IMPACT OF PRIVATE HEALTH EXPENDITURE ON LABOUR PRODUCTIVITY IN NIGERIA

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JANUARY, 2025

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A PROJECT WORK SUBMITTED TO THE DEPARTMENT OF ECONOMICS, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE BACHELOR OF SCIENCE (B.Sc.) IN ECONOMICS, UNIVERSITY OF BENIN, BENIN CITY

JANUARY, 2025

DECLARATION

I, **IMONIKHE WINIFRED IBHADE**, do hereby declare that this project titled: "**IMPACT OF PRIVATE HEALTH EXPENDITURE ON LABOUR PRODUCTIVITY IN NIGERIA**" is entirely my own work and composition. The work embodied in this project has not been submitted in Candidature for any degree and is not concurrently being submitted for any other degree. All references made to works of other persons have been duly acknowledged.

…….. **……**

IMONIKHE WINIFRED IBHADE **DATE**

(Project Student)

CERTIFICATION

We certify that this work titled, "**IMPACT OF PRIVATE HEALTH EXPENDITURE ON LABOUR PRODUCTIVITY IN NIGERIA**" was carried out by OMOIJADE DEBORAH in the Department of Economics, Faculty of Social Sciences, University of Benin, Benin City, Edo State.

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……
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(Head of Department)

Date……

DEDICATION

This work is dedicated to God Almighty, the Father of our Lord Jesus Christ and to all who has influenced my life positively. It is also dedicated to my dad, my mum, my brothers, my sisters, my cousins and my best friend.

ACKNOWLEDGEMENTS

I wish to express my profound gratitude to my teacher in the field of Economics and my project supervisor, Mr. Mohammed Nuhu. His advice and corrections made this work a success. Thank you, sir, for being such an amazing teacher! I also wish to thank, Prof. D.E. Oriakhi, Prof. M.A. Anyiwe, (Mrs.) Beatrice Omo-Ikirodah, Dr. Igbinedion and all other lecturers and Non-academic staff in the department of Economics for their immerse contribution towards the successful completion of this programme.

To my dad and my mom, Mr and Mrs Imonikhe; my elder brother Brendan and my sisters, Anita, Hilda and Naomi and to all my family members, I say “thank you” for creating the environment I needed to study while at home and for your financial assistance also, ‘You all are the best!’

I also wish to thank my friend and course mates, Benose, Esther, Divine, Patrick and others too numerous to mention. Thanks for your unrelenting support and for being there for me..

Finally, and most especially, my deepest gratitude goes to God Almighty for Wisdom, Protection and Provision during the course of this programme.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Health spending is viewed as a wise investment in human capital because it increases labor productivity. Wellness is a substantial productive asset and the heart of economic growth, according to Barro (1996). A vital component of well-being, good health affects morbidity and labor productivity, which boosts economic growth. Immediate household (out-of-pocket) payments, private insurance, charitable contributions, and direct services payments by private enterprises are all considered private health expenditures (Jhingan, 2017). Labor productivity is a measure of the efficiency with which labor is used to produce goods and services. It is often calculated as the ratio of output to input, with output being the value of goods and services produced and input being the amount of labor and other resources used to produce those goods and services. In general, a country's labor productivity is an important indicator of its economic health and competitiveness. In Nigeria, labor productivity has historically been relatively low compared to other countries in the region and around the world. There are a number of factors that contribute to this low productivity, including a lack of investment in education and training, inadequate infrastructure and technology, and low levels of investment in research and development. The quantity of products and services produced in a nation per hour of labor is known as labor productivity. Because it particularly measures the volume of actual

gross domestic product manufactured by an hour of labor, there has been an increase in interest in examining the link among economic and health-related growth (through labor productivity), which has been significantly sparked by a Report Of the world bank on health (World Bank, 2023). Health expenditure refers to the financial resources that are dedicated to the provision of health services and the promotion of good health. These resources can come from a variety of sources, including governments, private insurance companies, and individual households. Labour productivity, on the other hand, refers to the amount of output that is produced by a unit of labor within a specific period of time. It is often used as a measure of economic growth and competitiveness, as well as a way to gauge the efficiency of a country's workforce.

There is a relationship between health expenditure and labour productivity at the macroeconomic level. Higher levels of health expenditure can lead to increased economic growth, as a healthy population is more productive and able to contribute more to the economy. This can also lead to higher levels of employment, as a healthy workforce is more likely to be able to work and contribute to the economy. In addition, higher levels of health expenditure can lead to increased innovation and technological advancements in the healthcare sector, which can also contribute to economic growth and increased labour productivity. However, there are also potential negative impacts of health expenditure on labour productivity. For example, if a country has a high level of health expenditure, it

may lead to higher levels of taxation or other forms of resource allocation, which can reduce the amount of money that is available for other sectors of the economy. This can lead to a decrease in labour productivity in these sectors, as there may be less investment in training, research and development, and other activities that can improve productivity.

In addition, if a country has a high level of health expenditure, it may lead to higher levels of public debt, which can also have negative impacts on labour productivity. This is because a high level of public debt can lead to higher interest rates, which can make it more expensive for businesses to borrow money and invest in new technologies and other productivity-enhancing measures. There is also a potential trade-off between health expenditure and labour productivity at the individual level. For example, if an individual spends a significant amount of their income on health expenses, it may reduce their ability to invest in education, training, and other activities that can improve their productivity. This can lead to lower levels of labour productivity in the long run. Overall, the relationship between health expenditure and labour productivity is complex and multifaceted. Higher levels of health expenditure can lead to improved health outcomes and a healthier workforce, which can in turn lead to higher levels of labour productivity. However, there are also potential negative impacts of health expenditure on labour productivity, including resource allocation and public debt, as well as individual-level

trade-offs. It is important for policymakers to carefully consider these factors when making decisions about health expenditure and its impacts on labour productivity.

According to National Health Accounts (NHA), (2024), the majority of states spend less than 5% of their overall budget on health care.

Less than 6% of all government spending as well as less than 25% of all healthcare costs in the nation come from all levels of government combined. The remainder 75% of healthcare costs is made up of private sector expenses, 90% of which are paid out-of-pocket by households.

Due to its effects on raising labor productivity and strengthening overall economic performance, developing countries are paying more emphasis to improving population health (Laplagne, and Shomos, 2017). According to the World Health Organization's definition of health from 1996, it is "a condition of whole physical, mental, and socioeconomic well-being and not only the absence of sickness or disability." Although according Anyanwu, Oyefusi, Oaikhena, and Dimowo (2019), a person's ability to lead a both socially and economically active life is a measure of their health. According to the first strategy, which is built on the Grossman (1972) mental wellbeing capital model, an individual was created with a stockpile of health that depletes over time but may be restored by making investments in their health. An individual's ability to participate in the market (investing) and non-market (consuming) aspects of the economy depends on their

available health stock. Death happens when this stock drops below a specific level. In this concept, people use their own time and medical insurance to create "excellent health." As a result, an individual's health is influenced by how much time and money they put in themselves. A person's current level of overall welfare is referred to as their health status. The health status of a population goes beyond simply being free from illness or infirmity, and is frequently summed up by average lifespan. The length of time a person will live in the future is their life expectancy. Life expectancy rates can be divided into three categories: healthy infant mortality rate, standard of living at 60 years old, and infant mortality rates rate at birth. Self-assessed health is a personal evaluation of one's physical, emotional, mental, and overall well-being. There are five aspects of health that could influence labor productivity globally. These include the prevalence of diseases, poor nutrition, physical harm, bad lifestyle choices (including drinking and smoking), and hurdles to accessing healthcare. Under nutrition is a condition in which a person's diet falls short of what their body needs to function properly. Broken bones, fractures, and burns are examples of bodily injuries that can result in infection and lower a person's quality of life. Diseases are aberrant disorders that impair bodily function and are not brought on by external trauma. Diseases have symptoms and signs because they are medical disorders. According to figures from the United Nations Programme on HIV/AIDS (UNAIDS, 2023), 25.3 million individuals have died from HIV/AIDS-related illnesses since 2000, and there are currently 36.9 million people living with the virus

worldwide. AIDS and HIV are still widespread problems throughout Africa. According to data from the WHO (2016) figures, sub-Saharan Africa (SSA) would have the highest rate of new HIV/AIDS infections overall and is responsible for more than 70% of the global total.

In 2017, SSA was home to 71% of HIV/AIDS patients, 75% of deaths, and 65% of new infections (Dwyer-Lindgren, Cork, et al; 2019). Thus, according UNAIDS (2019), Nigeria had an adult HIV/AIDS prevalence rate of 1.5 percent, meaning that in 2018 there were roughly 1.9 million persons living with the virus. Africa is home to over 90% of all malaria cases worldwide.

Worldwide, there have been 219 million cases of malaria in 2017. Every year, there are approximately 100 million instances of malaria in Nigeria, and there are also 300,000 fatalities (Nigeria Malaria Fact Sheet, 2018).

In 2017, the expected life expectancy in the SSA was 61 years, which was lower than the global average of seven decades (World Development Indicators, 2018). Numerous studies have looked at how health affects labor productivity in Nigeria. Many of the research took microeconomic viewpoints and looked at how a group of people's self-reported health affected their ability to work (see Omonona and Omiolele, 2022; Ajani and Ugwu, 2018). Although the majority of these research supported the critical role that health capital plays in enhancing labor productivity, their narrow scope prevents

generalization of their conclusions. Additionally, because replies cannot be validated, the application of subjective assessments of health cannot be supported.

Whatever sum spent on health care is deemed excessive because it is wealth. Every country's population health is a key indicator of its social and economic growth. According to the research, if this study is effective, its results and recommendations would be useful to health institutions, policymakers, and those who create curricula.

Health which is also human capital, affects economic growth directly through its impact on labour productivity and health cost. Bloom and Canning (2019; 2022) opined, on how healthy populations tend to have higher productivity due to their greater physical energy and mental clearness. Also, according to WHO (2019) ‘‘health 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 really 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.

According to Bloom and Canning (2018), “health is a direct source of human welfare and also an instrument for raising income level”. Health in recent times has been considered to be very crucial in terms of how it affects labour productivity as well as other means of human capital formation. The level of productivity and growth in an economy will be

greatly hampered by ill-health or prevalence of diseases in such an economy. This is because the likelihood exists that healthy individuals have the tendency to think rightly, be more efficient and obtain higher productivity (Bloom and Caning, 2000 and Aguayo-Rico, Guerra-turrubiates and Deoca-hernadez, 2023). Bloom and Canning (2019; 2022) opined, on how healthy populations tend to have higher productivity due to their greater physical energy and mental clearness.

1.2 Statement of the Problem

According to the World Fact Book (2018), Nigeria has a population of roughly 190.6 million, making up 47% of West Africa's total population, with 85.1 million of those being employed (NBS, 2017). Nigeria is the seventh most populous nation in the world thanks to its enormous human resources (World Fact Book, 2018). The needs of the populace's health should be taken care of by the government of any nation. Nevertheless, it has been noted that Nigeria's fundamental facilities for the wellbeing of the populace, including its health services, are of very poor quality. Unfortunately, the current level of health among Nigerians, particularly among the labor force, poses a threat to the effort to increase the nation's output. This is demonstrated by the fact that, out of 138 countries assessed by the World Economic Forum in 2016, Nigeria received the lowest rating (138th) in the areas of health and elementary school (Akingbade, 2016). This is because only 63% of children attend basic schools, and the quality and quantity of further

education and training offered to the general public are reportedly of poor quality. In a similar vein, Magarya (2017) affirms that Nigeria has been ranked 187 out of 190 countries in the world's health systems, just ahead of the Democratic Republic of the Congo, the Central African Republic, and Myanmar using key performance indicators such as overall health level, population health distribution, responsiveness, and financial distribution.

In a similar vein, Nigeria recorded 220,000 new infections from HIV and 160,000 AIDS-related deaths as of 2016, according to the joint committee for the United Nations AIDS (UNAIDS, 2016). Furthermore, only 30% of the 3.2 million HIV-positive patients who were still living used antiviral medication. Only 32% of HIV-positive pregnant mothers received treatment to protect their unborn children from infection. In addition, Nigeria continues to be one of the nations where malaria is one of the biggest health problems (The Global Fund, 2018), despite notable advancements in the last 10 years in expanding the use of lengthy insecticidal mosquito nets. Nigeria is the country with the fourth-highest burden of tuberculosis in the world and generates more than a third of the worldwide malaria burden. Without a doubt, this is to blame for the low productivity of the labor force.

Sadly, despite the increase in population growth, the labor force participation rate dropped from 55.2% in 2016 to 55.1% in December 2017. (Census Economic Information Centre,

2018). Examining the links between Nigeria's health state, labor productivity, and economic growth is crucial given the high prevalence of sickness, infection, and reduced performance compared to the enormous increase in population number. One of the key drivers of low labor productivity in Nigeria is the country's poor health status. Poor health can lead to absenteeism, reduced productivity, and increased health care costs, all of which can negatively impact a country's labor productivity. In Nigeria, the health of the population is impacted by a range of factors, including inadequate access to quality health care, poor sanitation and hygiene, and a lack of clean water and proper nutrition.

Studies that have considered the Nigerian circumstance (Abiodun, 2021; Odubunmi et al., 2022; Babatunde, 2022; Eneji et al., 2023; and Onisanwa, 2024) have concentrated more on health status, health expenditure, and economic growth while neglecting labor productivity. This is in contrast to previous studies on health. Status, labor productivity, and economic growth (Gill, 2022; Sengupta, 2017), which are largely this study's basis comes from the clear vacuum in the literature.

Given the foregoing, the goal of this study was to determine how Nigeria's private health spending affects labor productivity.

1.3 Research Questions

The following research questions were posed in order to meet the study's objectives:

i. Does improving health status promote and maintain economic growth?

ii. Does Nigeria's economic progress depend on healthy people?

iii. Does Nigeria's economic growth depend on a person's degree of education?

1.4 Objectives

The overarching goal of this study is to look at how private health spending affects economic growth in Nigeria. However, the specific goals of the study include looking at:

i. How health status influences and supports economic growth.

ii. Ascertain the impact of healthier people on Nigeria's economic development

iii. Ascertain the impact of educational attainment on Nigeria's economic development

1.5 Hypotheses of the Study

The subsequent hypotheses are developed in light of the aforementioned study questions in order to establish the responses to the questions:

i. H_{01}: H_{01} Health status stimulation has no appreciable impact on Nigeria ability to sustain economic growth

ii. H_{02}: Healthier people have no appreciable effects on Nigeria's economic expansion.

iii. H_{02}: Education attainment in Nigeria has no bearing on economic expansion

1.6 Significance of the Study

The study aims to show how private health spending affects economic growth in Nigeria. As emphasized in the introduction of the study, health status has been an important means to human health. This study will provide how private health spending affects economic growth in Nigeria, the study also considers level of education of employees due to their literacy rate level. Researchers and decision-makers have been preoccupied with the pursuit of accelerated economic growth and development, particularly in less developed nations. This has led to empirical research into the factors that contribute to long-term, sustainable growth. Therefore, this study looks at how labor productivity and health status affect growth of the Economy using annual time series information.

1.7 Scope of the Study

There is a complex relationship between health expenditure and labour productivity. On the one hand, higher levels of health expenditure can lead to improved health outcomes and a healthier workforce, which can in turn lead to higher levels of labour productivity. This is because good health is an important determinant of an individual's ability to work, and a healthy workforce is more likely to be able to perform at a high level and be productive.

Scope of the study seeks to cover Nigeria looking at how healthcare expenditure impacted the economic growth of Nigeria economy.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Issues

Researchers and decision-makers have been preoccupied with the pursuit of quick economic growth and development, particularly in less developed nations. This has led to empirical research into the factors that contribute to long-term, sustainable growth. Therefore, this study looks at how labor productivity and health status affect Nigeria's economy's growth using annual time series information. What needs to be emphasized in the context of the aforementioned definition is that rather than using strict quantitative measures, a subjective assessment of one's wellbeing is used most frequently to determine the state of health. Health-related definition in this way has some repercussions. First, two fictitious people with "objectively" comparable health conditions (based on the findings of medical testing) can assess actual health in two separate forms. The 'burdensomeness' of health issues is largely determined by how that individual perceives them. The use of variety of content in its measurement is another effect of the chosen concept of health. It is difficult to talk about perfectly healthy people these days given the state of diagnostics advancement, but those who are in good health are individuals to whom physical symptoms or medical signs do not pose a hindrance to happiness. There is a link between professional activity and health. Economic theory and empirical study both show that persons who are employed generally have improved health than those who are

unemployed or not actively seeking employment. There could be several explanations for this. One of them is the relationship that exists between income and health (Grossman, 1972; Ettner, 2019). Higher earnings enable working individuals to pay for medical treatments. In an economic sense, it is taken for granted that being healthy is typical. Although it is widely acknowledged that healthcare has a little influence on one's health (Lalonde, 2019), the opportunity for persons with higher incomes to use services of higher quality is priceless. Additionally, job may have a negative impact on health through unpaid means. The environment, as it is often understood to include the workplace, has a significant role in determining one's state of health. It might have a favorable or detrimental influence on one's physical well-being. Employee health is a significant cost issue for businesses and a major component in determining an economy's productivity. Average Life span, Adults Surviving Ratios, and Maternal Mortality are pertinent to the idea of health. The life expectancy of newborns is used in this study as a measure of the health of Nigerians. birth life expectancy (LE): The length of time a newborn child should anticipate to live if current trends in maturity level death rates at the time of childbirth remained steady throughout the child's life is called life expectancies at birth (UNDP, 2024). Previous research (Dixon, 2021; and Bloom et al., 2024) indicated that health has a high beneficial and significant effect on productivity increases, indicating that overall health (Life Expectancy) has a significant relationship with economic growth.

A very important component of economic development of a country is its people's state of health. In fact, there is the argument as to whether it is health that causes development or economic development causes health improvements. A healthy person cannot only work more effectively and efficiently but can also devote more time to productive activities. Therefore, health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity, (WHO, 2019). This definition has also been interpreted as the ability to a socially and economically productive life.

Some commonly used measures of population health status are;

Morbidity measures: This refers to the incidence of ill health or the state of being diseased or unhealthy within a population. The method of measurement is given thus:

$$\text{Morbidity rate} = \frac{\text{cases of disease occurring in a population in a given period x1000}}{\text{No of persons exposed to risk of developing disease in that period}}$$

Mortality measures: This refers to the number of deaths or incidence of death in a population. The method of measurement is given thus:

$$\text{Mortality rate} = \frac{\text{No of death in a population in specified period}}{\text{No of persons in the population in the specified period}} \times 1000$$

Life expectancy: This refers to the average number of years a human is expected to live (WHO, 2024; SSA, 2019). This is measured by applying age and specific mortality rates from the population under study to a hypothetical birth of 100,000 individuals.

According to world health organization (2020), many factors combine together to affect the health of individuals and communities. Some the factors include the state of one's environment, genetics, income, education level, access and use of health services. Higher income and social status are linked to better health. Therefore, the greater the gap between the richest and poorest people, the greater the differences in health of a nation. Also, low education level is linked with poor health, more stress and lower self-confidence. Physical environment also affects health. For example, safe water, clean air, healthy workplace, safe houses, and clean environment all contribute to good health. Another factor affecting health is genetics as it plays a part in determining lifespan, healthiness, and likelihood of developing certain illnesses. Personal behavior like balanced eating, exercise, smoking, drinking of alcohol, and how one deals with life's stress and challenges all affect health. Lastly, the use of health services that prevent and treat diseases affects health.

Furthermore, according to world health organization (2024), healthcare implies the provision of conditions for normal mental, physical development and functioning of the human beings individually or in a group. It includes health protection measures, promotion of health, prevention of sickness curative and protective medicine in all its ramifications.

According to the Cambridge dictionaries, expenditure is the total amount of money that government or a person spends. Therefore, healthcare expenditure is the amount spent on

health issues like health services (preventive and curative), family planning activities, and nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation (world Bank, 2020). Also, according to health department of Australia new south Wales (2024), health outcome can be defined as change in the health of an individual, group of people or population which is attributable to an intervention or series of interventions.

Two mortality indicators which are under-five mortality rate, maternal mortality rate and life expectancy are used in the context of this research work to represent health outcome. According to united nation children fund (2020), under-five mortality rate is the probability of dying between birth and exactly five years of age, expressed per 1000 live births. Also, according to world health organization (2024), life expectancy, indicates the average number of years a human is expected to live and this vary according to region and era. Furthermore, maternal death according to world health organization (2024), is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Therefore, maternal mortality rate is the lifetime risk of maternal death of women of reproductive age (WHO,2024).

2.1.1 Healthcare Financing in Nigeria

Health financing refers to the collection of funds from various sources (government, households, businesses, and donors) pooling them to share financial risk across larger population groups and using them to pay for services from public and private health care providers, (Obansa and Orimisan, 2023). The level of government expenditures in the Nigeria health sector over the years tells a story of neglect. Before the civilian government came into power in 1999, the annual government expenditures on health was $533.6 million in 1980 after which it dropped to a trough of $58.8 million in 1987. By 1999, significant increases in health expenditure were noticed, reaching a peak in 2002 at $524.4 million (HERFON, 2016, CBN, 2016).

The major sources of finance for the health sector in Nigeria are the three tiers of government (Federal, State and Local Government), the general public revenue accumulated through various forms of taxation, the health insurance institutions (private and public), the private sector (firm and households), donors and mutual health organizations. Public health facilities in Nigeria are financed primarily by the government through tax revenue. The federally collected revenue consist of crude oil and gas export proceeds, petroleum profit tax, royalties and the related proceeds of domestic crude oil sales/other oil revenues, companies' income tax, customs and exercise duties, value-added

tax (VAT), tax on petroleum products, education tax, and other items of independent revenues to the federal government. On the other hand, as part of the internally generated revenues, states have rights to capital gain tax, personal income tax excluding those on armed forces, (external affairs officers, residents of Federal Capital Territory and Nigerian police), stamp duties, capital transfer tax, pools betting and betting taxes, motor vehicle and driver licenses. Similarly, sources of internal revenue for Local Government Areas are license fee on television set, wireless radio and market and trading fees/licenses, (Obansa and Orimisan, 2023). According to them, the share of the Federal Government from the federal account has created a lopsided budgeting allocation amongst the three tiers of government and this has equally affected the allocation from lower tiers of government to the health sector. Therefore, there is a call for fiscal federalism; a situation that is believed will improve the situation.

In order to improve labor productivity in Nigeria, it will be necessary to address the root causes of the country's poor health status. This will require significant investments in health care infrastructure, including the construction of more hospitals, clinics, and other health care facilities. It will also require investments in education and training programs to help people learn how to prevent and manage diseases, as well as initiatives to improve sanitation, clean water access, and nutrition.

In addition to these efforts, it will also be necessary to invest in research and development to better understand the health challenges facing Nigeria and to develop new treatments and technologies to address those challenges. By investing in the health of its citizens, Nigeria can improve labor productivity and build a more sustainable and prosperous economy.

2.1.2 The challenges of Nigeria's health sector

Over the past decade, Africa's health care crisis has received much attention because of the greater awareness of the militating factors and a greater understanding of the link between health and economic development (Lowel et al (2020). The major factors that affect the overall contribution of the health system to economic growth and development in Nigeria includes lack of consumer awareness and participation, inadequate laboratory facilities, lack of basic infrastructure and equipment, poor human resource management, poor remuneration and motivation, lack of fair and sustainable health care financing, Unequal and unjust economic and political relations between Nigeria and advanced countries, the neo-liberal economic policies of the Nigerian State, Pervasive Corruption, Very low government spending on health, High out-of-pocket expenditure on health, Absence of integrated system for disease prevention, surveillance and treatment (Obansa and Akinnagbe, 2023).

The majority of health consumers in Nigeria are ignorant or unaware of available services and their rights regarding health service delivery. Also, the health system is plagued with 'out-of-stock syndrome', fake, substandard, adulterated, and unaffordable drugs. In addition to this, the drug distribution system is chaotic because of adherence to pharmaceutical regulations that need to be updated. Although this is very vital to the provision of quality service, yet provision of drugs and vaccines alone cannot build systems nor ensure quality of care without the appropriate facilities and materials for health workers to do their job (HERFON, 2006, FMOH, 2024, Travis et al,2024). Therefore, whenever health systems cannot deliver it leads to poor client satisfaction, which in turn makes clients to turn to private sector and unqualified health workers.

Over the years, poor remuneration of health workers has had an adverse effect on their morale for work and hence Nigeria being one of the several major health-staff-exporting countries in Africa. For example, 432 nurses legally migrated to work in Britain between April 2023 and March 2024, out of a total of about 2000 legally emigrating African nurses, a trend perceived by Nigeria's government as a threat to sustainable health care delivery (Lambo, 2024). Furthermore, Corruption has often manifested in Nigeria's health sector through the supply of fake drugs, substandard equipment's, willful misdiagnosis of diseases, sharing of unallocated budget funds, inflation of contracts, diversion of drugs, favoritism in treatment and appointments based on political patronage. (UNICEF, 2017).

Also, a formal minister of health, Adenike Grange was sacked in 2018 for her complacency in the sharing of N300 million unallocated health sector fund. It was also reported that Nigeria lost about £225 billion to corruption over the period and Nigeria's debt management office (DMO) also indicated that the country wasted US$300 billion during the period (World Bank and DMO, 2023).

2.1.3 Health Sector Reforms in Nigeria

Health sector reform could be defined as the fundamental change in policy, regulation, financing, provision of health services, reorganization, management and institutional arrangements which is led by government and designed to improve the performance of the health status for the population, (Regional committee, WHO African Region, 2019). Also, according to world health organization (1995), health sector reform is defined as a sustained process of fundamental change in policies and institutional arrangement guided by government, designed to improve the functioning and performance of the health sector and ultimately the health status of the population. Healthcare reform in all countries is characterized by a search for the right balance between cost and superior patient care and a nation's healthcare system and the reform issues it faces depend on a combination of factors unique to that nation (Robert, Gary, Gunther, Thomas and Frank, 2019). The reasons for reforms are to make healthcare accessible, equitable, affordable, cost effective and cost efficient. It also includes the reduction of the disease burden particularly due to

the malaria scourge, HIV/AIDS epidemic and various other communicable and chronic diseases in general (FMOH, 2024; FRN, 2024; NACA 2022). It is the responsibility of the government to provide the citizenry with accessible, affordable, qualitative, efficient and effective healthcare system. Against this background, the Nigerian government has adopted various health policies and reforms. Health reforms are designed to facilitate the achievement of stated health programme goals and objectives. More also, they are meant to help in strengthening the elements of the enabling environment for better health so as to make the implementation of health programmes achieve their objectives in terms of coverage, equity, efficiency and effectiveness.

Accessibility within healthcare system can be seen as the opportunity or ease with which consumers or communities are able to use appropriate services in proportion to their needs. Differences in access to healthcare can have far reaching consequences. Those denied access to basic healthcare may live shorter and more constrained lives and hence the primary cause of premature death. Therefore, accessibility in healthcare is central in the performance of healthcare systems around the world. (WHO, 2010).

Equity in health is defined as minimizing avoidable inequalities in health and its determinants including but not limited to healthcare, between groups of people who have different levels of underlying social advantage or privilege. Inequalities exist when there are disparities in health and its determinants that deemed to be avoidable, unfair and

unjust. The focus of equity in healthcare provision is to ensure that all people have access to a minimum standard of healthcare according to need and not any other criteria such as the ability to pay. Therefore, equity can be seen as equal access for equal need, where access refers to the absence of barriers mainly geographical and financial barriers, while needs refers to the capacity to benefit or severity of illness (Eyob, Joses and Mwase, 2017).

Efficiency in healthcare, measures whether healthcare resources are being used to get the best value for money. In other words, efficiency is concerned with the relation between resource inputs (cost in the form of labor, capital or equipment) and either intermediate outputs or final health outcomes. Decision makers are increasingly faced with the challenge of reconciling growing demand for healthcare services with available funds. Therefore, economists usually argue that the achievement of greater efficiency from scarce resources should be a major criterion for priority setting (palmer and Torgerson, 1999).

Affordability in health provision talks about the extent to which health care is within the reach of the least in the society. The least here connotes income and social status, and educational level. In other word the concept of affordability in healthcare provision implies that the cost of healthcare should be relative to the amount that clients are able to pay.

Lastly, Health care and quality are inextricable, therefore to provide health care services without concern for quality is unprofessional and potentially deadly. The Institute of Medicine (2019) defines quality in health care as the degree to which health services for individual or population increase the likelihood of desired health outcomes, and consistent with current professional knowledge. Quality of care means health services provided by every health worker benefit patients without causing harm. Quality of care demands attention to the needs of patients and clients, using tested methods that are safe, affordable and reduce deaths, illness, and disability (Offei, Bannerman, and Kyeremeh, 2024).

Therefore, a good health system must be characterized with the concepts of affordability, efficiency, equitability, accessibility if it's to bring about improved health status of the population which in turn could bring about economic growth and development as a result of their participation in economic activities.

Table 1: Nigeria Health Status Report

Year	Life expectancy at birth		Infant Mortality Rate	Total Mortality Rate	Neo natal Mortality Rate
	Male	Female			
1980	44.02	44.08	127.00	234.73	45.34
1990	44.51	44.67	126.20	231.87	45.88
2000	45.39	47.18	187.90	425.42	49.30
2010	50.16	51.57	133.90	392.53	38.80

2015	52.23	53.77	122.30	374.78	34.70
2020	51.97	53.47	117.20	377.19	34.76

(Source: World Development Indicator, 2023).

According to table 1 above, life expectancy has declined in recent years despite numerous health changes. This portrays Nigeria as a country with a high risk both for the male and female citizens. The average lifespan of a woman is somewhat longer than that of a man. This may be due to all the fact that the majority of males work in extremely unhealthy environments and experience significant levels of stress on a regular basis with little need for healthcare. The situation for women is different since they are more likely to work in the unorganized sector, notably in trading, where risks are lower.

Compares' of Life Expectancy in Nigeria

The adult survival ratio (ASR), presented as a percentage per 1,000 persons, represents the likelihood that a 15-year-old would live to be 60 years old. Bhargava (2021) claimed that a relatively moderate growth level and a wider perspective of health requirements regard to human development, particularly the creation of human capital, will likely cause the impacts of ASR to lessen. Index of Health (HI): By giving the LE index and ASR index equal weights, a composites dimension index is created.

The entire amount of output assessed in terms of GDP created per laborer engaged in its production is known as labor productivity. For a particular economic and social setting, labor productivity gives data on the effectiveness and caliber of human capital used in production, incorporating various auxiliary inputs and technological advancements. It is one of the indexes used to track progress toward achieving the 2030 agenda for

sustainable development goals of reducing hunger and extreme poverty and fostering sustained, inclusive, and long-term economic growth, full productive employment, and decent work for all due to its value in conveying important information about a country's labor market situation.

In the key statistical study of a nation, labor productivity is particularly significant among other productivity indicators like multi-factor production or capital productivity. As it provides a flexible indicator of an economy's growth, performance, and living conditions within an economy, productivity growth is a revealing indication of many economic indices. The key economic underpinnings required with both social and economic growth are explained by the measure of labor productivity (and everything that this measure considers) (OECD, 2021)

In Nigeria, the labor force represents 33% of the total population (NBS, 2016). According to Umoru and Yaqub, the labor force can increase production and growth, making it a valuable resource (2023). Additionally, a nation's economic prosperity is significantly influenced by its health capital. This is because people's health has an impact on both economic growth and labor productivity. Healthier people put in longer hours at work, make more money, and consequently save more money, which in turn increases capital formation. Of unhealthy individuals, this cannot be said. Tompa (2022) further argued that, at the personal level, health can train and developing general production through

improved physical energy and intellectual ability, less illness, or higher lifespan, leading to a longer career. Those same personal increases in output may result in rises in labor productivity when taken as a whole. The International Labor Organization's (ILO, 2017) perspective concurs with the viewpoint of the OECD (2021). Therefore, according to ILO (2017), labor productivity is a key economic indicator for determining an economy's competitiveness, living standards, and overall economic growth in addition to social development.

According to the World Health Organization, the average life expectancy in Nigeria is just 53 years, which is significantly lower than the global average of 72 years. This low life expectancy is largely due to preventable and treatable conditions such as malaria, HIV/AIDS, and other infectious diseases. In addition to these diseases, non-communicable diseases such as diabetes, heart disease, and cancer are also on the rise in Nigeria, further contributing to the country's poor health status.

2.2 Theoretical Literature Review

Theory on Healthcare Production

The research of Grossman (1972) shows the early discussion of the development of health economics like a separate field. According to Grossman's analysis, two key variables—a person's baseline health endowments at birth and the intensity of healthcare needs—determine their health outcome. Grossman (1972b) added to this study by stating that

education level is a significant determinant in determining an individual's health state. Lleras-Muney (2022), who identified education as a crucial factor in the creation of health outcomes, supported Grossman's position. According to an assessment of this idea, health status actually depends on a variety of factors, including environmental quality, maternal lifestyle, and nutrition as well as education, baseline health endowment, and healthcare demand. This theory might have been more comprehensive if it considered these elements as predictors of health status. Regardless matter how effective this hypothesis was, it provided the framework for subsequent theoretical and empirical research.

Human Capital Theory

Human capital is "a basic source of economic output," according to Romer (1990). Human capital is "a decision to invest that individuals make amongst themselves to boost their output," according to Rosen (1999). The costs of private healthcare spending by private individuals is explained by this theory, considering the fact that better health increases labor productivity. Health is one such investment and is a good that requires a lot of labour. It is impossible to overstate the value of human capital in driving economic progress; a healthy population equals higher productivity, which leads to more income per person. This argument is based on the health driven hypothesis, which views investments in health as capital since they can boost labor productivity, raise incomes, and ultimately improve population well-being.

Solow Human Capital Model

According to the Solow model, increases in gross domestic product (GDP) and physical capital are related to increases in labor productivity. Increased health spending per employee, which rises as a result of an increase in worker wage rates, drives growth in labor productivity.

Solow Production Function

According to the Solow production function, both physical and human capital influence output.

The formula for calculating the overall human capital stock is $H_t=h_tL_t$, where h_t stands for labor productivity per worker and L_t for the entire labor force.

Solow growth model

This model says that a full labor force and a rise in capital accumulation increase the economic growth rate. This model determines a country's ratio of capital to its labor.

The Theory of Income and Health Expenditure

Economic growth's impact on the populace is more obvious and simpler to understand since health spending is a consequence of one's income, it rises when income levels do as well.

Furthermore, because health equals wealth, wealthier people tend to spend a bigger percentage of your disposable income on high-quality nutrition and healthcare, which improves their health status (Bloom and Canning 2008). Health theoretically influences both human capital and labor productivity. Therefore, increasing income levels should be the result of health expenditures as health investments. Maintaining excellent health status and implementing health policies that improve the effectiveness of the delivery of healthcare should be priorities for the Nigerian government.

Nutrition Theory of Health Outcome

Mckeown (1976) discovered the influence of nutrition on health status in a different investigation. They contend that a person's health status is determined by both the demand for healthcare and the caliber of the food they consume. As opposed to the wealthy who have a balanced diet, people with low levels of incomes tend to eat a less balanced diet. Accordingly, those who eat a balanced diet tend to be healthier than the impoverished, which prefer either of the carbohydrates that lead to kwashiorkor. This theory's strength comes from its identification of the relationship between household income inequality and the nutritional worth of the family.

Environmental considerations, such as having access to clean water and sanitary facilities, were ignored. According to Rosenzweig and Schultz (2023), the mother's lifestyle has an impact on the newborn's health. According to their research, the pattern of reproductive

intake and associated lifestyle factors, such as exercise, has an impact on the health endowments of the newborn. The overall thesis of this study corresponded with the findings of Grossman (1972), as it recognized that at birth, that same degree of health endowment was possessed. However, this investigation was the first to acknowledge the significance of mother health in influencing the child's health. It surpasses Grossman's idea because, unlike Grossman, it was able to explain the health status endowments at birth by pointing to maternal lifestyle.

2.3 Empirical Review

Unquestionably, there may be a two-way causation between health expenditures and income, according to a study by Devin and Hansen (2021) that examined the (Grange) correlation between health expenditure and GDP. Bloom and Canning (2020) found that healthy people tend to live longer and are motivated to reinvest in their abilities, increasing the value of their human capital. They used education as an intermediary component to explain the directions of the causality. This thus has a favorable impact on income. If this model is accurate, it suggests that countries with higher incomes will have greater overall expenditure. Earnings which consistently accounts for around 90% of the difference in real health spending across nations and time, is a key factor in deciding how much a country spends on healthcare. A systemic level income effect of this model's most

recent estimations is typically around 1.0, which suggests that changes in health spending follow changes in GDP.

Ogundipe and Lawal looked at the effect of health spending on Nigeria's economic growth on an equal basis. They both used the OLS in the same way. They found that total health spending had a negative impact on growth, which is the opposite of what Bakare and Sanmi in Nigeria found.

Lethan (2024) observed that households were compelled to seek private health services due to the government's meager support for the healthcare sector. In their 2023 study, Rivera and Currais examined the impact of health investments on productivity as a significant factor in the development of human capital. The authors found a correlation between rising income and health spending.

In a similar vein, Dauda (2021) investigates the relationship between health spending and economic growth for Nigeria from 1970 to 2020 using descriptive statistics, the Johansen co-integration technique, and error correction model (ECM). The author suggests that while health spending is highly significant, the co - efficient of the second and third lags are statistically significant in the opposite direction. The results of error correction model are statistically significant and have predicted negative sign with a 40% coefficient suggests a 40% rate of adjustment Chete and Adeoye once more (2022).

In an effort to determine whether health is a factor in determining economic activity for European nations, Ulman et al. (2017) found that, generally speaking, declining health status increases the likelihood of remaining physically inactive and that, when analyzing the order of relevance of economic activity determinants, health-related factors emerged as being more significant. When researching the relationship between health and economic growth, Bloom et al. (2021) discovered that being in excellent health has a favorable, sizeable, and significant impact on total output. The study concluded that education does not provide any externalities after taking other factors into consideration, such as differences in educational attainment.

In Turkey, Dogrul (2015) looked at the impact of health on labor force participation. The outcome reveals that health has a positive and significant impact on all age-gender groups' labor force participation. However, the impacts are more pronounced in younger women and older males. The study also found that being in the labor force significantly improves health for younger males and significantly worsens health for older women, confirming overfitting for younger men. As mentioned above, a recent research by Ulman (2017) verified the findings of this. Eneji et al. (2023) showed that public health expenditure is a significant factor of health status, productivity, and poverty reduction in Nigeria after analyzing the relationship between health care expenditure, health status, and production patterns in Nigeria from 1999 to 2022. A further analysis by Bloom et al. (2023) found a

positive and substantial relationship between health and overall output using macroeconomic data from several nations. This conclusion is in line with their earlier studies, which drew on the aforementioned primary and microeconomic data. The findings of a previous research by Tompa (2022) on the scientific evidence and policy implications of the impact of health on labor productivity are consistent with this result.

Improvements in longevity and well-being are no longer seen as merely a result or through of economic development, but rather as a critical indicator of development and a means to alleviating poverty, according to Husain (2019) in his survey and outline of the input of health to economic development. Therefore, steps to lessen the burden of diseases, to provide children with healthy childhoods, and to raise life expectancy will help to create a wealthier economy rather than waiting for an improved economy.

Sengupta (2017) found that the infant death rate, inadequate nutrition, malaria and tuberculosis deaths, and diarrheal instances emerged as the main factors which affect the various components of the labor market, including the output of each worker, vulnerable employment, and also the job levels of participation. Umoru and Yaqub (2023) discovered that health private investment is a key driver of labor productivity after conducting an empirical analysis of manufacturing output and health capital in Nigeria. Additionally, it was noted that the capital-labor relationships for education and health have a big impact on labor productivity. A lot of literature has been written about the connection between

human capital, including health and education. This is due to the importance of human capital in attaining sustained economic growth. In this vein, Onisanwa (2024) used quarterly data from 1995 to 2023 to assess the effect of wellness on economic growth in Nigeria. According to the study, per capita GDP and health indices both have a favorable long-term impact on economic growth. This supports the long-term association between growth and health indices. This outcome supports Riman and Akpan's (2020) findings that there is a long-term correlation among poverty and one's health status in Nigeria.

"Improvements in health and longevity are no longer seen as merely a result or by-product of economic development, but rather as a key determinant of development and a means to economic development and poverty reduction, according to Husain (2019) in his survey and brief summary of the contribution of health to economic development. Therefore, steps to lessen the burden of diseases, to provide children with healthy childhoods, and to raise life expectancy will help to create a wealthier economy rather than waiting for an improved economy. In an effort to compare the health of four income group countries—high salary, upper moderate - income, low middle income, and low-income groups countries—Singh and Das (2015) discovered that the health of high earning group countries is stronger than that of the other three high income countries, with lower middle-income group nations coming in second. However, there is a lot of variation in the health index among nations in the upper middle-income range, and their mean health index value

is also considerably lower than that of countries in the middle- and lower-income range. The study also demonstrated that a country's health status is positively impacted by its economic development and level of educational achievement. The slight influences of a change in health status over the long run range from 2.6% in growth accounting models to 8.3% in "a la Barro" regressions, according to a more recent study by Monterubbianesi et al. (2017) that looked at new evidence of the relationship between health status and economic growth. This demonstrates that factors affecting health have a big impact on the economy. An important factor in a nation's ability to prosper economically is its health. Expanded advantages of better health include accelerated economic growth. A crucial component of human capital and a key input in growth and development is health. Economic advantages will come after we have a healthy population.

, Musgrove (2019) found no evidence that total spending on health has any impact on child mortality. Also, Filmier and Pritchett (2019) found that government health expenditure accounts for less than one-seventh of one percent variation in under-five mortality across country, although the result was not statistically significant. They concluded that 95 percent of the variation in under-five mortality can be explained by factors such as: a country’s per capita income, female educational attainment, and choice of region. Also, using a model similar to that of Filmer and Pitchett (2019), Wagstaff and Cleason (2024) showed that good policies and institutions (as measured by the World

Bank's Country Policy and Institutional Assessment or CPIA index) are important determinants of the impact of government health expenditures on outcome. In particular, as the quality of policies and institutions improves (as the CPIA index rises), the impact of government health expenditures on maternal mortality, underweight children, under-five and tuberculosis mortality also increases and is statistically significant.

However, they conclude that the impact of government expenditures on under-five mortality remains not significantly different from zero.

In a related study, Bokhari et al, (2023) provided econometric evidence linking a country's per capita income to two health outcomes: under-five mortality and maternal mortality. Their findings show that, the elasticity of under-five mortality with respect to government expenditures ranges from -0.25 to -0.42 with a mean value of -0.50. According to the authors, for developing countries, the result implies that while economic growth is certainly an important contributor to health outcome, health is just as important, as government spending on a factor. To compliment the above, Kamiya (2020) examined the determinant of health in 14 developing countries using GMM to estimate the determinants of under-five mortality rate with a cross country of 141 developing countries. The empirical results show that GDP per capital and access to improve sanitation have statistically significant in reducing child mortality while health factor which are measured

by government health spending, immunization coverage and physician density do not significantly impact on child morality reduction.

Furthermore, Reman, Bassey and Edu (2021) examine health care expenditure in Nigeria; does the level of government spending rely matter for the period which spanned between 1980 to 2020, employing cobb-douglas production and ordinary least squares method of analysis. They found that life expectancy and literacy rate were negatively correlated with health care expenditure both in the short and long run, income elasticity of health care expenditure was below unity both in the short and long run. This shows that health care expenditure is income inelastic and concluded that health is a necessary good in Nigeria. They recommended that in order to improve the health status of Nigerians, government needs to increase funding of health sector and reduce the inequality in the budgeting distribution of health expenditure.

The above view was shared by Olayinka et al. (2023), drawing from their result in a paper on health expenditure and health status in northern and southern Nigeria. They concluded that in the light of low income of majority of the people, especially in the north, stewardship role of the government has to increase in terms of funding healthcare, if the health status of the populace is to improve. However, they are apt to note that without government being directly involved in the provision of healthcare services, attempt should be made to subsidize the private sector and increase regulatory capacities (institutional

quality) to improve the overall availability and accessibility of health services to the citizenry.

Confirming the above, Imoughele, (2023) empirically examined the determinants of public health expenditure in Nigeria. Using the error correction techniques and time series data from 1986 to 2010, the results show that demand for health in Nigeria is price Inelastic.

Further in their studies, they concluded that total population of children that

falls within the age of 14 Years and below and health expenditure share in gross domestic product (proxy for government developmental policy on health) are the major determinants of health expenditure in Nigeria. To this end, the study recommended that to make government health expenditure to have a robust effect on Nigerians health status and meet WHO recommended budgetary allocation to the sector, Government Budgetary allocation to health sector should be increased to the prescribe of 15% of its annual budgetary allocation to the health sector.

Furthermore, Omotor (2019) examined the determinants of federal government health expenditure in Nigeria for the period of 1970 to 2018. The results suggest that health expenditure in Nigeria is income inelastic (0.475) and positive. The implication is that health expenditure in Nigeria is a necessity rather than a luxury. Similarly, Bassey, Jude,

Bassey and Enya (2020) studied the relationship between levels of government health care expenditure and health status in Nigeria for the period of 1980 to 2019. The results have it that life expectancy is negatively correlated with health care expenditure both in the short- and long-run, income elasticity of health care expenditure is below unity both in the short and long-run. Asokhia and Okojie (2021) studied the effect of female literacy on maternal mortality in Nigeria. The study also estimated the magnitude effect of other socio-economic variables on maternal mortality employing cointergration techniques in the analysis of data. The result reveals that female literacy rate has inverse and significant impact on under-5 mortality rate which implies that maternal education is vital to health outcome in Nigeria. Hospital bed also shows a significant impact while government health expenditure and poverty does not have a robust relationship with under-5 mortality rate in Nigeria. Bidani and Ravallion (2019) in their study applied a cross-section regression analysis, disaggregating health outcomes indicator as an additional explanatory variable. Their results suggested that per capita health spending was positively related to the life expectancy of the poor, but it had no significant link to the life expectancy of the rich. As a robustness check, a similar result was found when a different poverty cut off point was used. From the results, it is evident that public health spending had a larger impact on life expectancy and infant for those living on less than $1 a day as compared to the results focused on poor people defined using the $2 a day as poverty line. In his own view, Patricio (2018), looking at health outcomes in Russia operating through institutional

efficiency, his results suggested that health outcomes in Russia are similar to countries, which spend 30–40%, less on health which suggests considerable inefficiency in the Russian health system. A second implication of the findings of this report is that in order to improve health outcomes, as well as needs for additional resources for healthcare, should be accompanied by reforms to improve efficiency and effectiveness of healthcare organization and delivery."

2.4 Gaps in the Literature Review

There have been previous studies done to look into the connection between health spending and economic growth, however none of them looked into the effect of private health spending on labor productivity, leaving a gap that this study aims to fill.

i. None of the country study show how private health expenditure impact on labor productivity but this study will do
ii. The study will also show how improving health status promote and maintain economic growth in Nigeria
iii. Finally, the study also show how Nigeria's economic progress depend on healthy people

CHAPTER THREE

Theoretical Framework, Model Specification and Methodology

3.1 Theoretical framework

The theoretical framework is built on Grossman demands for health (1972), the need for health is seen by Grossman as a desire for capital commodities. The formula for this is Health Stock (H-1) - depreciation plus investment in Health (I). The model aims to clarify how the effectiveness of investments in health will affect the rate of H (health) production (health). The approach is based on the human capital theory, which demonstrates how people invest in themselves to boost their output, such as through education or training. The optimal point for spending on health (demand for health expenditure), as determined by the Grossman demand for health model, is shown below;

"Marginal benefit = rate of return = (W*G)/C where;

W = wage rate,

G = marginal product (rate of return) of health investment which is subject to diminishing MR,

C = direct cost of investment in health,

This is the 'marginal efficiency of capital' (MEC)"

3.2 Model Specification

$LAPRRA=\beta_0+\beta_1 PRHEEX+\beta_2 MAMORA+\beta_3 LIRA+\beta_4 GDPPCI+\varepsilon$

Where;

LAPRRA = Labor Productivity Rate

PRHEEX = Private Health Expenditure

MAMORA = Malaria Mortality Rate

LIRA = Literacy Rate

RGDPPC = Gross Domestic Product per capita income

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ are parameters of the regression equation.

ε is the disturbance term.

3.3 Methodology

‘‘The Augmented Dickey-Fuller test, the Z-test, the Philip Oualiaris co-integration test, and the Adjusted R2 Test are some of the well-known strategies utilized in the estimation of this model.

3.4 Sources of data

(GDPPCI), Malaria Mortality Rate (MMR), literacy rate (LR), and Private Health Expenditure were used to cover the period under study.

VARIABLES	DESCRIPTION	SOURCES
Labor productivity rate	It is total output divided by the number of labor force	International labor organization (ILO,2018)
Gross domestic product per capita	Real Gross domestic product of the country	Central bank statistical Bulletin (CBN,2018)
Literacy Rate	Secondary school enrollment is the proportion of the population of the official age for secondary education according to national regulations who are actually enrolled in secondary schools.	World development indicators (WDI)
Malaria Mortality Rate	Measure the prevalence of malaria.	World health organization website (WHO)
Private health expenditure	Individual out of pocket spending on health care	World development indicators (WDI)

The several data sources are included in Table 1 along with a brief description of each one.”

CHAPTER FOUR

DISCUSSION OF RESULTS

The empirical results of the investigation are presented and discussed in this chapter. In the course of this research, various statistical approaches like the Unit Root Test, Co-integration Test, Normality Test, and Error Correction Model are all applied. As we move further with this study, we will talk about the pertinent themes that are included in these chapters

4.1 Descriptive Statistics

In Table 4.1 below, all the variables utilized in this exercise's summary statistics are shown and discussed. In more detail, the Jarque-Bera values, standard deviation, skewness, kurtosis, minimum and maximum values, mean, median, and minimum and maximum values are all given. Table 4.1 below also list the Jarque-Beta statistics and corresponding probability

Table 4.1: Descriptive Statistics

	LAPRR	LIRA	PRHEEX	MAMORA	RGDPPC
Mean	-0.055141	4.028972	4.211263	-0.042229	8.286199
Median	0.000471	4.015482	4.217299	-0.016261	8.126223
Maximum	0.344270	4.276666	4.327834	0.722309	8.797851
Minimum	-2.251533	3.891820	4.096343	-1.506568	7.972466
Std. Dev.	0.412775	0.099474	0.070290	0.436279	0.268891
Skewness	-4.707461	1.041590	-0.166141	-1.912638	0.643940
Kurtosis	25.89549	3.597544	1.832799	8.748410	1.845903
Jarque-Bera	842.6610	6.457960	2.025057	65.55580	4.112039
Probability	0.000000	0.039598	0.363299	0.000000	0.127962
Sum	-1.819653	132.9561	138.9717	-1.393549	273.4446
Sum Sq. Dev.	5.452255	0.316642	0.158102	6.090866	2.313674
Observations	33	33	33	33	33

Source: Author's Computation using E-Vi

4.2 Unit Root Test

The majority of time-series variables in literature are non-stationary, therefore include them in the model run the risk of producing inaccurate conclusions (Granger and Newbold, 1977). The Augmented Dickey Fuller (ADF) test for unit root was performed to confirm the stationarity Level of the data series used in this investigation. The null hypothesis of non-stationary is the core component of the ADF test. The ADF statistic ought to be greater than the crucial values and significant in order to reject this. The findings showed that every variable under study became stationary at the first difference. As a result, the variables show a shared stationary status at the initial difference. All of the model's variables are integrated variables that achieved stationary after the first difference.

Table 4.2: Augmented Dickey Fuller Test for the used variables

Variables	**ADF Test Statistic**	**ADF lag length**	**ADF Critical values**		**Remark**	**Order of Integration**
			1% level	**5% level**		
D(LNLIRA_)	-6.347473	0	-3.670170	-2.963972	Stationary	**I(1)**
D(LNLAPRRA)	-4.122209	0	-3.670170	-3.670170	Stationary	**I(1)**
D(LNMAMORA)	-14.45107	0	-3.653730	-2.957110	Stationary	**I(1)**
D(LNPRHEEX)	-7.551075	0	-3.653730	-2.957110	Stationary	**I(1)**
D(RGDPPC)	-4.630627	0	-3.646342	-2.954021	Stationary	**I(1)**

Source: Author's Computation using E-Views 8

4.3 Co-integration Test

The co-integration test was carried out to account for the lack of linear trends; it checks whether there is a long-run relationship among the model's variables, which is crucial for the formulation of policy. The residual recorded by the ECM and ADF Cointegration test results are shown in table 4.3 below.

Table 4.3: Philip Oulairis Co integration Test

Variables	Tau-statistic	Prob.*	z-statistic	Prob.*
RGDPPC	-2.004943	0.9420	-6.991454	0.9622
PHE	-3.552426	0.3678	-16.23237	0.4937
MMR	-16.30446	0.0001	-39.22498	0.0005
LPR	-2.745921	0.7313	-32.80285	0.0079

Source: Author's Computation using E-Views 8

The probability values of the z-statistics provided by the co-integration test results provided proof of a co-integrating relationship. The decision rule specifies that if the related probability value(s) is/are less than 0.1, we reject the null hypothesis of no co-integration (10% significant level). The outcome shows that the model contains two co-integration equations. This demonstrates that the variables have a long-term connection.

Table 4.5: Parsimonious Error Correction Estimates

Dependent Variable: D(LPR,1)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.015812	0.008647	-1.828533	0.0805
D(LTR_,1)	0.155420	0.020290	-7.659895	0.0000
D(MMR,1)	-0.024323	0.001566	15.52949	0.0000
D(PHE,1)	0.050991	0.103406	0.493117	0.6266
D(GDP,1)	-0.382389	0.258734	-1.477920	0.1530
ECM(-1)	-0.0408573	0.005399	-260.8754	0.0000
AR(1)	-0.088188	0.091325	-0.965648	0.3443
MA(11)	-2.217259	0.106486	-20.82202	0.0000
R-squared	0.772303	Mean dependent var		-0.072726
Adjusted R-squared	0.703005	S.D. dependent var		0.440279
S.E. of regression	0.239940	Akaike info criterion		0.200781
Sum squared residual	1.324138	Schwarz criterion		0.570842
Log likelihood	4.887899	Hannan-Quinn criter.		0.321411
F-statistic	11.14452	Durbin-Watson stat		1.854912
Prob(F-statistic)	0.000004			

Source: Author's Computation using E-Views 8

4.5 Interpretation of the Parsimonious Error Correction Estimates

According to the modest findings presented in Table 4.5 above, literacy rate has a positive and significant impact on labor productivity rate with such a coefficient of 0.15. The results explicitly demonstrated that a one percent increase in literacy rate, ceteris paribus, will result in a 0.15 percent increase in labor productivity rate, and vice versa. The independent rate of increase of labor productivity rate is -0.01, denoting that, when all the independent variable in the estimated model are ‘ steady, labor productivity rate will retain a symptoms of depression index of about 0.01% and this is also statistically relevant as displayed by the t-value and its probability value of 0.08 (10% significant level)

The mortality rate from malaria has a coefficient of -0.02.It suggests that a 1% rise in malaria mortality rates in Nigeria will result in a 0.2% decline in labor productivity rates. From the result, the co - efficient of private health expenditure is statistically significant, hence, there is a clear link for both private health expenditure and labor productivity rate. The co - efficient of real GDP per capital demonstrates that 1% increase in the level of real GDP per capital in Nigeria would therefore cause labour productivity rate to decline by 0.38percent. This same result further fulfilled our Apriori expectation excluding the coefficient of real gross domestic product per capital which is contradictory to our expectations.

According to the coefficient of determination (R^2), the relevant action of the explanatory variables accounts for about 77% of the variability in the explanatory variable (labour

productivity rate), while the rest 23% is caused by other variables that are included in the non - gaussian disturbance term.

4.6 Policy Choices

Manpower development must receive emphasis if higher output expansion is to be achieved.

Even if there is an abundance of labor in the nation, it lacks the fundamental qualities needed to meaningfully contribute to economic progress. In order to retool Nigerians in line with the existing trends in skills nationally for greater productivity, it will make sense for both the private and governmental institutions to spend so much on the education sector. Furthermore, it is important to maintain the current increase in healthcare services brought on by a stronger national health strategy.”

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

According to the research, private health spending is one of the key pillars that is essential for the growth of human capital when improving labor productivity effectiveness. The ECM was used to analyze time series data from 1980 to 2024 from the World Bank and National Bureau of Statistics. According to empirical data, the short-run labor productivity imbalance is rectified by around 4% per period, and at a 1% significance level, it is statistically significant. The results also show a negative relationship between malaria death rate and labor productivity rate, which was shown to be positively significant at a 1% level.

Additionally, it was discovered that private health spending was favorably correlated with the rate of labor productivity. Labor productivity rate was found to be inversely correlated with real GDP per capital.

5.2 Conclusion and Recommendation

According to this study's empirical findings, better health in Nigeria fosters economic growth. This is because a country's population will be more productive and able to work for longer hours if they are in better health. In Nigeria, labor is not a key determinant of growth. This viewpoint is in opposition to the neoclassical growth model. This

observation and conclusion that the Nigerian economic phase has not been driven by labor productivity thus far is supported by the country's clear depth in quality manpower and low level of education. Growth in Nigeria is encouraged by investments in tangible capital. It is therefore strongly decided that policies aimed at promoting Nigeria's economic expansion should place a greater emphasis on personnel development by enhancing educational standards and continuously retraining the labor force in a variety of skills.

According to the values of the variable's coefficients, Real GDP per capita has the greatest influence on labor productivity, demonstrating that higher labor productivity is linked to higher production per worker. The largest positive influence on labor productivity is the literacy rate, leading us to the conclusion that educated people have a greater positive impact on labor productivity than uneducated people. Although lower than the literacy rate, private health expenditure (PRHEEX) has a favorable impact on labor productivity; hence, increased private health expenditure results in higher labor productivity output. Malaria mortality rate (MAMORA) has a negligibly little impact on labor productivity, demonstrating that changes in labor productivity are not primarily caused by malaria-related deaths.

The research suggests the following policy measures;

- ✓ To thwart flaws and difficulties in the healthcare industry, the national assembly should examine health policies every year.

- ✓ To encourage workers to save and invest more, the government should offer insurance plans.
- ✓ To boost labor productivity, our educational system should include courses on skill development and training.
- ✓ To enhance worker health and enhance their productivity, there should be greater consumer awareness of and involvement in health.
- ✓ Strengthening malaria prevention policies and programs. Malaria prevalence continues to be one of the worst disease burdens afflicting Nigeria, according to Sachs.
- ✓ There is a pressing need for the creation and implementation of policies that will improve access to affordable treatment for malaria, particularly for the most vulnerable groups, given that the cost of treating malaria in Nigeria is far beyond the way of the lowest income group and given the reality of recurrent malaria outbreaks and their contributions to low labor productivity. With the introduction of the more costly biosynthetic pathway combination treatments (ACT) in Nigeria, this is especially critical.
- ✓ Therefore, there should be more effort put into fighting malaria in Nigeria.
- ✓ To lessen the burden of out-of-pocket medical expenses, the government should enhance public health spending.
- ✓ Nigerians should make efforts to raise its life expectancy rate.

- ✓ Nigeria has a relatively low life expectancy rate, which is caused by economic hardship, political, religious, and civil upheaval. This country also has a very low expectancies rate at birth. The Nigerian government should make policy investments in lowering living expenses, raising standards of living, and putting an end to all forms of instability, especially the Boko Haram conflict. The application of macroeconomic policies is necessary to address persistent exchange rate depreciation, high levels of inflation, and long-term unemployment.
- ✓ The government should provide funds to healthcare organizations so they can upgrade their buildings and infrastructure.

5.3 Suggestion for further Research Areas

The list of factors looked at as determinants of labor productivity are not complete. There are a number of non-health factors that can affect labor productivity but weren't considered in this study. The computed coefficients may be biased if these factors are left out. Therefore, we recommend that additional research be done to look at the impact of political stability, environmental quality, and climate change, such as the amount of rainfall per month, on labor productivity.

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