unit will bring about a decrease in GDP by 0.0000585 units.

The adjusted (R²) shows that about 84.7 percent of the variations in GDP was explained by the changes in the explanatory variables of the estimated model and about 14.3% of the variation not captured by the adjusted R² is explained by the error term.

The F-test, which follows an F-distribution, measures the overall significance of the model. From the F-table, we have 3.35 which is less than F calculated of 81.26905, we reject Ho and conclude that the model is statistically significant. The Durbin Watson statistic result shows that d = 0.87440, dU 1.567 and dL 1.284. From this results, d < DL. Therefore, we reject H₀ and accept H₁. There is positive autocorrelation which simply means that there is presence of serial correlation.

5. Discussion of Findings

The work examines the effects of capital market development on the Nigerian economy between 1984 and 2018. It was observed that an increase in market capitalization will insignificantly increase GDP. This is supported by Ewah, Esang and Jude (2009). It was observe that capital

market has a positive impact on the economy but made it clear that even though they exert a positive influence, it has contributed insignificantly to the Nigeria economy. On the contrary, Kolapo and Adaramola (2012) argued that the positive effect of capital market on the Nigerian Economy is significant, and the positive coefficient (0.04099) shows that market capitalization if increased have the capacity to trigger a significant effect on the Nigerian economy. This research also shows that value of transaction exert an insignificant negative effect, this implies that key investors prefer to invest in other sector of the economy other than the capital market. Lastly, the result shows that value of transaction exert an insignificant negative effect, this implies that key investors prefer to invest in other sector of the economy rather than the capital market.

The regression result shows that market capitalization, and value of transactions have an insignificant impact on the gross domestic product (GDP). Therefore since all of the indices of capital market is insignificant, we accept the null hypothesis and conclude that capital market has no significant effect on the Nigerian economy.

The implication of the study on the effects of capital market development on the Nigerian economy from 1987 to 2018 is that at macroeconomic level, based on market capitalization, an increase in market capitalization will insignificantly increase GDP. The value of market capitalization is positive. This implies that market capitalization if increased have the capacity to trigger a significant effect on the Nigerian economy. Another implication of our result is that value of transaction exert an insignificant negative effect, this implies that key investors prefer to invest in other sector of the economy other than the capital market.

6. Summary, Conclusion and Policy Recommendations

The study examined the effects of capital market development on the Nigerian economy between 1987 and 2018. The findings of the study revealed that there is a positive relationship between gross domestic product and market capitalisation. Market capitalisation exerts significant positive influence on GDP. On the other hand, the study also revealed that there is a negative relationship between GDP and the value of transaction. The value of transactions exerts negative insignificant effects on GDP. Furthermore, the coefficient of adjusted R^2 of 84.7% shows that 84.7% variation in GDP is explained by the explanatory variables while about 15% is explained by the error term (ϵ) therefore the model is a good fit for the relationship. The result of the hypothesis shows that the effect of capital market on economic growth, whether negative or positives, is not significant hence we accept the null hypothesis and therefore conclude that capital market has no significant impact on economic growth in Nigeria.

As it was observed market capitalisation, and value of transaction are important capital market variables that are capable of influencing the Nigerian economy. Hence the capital market remains one of the mainstream in every economy that has the power to influence or impact the economy. Therefore, the organised private sector should invest in it. Based on the analysis, findings and conclusion, the study therefore recommends that Government should encourage participation of foreign investors in the capital market by creating enabling environment and lasting solution should be found to the current state of insurgency in the northeastern part of the country. Also, incentives that can attract foreign investors should be introduced. Regulatory authority should formulate policies that would encourage more companies to access the market and also be more proactive in their surveillance role in order to curb sharp practices which undermine market integrity and erode investors' confidence.

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Health Care, Health Status and Labour Productivity in Nigeria

JOSEPH I. ONYEMA

Rivers State University, Nkpolu-Oroworukwo, Port Harcourt, Nigeria

CHRISTIAN UGONDAH NYENKE

Ignatius Ajuru University of Education, Port Harcourt, Nigeria

Abstract. The debate on the role of health in productivity of labour is an age-long one. The health conditions of the workforce affect its level of productivity. This study examined health care, health status and productivity of labour in Nigeria in order to determine the direction of causality between them. Data were collected from the Central Bank of Nigeria (CBN) Statistical bulletin and World Bank Development Indicators. The ordinary least squares (OLS) method was used to estimate the model. The analysis indicates that government expenditure on health (GXH) and life expectancy (LXP) do not conform to theoretical expectations. This can be attributed to institutional corruption and poor government attention to the provision of health needs of the people that meet global best practices. On the other hand, prevalence of HIV and AIDS (HAD) and risk of catastrophic expenditure on surgical care (RCES) are consistent with theoretic expectations. The analysis also reveals that prevalence of HIV/AIDS is statistically significant. However, GXH, RCES and LXP are not statistically significant. Pairwise granger causality test indicates that government expenditure on health (GXH) and life expectancy (LXP) does not granger cause labour productivity (LPD). But prevalence of HIV/AIDS (HAD) and poor expenditure on surgical care (RCES) granger cause labour productivity (LPD) implying that poor health care delivery and status of health of the people

adversely affect labour productivity in Nigeria. The study recommends that: the government should increase its expenditure on health care facilities and personnel development. This has the capacity of reducing the risk of catastrophic expenditure on surgical care, improve the health status of the active population, boost productivity level and encourage economic development in Nigeria.

Keywords: Health care, health status, catastrophic health expenditure, labour productivity.

1. Introduction

The productivity of labour as an active agent in the production process is not only determined by education, but also health care and health status. Health is an important component of human capital that plays a crucial role in economic growth (Strauss and Thomas, 1998; Weil, 2014). Poor health conditions could adversely affect labor productivity and, consequently, long run economic growth. Health is essential in labour supply decision, not only because health is a form of human capital, valued by both employers and employees (Grossman, 1972), but also because individuals' preferences between work and leisure may change following a health shock. For example, a deterioration of health may lead a person to value leisure more than work. In addition, changes in health may change

the time horizon over which labour supply decisions are made because life expectancy is determined by health (Chiricos, 1993). As a result, the impact of health on labour supply has been under extensive study particularly in industrialized countries (Currie and Madrian, 1999). Health is endogenous to labour supply. This is because employment or long working hours may have adverse impacts on an individual's health, or individuals may use health conditions to justify their labour force status.

According to Jack and Lewis (2009), healthier people are more likely to be richer than their sick counterparts because they have greater capacity to work harder, longer and more consistently. Poor health therefore generally affects productivity and output adversely, thereby debarring the sick from participating in productive activities due to decreased opportunity cost of leisure. Apart from reduced productivity, ill health may increase the utility derived from time spent away from market related activities given that seeking health care is time-consuming.

A nation's wealth and/or poverty have often been analyzed in terms of the state of health of its citizens. Health is fundamental to labour productivity, economic growth and development and is one of the key determinants of economic performance both at micro and macro levels. This is because health as a form of human capital increases an individual's capability (Bloom and Canning, 2003). The effect of health on worker's productivity suggests a strong relationship between health and aggregate output. Unhealthy workers lose much time from work due to ill-health and are less productive when working. Health gains had the economic consequences of widespread economic growth and an escape of ill-health traps in poverty (World Health Organization, 2010).

Developing nations including Nigeria are faced with the scourge of diseases such as HIV/AIDS, malaria, tuberculosis, high blood pressure, among others which hamper the productivity of labour and economic growth. Therefore, countries devote huge public funds to provision

of health care, believing this would improve the health of the citizenry so that they can contribute meaningfully to economic growth and development. In Nigeria, for example, despite the huge government budgetary allocation to health provision, the health status of Nigerians is consistently ranked low. Nigeria ranked 74th out of 115 countries, based on the performance of some selected health indicators (World Bank, 1999).

Studies on the relationship between health and labour productivity did not use the appropriate measure for labour productivity such as gross domestic product (GDP) per labour hour. In view of the forgoing, this paper examines health care, health status and labour productivity in Nigeria using GDP per labour hour as measure of labour productivity. The paper is organized as follows: Section two discusses review of related literature, section three deals with model specification and estimation procedures. Sections four and five discuss the results and end the paper with conclusion and recommendations.

2. Review of Related Literature

2.1 Conceptual Literature

2.1.1 Health Care and Health Status

Healthcare is the diagnosis, treatment and prevention of disease, illness, injury and other physical and mental ailment in human beings. Healthcare is delivered by practitioners in allied health, dentistry, midwifery, medicine, nursing, and other health professions. It refers to the work done in providing primary, secondary and tertiary care as well as in public health. This is measured by government expenditure on health and the risk of catastrophic expenditure on surgical care (out of pockets expenditure on surgical care that exceeds a certain proportion of a household's income with the consequence that households suffer the burden of disease). In the view of World Health Organization (2005), health status is a state of complete physical, mental and social well-being. It is a state or ability of individual to live a socially and economically productive life. Health is a

somewhat nebulous condition, difficult to define and never in a state of perfection since one can be rarely sick, but never perfectly healthy. Health is a multi-dimensional concept that is usually measured in terms of absence of physical disability or a condition that is likely to cause death, emotional well-being and stationary social functioning. Health could be seen as physical and mental well-being of people which is measured using indicators such as life expectancy, adult mortality, child mortality rate, adult survival rate and so on (Aguayo-Rico, Guerra-turrubiates & Deoca-hernandez, 2005). Health in recent times has been considered to be very crucial in terms of how it affects productivity as well as other means of human capital formation. According to Bloom and Canning (2008), “health is a direct source of human welfare and also an instrument for raising income levels”. The level of productivity and growth in an economy will be greatly hampered by ill-health or prevalence of diseases. This is because the likelihood exists that healthy individuals have the tendency to think rightly, be more efficient and obtain higher productivity (Bloom and Canning, 2000; Aguayo-Rico et al, 2005). This explanation shows that health and labour productivity are positively correlated.

2.1.2 Labour Productivity

Labour productivity measures the hourly output of a country's economy. Specifically, it charts the amount of real gross domestic product (GDP) produced by an hour of labor. Growth in labor productivity depends on three main factors: investment and saving in physical capital, new technology and human capital. Labour productivity, also known as workforce productivity, is defined as real economic output per labour hour. Growth in labour productivity is measured by the change in economic output per labour hour over a defined period. Labour productivity should not be confused with employee productivity, which is a measure of an individual worker's output. It is calculated by dividing a country's total output by the total number of labour hours. Growth in labor productivity is directly attributable to increase in physical capital, adoption of new technology and investment in human capital. If labor

productivity is growing, it can be traced back to growth in one of these three areas. Physical capital is the amount of money that people have in savings and investments. New technologies are technological advancements, such as robots or assembly lines. Human capital represents the increase in health, education and specialization of the workforce (Will, 2019). Labour productivity is also an important measure of the short-term and cyclical changes in an economy. High-level labor productivity is a combination of total output and labor hours. Measuring labor productivity each quarter allows an economy to measure the change in its output in relation to the change in its labor hours. If the output is increasing while labour hours remain static, it could be a sign that the economy is advancing technologically and should continue to do so. Conversely, if labour hours increase in relation to flat output, it may be a sign that the economy needs to invest in education and health to increase the competence and productivity of its human capital.

2.2 Theoretical Literature

The paper is hinged on health production function. The modelling of the demand for “good health” was first introduced by Grossman (1972), in an explicit attempt to draw a distinction between health capital and human capital. Grossman opined that while the stock of human capital influences the wage rate of individuals, the stock of health determines the time that agents can devote to the production of money earnings as well as commodities and that, as such it is not accurate to consider health capital as an integrant part of human capital. Additionally, Grossman intended to highlight the fact that the demand for health care is a derived demand, since what consumers actually demand is the commodity “good health”, which is jointly produced by medical services and by consumers themselves, who allocate some of their time to the production of good health. Besides the aforementioned inputs – medical services and consumers’ time – the efficiency inherent to the production of “good health” is assumed to be influenced by the education level and age of individuals. Another building block of the Grossman model is the assumption that

individuals hand down an initial stock of health, which depreciates over time, but can be (partially) restored through investments in health capital. As the depreciation rate increases, namely due to the health deteriorating effect of ageing, it becomes increasingly costly to produce good health. Therefore, death occurs when the stock of health falls below a minimum threshold.

Notwithstanding the breakthrough brought about by Grossman, his model has not been immune to criticism. Usher (1975) maintains that the Grossman model fails to account for the impact that uncertainty, one's initial stock of health as well as history – namely of investments in health, wages and medical care prices - have on the decision to invest in health capital. In a similar tone, Case et al. (2005) recognize that the model is unable to take into consideration the socio-economic gradient in health, thereby precluding a faster decline in health for individuals in a lower socio-economic position. Also, Wagstaff (1986) criticizes Grossman model's prediction of a positive relation between investment in health and the stock of health. Eventually, the most concerning oversight of Grossman's model is its assumption of a health production function with constant returns to scale which, as stressed by Ehrlich (1990), gives rise to an indeterminacy problem concerning the optimal level of investment in health and, as a result, those of health, consumption and wealth. In spite of the criticisms, Galama (2015) suggests slight extensions and modifications to the original Grossman model which reveal to be capable of handling the previously referred criticisms and, therefore, to reinforce Grossman's model position as the cornerstone to study health-demand related behaviours.

2.3 Empirical Literature

There are dearth of empirical studies on health and labour productivity. However, Combarry (2016) examined the impacts of health services on agricultural labour productivity of rural households in Burkina Faso. The study used instrumental variable of health and social promotion centre (HSPC). The result revealed that that HSPC significantly improves farming

labour productivity. The study recommended that quality HSPC services should be made available in the rural areas.

There is a few empirical evidence on health and labour productivity in Nigeria. For example, Oluwalana and Ogunsusi (2016) examined the impact of malaria on productivity and coping strategies among small -scale gari processors in Odeda Local Government Area of Ogun State, Nigeria. Regression analysis was used to identify variables affecting income. The Result of the analysis indicated that processing experience (α 0.01), prevalence of malaria (α 0.10), cost of tubers (α 0.01), cost of firewood used (α 0.10), and ownership of a cassava farm (α 0.01) were the significant factors affecting the income of the gari processors. The study also revealed that malaria attack has a significant effect on productivity, workers' output, income and work hours of gari processors. It recommended among others that provision of adequate health services with due accessibility, improve their health status, thereby reducing the poverty level among gari processors in line with United Nations Millennium Development Goals (MDGs) for health by 2015.

Boman (2014) investigated the relationship between government health care financing and workforce productivity in Nigeria. Using vector autoregressive (VAR) model, it was revealed that while government capital expenditure on health showed negative effect on workforce productivity, government recurrent expenditure on health showed positive effect on workforce productivity in Nigeria. It was recommended that government should provide qualitative health infrastructure to ensure greater workforce productivity in Nigeria.

Umoru and Yaqub (2013) investigated labour productivity and health capital in Nigeria. Adopting the GMM methods, the study found that health capital investment is a significant determinant of labour productivity. The study recommended that there is need to have healthier workforce in order to maximize productivity in Nigeria.

Agulanna, Ikpi, Okoruwa and Akinyosoye (2013) studied the effects of health and nutrition on agricultural productivity of farmers in South Western Nigeria. The study adopted survey method and descriptive statistics. It established a linkage between health, nutrition and labour productivity. The study recommended that there is need for more investment in human capital of health in order to enhance the productivity of labour.

Ajani and ugwu (2008) carried out a study on the impact of adverse health on agricultural productivity of farmers in Kainji Basin, North Central Nigeria. The study adopted stochastic frontier production model. It revealed that health has a greater share in the inefficiency of the farmers in the area.

A cursory look at these studies shows that none used the appropriate measure for labour productivity such as gross domestic product (GDP) per labour hour. Hence, this paper is motivated to fill the gap as it examines health care, health status and labour productivity in Nigeria: a granger causality approach using GDP per labour hour as measure of labour productivity.

3. Methodology

3.1 Model Specification

In line with health production function of Grossman (1972) and the empirical model of Oluwalana and Ogunsusi (2016), the present study's model is specified with some modifications as follows:

$$LPD = f(GXH, HAD, RCES, LXP)$$

.....3.1

4.1 Augmented Dickey Fuller Unit Root Test

The results of the ADF unit root test are presented and discussed in table 4.1 as follows:

Table 4.1. A: Unit Root Stationary Test at Levels

Variables	ADF Stat. at levels	1% Critical value	5% Critical value	Order of Integration	Remarks
LPD	-2.334416	-3.752946	-2.998064	I(0)	NS
GXH	-1.023115	-3.752946	-2.998064	I(0)	NS
HAD	-1.170814	-3.752946	-2.998064	I(0)	NS
RCES	-1.268564	-3.699871	-2.976263	I(0)	NS
LXP	2.633921	-3.752946	-2.998064	I(0)	NS

Source: Computed from E-view 8.0, Note: NS= Not Stationary

The OLS form of the equation is written as:
 $LPD = a_0 + a_1GXH + a_2HAD + a_3RCES + a_4LXP + \mu$

.....3.2
 $a_1 > 0; a_2 < 0; a_3 < 0; a_4 > 0$

Where: LPD = Labour productivity
 GXH = Government expenditure on health, a proxy for health care
 HAD = HIV/AIDS prevalence
 RCES = Risk of catastrophic expenditure on surgical care
 LXP = Life expectancy
 a_0 = Constant
 $a_1 - a_4$ = Coefficients of the explanatory variables
 μ = Error term or stochastic variable

3.2 Estimation Procedure

This study employed quasi-experimental research design. This design is used to establish the causal relationship between the dependent variable and the independent variables in social sciences. The main sources of data include World Bank Development Indicators and the Central Bank of Nigeria. The estimation methods of ordinary least squares (OLS) estimation techniques of Augmented Dickey Fuller (ADF) unit root, Johansen cointegration, and the error correction mechanism (ECM) tests were used.

4. Results and Discussions

This section presents data and discussions on the results of the analysis. The time series data showing the trends of the variables of study are in table 4.5 in the appendix.