

## **INCOME INEQUALITY AND HEALTH STATUS IN NIGERIA: IMPLICATIONS ON ECONOMIC GROWTH**

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### **ABSTRACT**

*This study examined the long run effect of income inequality and health status on economic growth in Nigeria between 1992 and 2022. Time series data for thirty one years were used while the authors employed Johansen Co-integration test as an estimating technique to evaluate the data based on the nature of the variables. The outcome of the findings revealed that income inequality has a significant negative effect on economic growth. It also revealed a statistically significant positive relationship between government healthcare spending and economic growth in Nigeria. Furthermore, capital formation, life expectancy and labor force on the other hand, revealed a significant positive effect on economic growth. As a result, this research suggests that governments should reduce the high level of income inequality through job creation and fiscal policies, increase their public expenditure on health and ensure all factors of production are employed and encourage inclusive economic growth.*

**Key Words: Income Inequality, Health Status, Gini-coefficient, Co-integration, Economic Growth.**

### **1. Introduction**

Over the years, it has been revealed that there can be economic growth without economic development. There may be a rise in the gross domestic product (GDP) of a developing economy, but majority of people may not have seen any real improvements in their living standards and lack access to good health facilities. With rise in the gdp, greater percentage of people still lives in poverty, and with high rate of unemployment, infant mortality, malnutrition, and low human development. This is because only a small portion of the

population stands to gain from economic growth. Nigeria's real economic growth rate has been rising steadily for some time, but this growth has been characterized as "non-inclusive" due to the country's persistently high rates of poverty and inequality as well as the steadily declining human development indices. (Effiom & Edet, 2019).

It has been established that the distribution of income, predominantly in less developed countries are inequitable. The concentration of economic power and the wealth of the nation are dwelling in the hands of a small group of people known as the elites, has harmed the poor and oppressed. Nevertheless, both developed and developing countries globally are affected by this problem of income inequality. This unequal distribution may result in increased hardship, increase in the number of perpetrators, psychological problems, social unrest, and a rise in the living cost for many. Following the global financial crisis of 2008 and the post COVID19, which revealed the economy's vulnerabilities, there was a rise in awareness of income inequality. Less people in the economy have access to the majority of economic opportunities, which is indicated by rising income inequality. Only 5% of the population in Africa is said to hold the majority of the economic wealth, and the combined wealth of this five percent rich people is estimated to be around \$29.9 billion or more than 80% of the entire resources, and it has the potential to end extreme poverty in the country. (Ezeani, 2021). There is a general concern that the benefits of the economy are not fairly distributed and that the current financial crisis has only widened the wealth gap. This analysis indicates that about 95% remaining population share just 20% of total continental resources.

However, Africa remains overwhelmed by unequal income and wealth distribution despite the impressive growth seen in recent years. Based on the United Nations Development Programme 2017, Africa is among the most unequal continent worldwide, it is the second-most unequal region, just behind the Caribbean and Latin America. Researchers have attempted to identify some of the factors that affect the persistence of income inequality as well as propose policies to address the issue, these include creation of more jobs, provision of socio-economic infrastructures among others. In addition to national government and their developmental agencies, the United Nations Sustainable Development Goals (SDGs) and twin goals for 2030 by the World Bank Group which aims at reducing abject poverty and promotion of shared prosperity in every nation.

Health status and well-being are important and significant factors that influence economic growth. The state of a nation's citizens' health is a crucial sign of how their standard of living has changed. (Ercelik, 2018). Since 1950, there has been significant progress in the advancement of health in Nigeria, the private sector had greatly been involved in the provision

of health services, especially at the Cottage and primary health units. One cannot overstate how important it is for any country's economy to have a healthy population. Improved health may have a direct effect on economic expansion through augmented labor productivity. Individuals who are in good health have higher labor input returns. Achieving decent work and inclusive economic growth requires good wellbeing and healthy workforce (SDG 3 & 8). Furthermore, workers who are in better physical and mental health contribute to economic growth by boosting labor productivity.

Nevertheless, the COVID 19 pandemic exposed the bad state of the healthcare system in Nigeria, especially the bad state of equipment and the scarcity of medical manpower which resulted in a significant decrease in hospital services. Recognizing that the pandemic strained the health system to the point where it was no longer capable of providing safer and more effective health care services (Olamide and et al 2021). Additionally, malaria is a major health threat in Nigeria, malaria is one of the major leading cause of maternal mortality and poor child development, according to the World Health Organization, both problems constitute significant evidence of poor health life in West Africa. With over 900 deaths per 100,000 live births, Nigeria has the third-highest rate of maternal mortality on the continent. (Doris, 2022). Knowing that the country's health care system is deficient on a global health care index, Nigeria ranks 187th out of 195 countries with regards to health care delivery. Government uses public funds to provide healthcare services in an effort to improve citizen health and enable them to significantly contribute to the nation's economic growth and development. In theory, good health should boost growth by raising human capital output because it can enhance an individual's human capital and thus support economic growth. Higher productivity results from a healthy population, which raises income per head.

The Nigerian economy has long been regarded as the largest in both West Africa and all of Africa, with an abundance of numerous human resources, capital, and natural resources and a \$432 billion GDP as of 2020. (World Bank Data, 2020). The economy of the nation still has one of the highest income disparities in all of Africa, despite all of these achievements, this is due to the poor status of the populace whereas Mayah, Mariotti, Mere, and Odo (2017) predict that the richest individuals in Nigeria will have 42 years to prudently invest their wealth at one million naira. Furthermore, they assert that the income acquired by the richest individuals in the nation is sufficient to reduce the level of poverty for about 20 million Nigerians. The puzzling thing about Nigeria's high level of income inequality is that even though the country's GDP is steadily increasing, this growth isn't being seen in the economy of the country, as shown by the high level of income disparity and poverty. It is not a lack of resources that has

caused income inequality to rise over time in Nigeria, rather, it is an inefficient distribution of resources among the individuals who make up the economy. The nation's notable growth, which is concentrated at the top of the economy and among the wealthiest individuals while the majority of the population is left to fend for themselves and endure continued poverty, is the root of the paradox that still exists in the country. The poor treatment of the health workers which result in massive migration to other countries is adding another negative effect on health care delivery in Nigeria.

The Nigeria government focuses much on the establishment of hospitals and clinics in the urban cities, leaving the rural populace to travel far to the centers for medications, whereas, the rural population holds the economy power. Also, governments have been targeting economic growth without much interest on the widening income inequality non-inclusive healthcare delivery system. Hence, this study evaluates the effects of income inequality and the non-inclusive healthcare delivery system on the economic growth in Nigeria.

### **Concept of Income Inequality**

There are many different aspects of inequality, these include those relating to gender, health, wealth, opportunity, politics, and income, the concept of inequality cannot be fully understood or accurately measured. Simply put, inequality is the presence of unfairness and bias in opportunities, social standing, and the rights that belong to each individual (Afonso, LaFleur, & Alarcon, 2015). The term inequality is considered unfair and discriminatory, implying that one person is treated better than another. To reinforce the concept of inequality, it is simply the unequal treatment that individuals in a society receive that leave one better off than the other, and the more one individual is made better off, the worse the other individual is made.

To simplify the multifaceted aspect of inequality, the term "income inequality" consists of two key words: income and inequality. Income is simply the monetary compensation one receives for actively working or providing a specific good or service to organizations or other people. The income being considered here is income distribution, this is the share of national income distributed among members of society. With the nation's resources being distributed unevenly, there is a disparity among the members of a society, which makes one person richer than the other and widens the gap in living standards between individuals. An essential component of economic inequality is income inequality. Any economy with income inequality faces a host of additional issues, including social stratification between the upper and middle classes, an increase in poverty and mortality rates, health issues, a decline in the standard of living, and many other problems. The Gini coefficient, Theil index and Atkinson index are the three main indicators for measuring income inequality.

### **Concept of Health Status.**

Good health is a fundamental need and a human right for everyone. In the modern development environment, a society is assessed by the level of equitable health distribution among different social classes and the general state of the public health. Increased national wealth does not automatically result in development; however, there is a critical need for healthcare (Angus & Deaton, 2011). The state of complete physical, mental, and social well-being and the absence of disease or infirmity is used to define health. Also, being healthy refers to having a sound body, mind, and spirit, especially the absence of physical illness or discomfort. Health being a critical component of human capital does not only increase worker efficiency but also productivity. Economic growth in a nation is influenced by how well its people are doing. For daily tasks, a healthy body and mind are necessary, and a healthy person can enjoy life independently. While increased mortality has little impact in developing nations, it can increase economic growth in developed nations by up to 40% (Howitt 2005). A nation's population's health is a significant determinant of productivity because only a healthy labor force can significantly increase production and the level of national output. Higher productivity results from a healthy population, which raises income per head.

### **Economic Growth**

Economic growth is a function of the level productivity of goods and services in a country in a year, this shows the increasing rates of production of goods and services in an economy. The production function, a popular macroeconomics method for examining the causes of economic growth formed the theoretical basis for studying the growth rates. Such variables as employment, human capital accumulation, innovation, and technological advancement are the primary drivers of growth, they also allow us to know how income inequality affects growth, and how it discourages investment and has an impact on capital accumulation. In addition, the poor have higher rates of infertility and lower average levels of education, income inequality may also impede human capital growth. As a result, the rise in income inequality may have an impact on technological advancement, as there is a relationship between education and innovation that must be considered. Income inequality may also cause social unrest and income redistribution, affecting investment and preventing capital accumulation growth and finally the total effects on economic growth.

### **2.1 LITERATURE REVIEW**

Many researchers have produced a large body of empirical literature over the years, ranging their studies from the data collection instruments and their methods of analyses, these have actively contributed to the body of knowledge by producing a variety of findings and

recommendations for upcoming researchers, the academic community, policy makers, and the government. Castells-Quintana, Royuela, and Thiel (2019) examined the relationship between income inequality and sustainable economic development, using a cross-country panel data analysis of 117 nations from 1970 to 2010. Their findings indicated that the relationship between income inequality and economic development is strongly influenced by the level of development of the nation; for more developed economies, income inequality is positively correlated with level of development, whereas for low-income nations, increases in income inequality result in a lower level of sustainable development. In their study's conclusion, the authors explained how income inequality results in a low level of socio-economic development and a lower level of living standards for people.

In his contribution, Nwosa (2019) analyzed the relationship between economic growth and income inequality, and their impacts on the level of economic growth in Nigeria between 1980 and 2017. He used the auto-regressive distributed lag (ARDL) method to analyze time series data in his study. His findings revealed that Nigeria's sustained GDP growth may cause the gap between the upper and lower classes to widen, which would hinder economic growth and lower people's standard of living. To improve on the level of Nigerian economy, he advised the government to put more effort into implementing appropriate policies and plans to ensure that there is a reduced level of income inequality. A study on the effect of income distribution on state well-being was conducted by Bilan, Mishchuk, Samoliuk, and Yurchyk (2020). They examined the effects of income inequality on the welfare and economic development in European countries (EU) and Ukraine. Data were collected from the EU member States and Ukraine. The gini index was employed as a proxy for economic welfare. In their collinearity results, they discovered an inherent relationship between the Gini coefficient and the human development index, demonstrating to them that a fair or low level of income inequality in a country would lead to an increase in the level of economic development and its citizens' social well-being of the country. In conclusion, they showed that countries with a clear and organized approach to income distribution, like those in the EU, experience low levels of income inequality, which has a positive effect on economic growth.

Furthermore, FitzGerald, Williams, Field, Tikkanen, and Doty (2020) examined the effect of income equality in terms of access and affordability to primary healthcare delivery in eleven countries using the Wald chi-square test and Stata 14.2. They also examined income-related variations between adults around the world with respect to the lower and higher incomes earners healthcare status. According to the research, people in the study area performed relatively worse than those in other countries in terms regarding the affordability and access to

primary care among adults with lower incomes, and disparities related to income across domains are typically more pronounced.

Also, Yildirim, et al (2020) investigated the effect of healthcare spending on economic growth and for sustainable development in OECD countries. Their study aimed was to shed light on the relationship between healthcare expenditure and economic growth in OECD countries in the context of long-term development. For the panel threshold analysis, secondary data on such variables as fixed capital investments, inflation, and other variables were used. Although they discovered no threshold effect in clusters, the study still distinguished high and low health status (level) countries as two major clusters. It was discovered that increased birth life expectancy in those nations with better healthcare delivery had no significant effect on economic growth. The improvement in life expectancy at birth of countries with poorer health had a positive effect on economic growth.

Tibber et al (2021) investigated the sub-national relationship between income inequality and adult mental health. The study made use of the data from the PsycINFO and Web of Science database. In their analysis, they used a vote-count method to synthesize the data at the sub-national level to examine the relationship between adult mental health and income inequality. Their findings suggest that poor mental health is associated with localized income inequality. Akinwale (2021) examined economic growth, health spending, and life expectancy at birth in developing economies, focusing on Saudi Arabia and Nigeria. The work made use of autoregressive distributed lag (ARDL) model, error correction model, and granger causality, his research reveals that in the short run, both health spending and life expectancy positively influence Saudi Arabia's economic growth, while only health spending has a positive effect on Nigeria's economic growth. His findings support the notion that Saudi Arabia and Nigeria will experience growth driven by improved health. Because healthcare appears to promote economic growth, the governments of these economies must continue to strengthen the health sector through appropriate policies and funding.

Gongora-Salazar et al. (2022) studied the relationship between self-assessed health status and income inequality in Colombia. Their study utilized time series data from the National Quality of Life Survey spanning the years 2011 to 2019. The robustness of the Income Inequality Hypothesis (IIH) is evaluated using multinomial probit estimations. Even after adjusting for socioeconomic factors such as socioeconomic characteristics and individual income levels, evidence supported the IIH. The likelihood of reporting poor health appears to be correlated with income inequality across all income quintiles. In other words, the level or the rate of such a relationship is significantly reduced when inequality measures that are comparatively more

sensitive to differences in wealthy people's income were used. Olaniyi and Adekanmbi (2022) examined Nigeria's income inequality, health-care spending, and economic performance. The study employed the auto-regressive distributed lag (ARDL) estimation method within the 1990 and 2020 timeframe. The findings showed a significant positive relationship among the country's economic performance, health-care spending and income inequality. Furthermore, the findings showed that access to healthcare is not a luxury in Nigeria, but rather a necessity. In their contribution to literature, Ogunjobi and Olalere (2024) wrote on the effect of public health expenditure and human capital development on economic growth in Nigeria. Secondary data collected from the World Development Indicator and African Development Bank spanning from 1981 to 2021. Non-linear equation (VAR) was used to process the raw data. Variables used include gdp growth rate, public health expenditure, capital formation growth rate, secondary school enrolment, labour force, infant mortality rates and life expectancy rates. The result of the analysis showed that public health expenditure exerts insignificant positive effect on economic growth while secondary school enrolment exerts negative effect on economic growth in Nigeria. The study therefore recommended to governments to embark on appropriate policies to fund education and the healthcare sectors because the two sectors are the two important variables of human capital.

## **2.2 Objectives of the Study**

The main objective of the study is to examine the effects of income inequality and health status on economic growth in Nigeria. However, the specific objectives are to:

- examine the long-run effect of income inequality on economic growth
- evaluate the long-run impact of government expenditure on healthcare on economic growth.

## **3. Methodology**

### **3.1 Theoretical Framework**

This study employs Kuznets' inverted U curve theory, which discusses the relationship between income inequality and economic growth, as well as the health led growth hypothesis. In the Kuznets' theory, there may be an inverse-U relationship between the degree of income inequality and per capita GDP. Kuznets' Inverted U-hypothesis proposes that as a nation's per capita national income increases, income inequality rises initially before falling after peaking at the intermediate level. As a nation develops and its per capita income (PCI) rises, the degree of income inequality also rises initially before declining as GDP per capita rises further after reaching its maximum level. This is illustrated in the graph below. (Nielsen,1997).



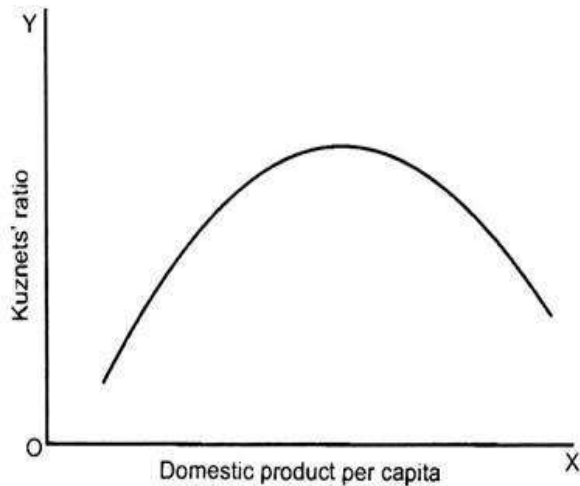


Fig 1: Kuznet Inverted U-curve

According to the Kuznets inverted-u hypothesis, economic growth initially makes income inequality worse before subsequently improving it at a later stage of economic development. Since the hypothesis is grounded in the Kuznets theoretical approach, as was already mentioned, it is appropriate to draw a connection between income inequality and economic growth.

### 3.2 Model Specification

The following model is estimated to determine how income inequality, health status, and economic growth are related. This work adopts the model of Olaniyi, et.al (2022) to study the impact and the long-run relationship among income inequality, health status, and economic growth. The theoretical foundation on which the model is based has been chosen due to the importance of the research and the variables that was used to evaluate the effect and long-term relationship among the three important variables of the study, they are income inequality, health status, and economic growth.

Consequently, the functional form of the model is specified.

$$RGDP_g = f(GINI_t, LE_t, GEH_t, LAF_t, CAF_t)$$

$$\text{Mathematical form: } RGDP_g = \beta_0 + \beta_1 GINI + \beta_2 LE + \beta_3 GEH + \beta_4 LAF + \beta_5 CAF$$

$$\text{Econometric form: } RGDP_g = \beta_0 + \beta_1 GINI + \beta_2 LE + \beta_3 GEH + \beta_4 LAF + \beta_5 CAF + U_t$$

Where; RGDP<sub>g</sub>: Real Gross Domestic Product growth, GINI: Gini coefficient (Proxy for income inequality), LE: Life expectancy, GEH: Government expenditure on health, LAF: Labor force and CAF: Capital formation. To address the heteroskedastic nature of the variables, which arises from measurement variance and errors, we transformed all the variables into a log-log model. This transformation helps stabilize the variance and allows for a more accurate analysis of the relationships between the variables. By taking the natural logarithm of both the dependent and independent variables, we can linearize the data, making it easier to

interpret and minimizing the impact of outliers. The log-log model is especially useful in econometric analyses as it can effectively handle proportional changes and elasticity, providing more reliable results.

$$\ln RGDP_{gt} = \beta_0 + \beta_1 \ln LE_t + \beta_2 \ln GINI_t + \beta_3 \ln GEH_t + \beta_4 \ln LAF_t + \beta_5 \ln CAF_t + \mu_t \dots \dots \dots 3.10$$

$U_t$  being the error term that can take positive or negative values. It might also be referred to as the stochastic error term.  $\beta_0$  is the constant term, and the coefficients of the variables are  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$ ,  $\beta_4$ ,  $\beta_5$ . The a-priori is of the variables therefore are:  $\beta_1 LE_t, \beta_2 GINI_t, \beta_3 GEH_t, \beta_4 LAF_t, \beta_5 CAF_t > 0$

**3.3 Estimation techniques**

To examine the relationship among income inequality, health status and economic growth in Nigeria, this study made use of the Unit root test, for which the Augmented Dickey-Fuller (ADF) test was used to determine the stationarity. In addition, bounds test, Johansen co-integration test and the error correction model were also be employed to achieve the objectives of the study.

**3.4 Sources of Data**

Data employed for this work were sourced from the World Bank Database and from the Nigerian Bureau of Statistics. Time- series data were used from 1993 to 2022. Raw data collected include data on real gross domestic product growth rates, gini coefficient, life expectancy, government expenditure on health, labour force and capital formation.

**Presentation of Results**

**4. 1 Table 1: Descriptive Statistic**

	LNRGDP g	LNGINI	LNLAF	LNLE	LNGEH	LNCAF
Mean	26.11908	4.007048	17.65312	3.891001	22.51956	29.77715
Median	25.93046	4.063652	17.67897	3.897863	24.24165	29.75758
Maximum	26.91113	4.095566	17.95712	3.968592	26.27514	30.06865
Minimum	25.50955	3.888284	17.27862	3.817427	3.995113	29.55679
Std. Dev.	0.446793	0.092343	0.207393	0.054997	5.429868	0.140682
Skewness	0.433418	-0.519146	-0.258310	-0.079586	-2.704990	0.350160

Kurtosis	1.762258	1.316036	1.831608	1.444924	9.726465	2.009990
Jarque-Bera	2.854263	4.892230	2.108048	3.156314	93.14152	1.899483
Probability	0.239996	0.086629	0.348532	0.206355	0.000000	0.386841
Sum	783.5723	120.2114	547.2468	120.6210	675.5869	923.0918
Sum Sq. Dev.	5.789095	0.247291	1.290354	0.090741	855.0204	0.593739
Observations	30	30	31	31	30	31

*source: Compiled by researchers.*

The table 1 above shows the descriptive statistics of all the variables used in the analysis. The mean for RGDPg, LNGINI, LNLEAF, LNLE, LNLEH, LNLEAF, are 26.12, 4.01, 17.65, 3.89, 22.52, and 29.78 respectively. And the standard deviation are 0.45, 0.09, 0.21, 0.05, 5.43, and 0.14 respectively. Skewness. In all, they are normally distributed.

**Table 2: Unit Root Test using Augmented Dickey Fuller (ADF)**

	ADF Statistic	Critical Value (5%)	Remarks	ADF Statistics	Critical Value (5%)	Order of integration
LNGINI	-0.7791	-2.9678	Non stat	-5.4286	-2.9719	I(1)
LNLEX	0.5581	-2.9639	Non stat	-3.4273	-2.9678	I(1)
LNLEH	-0.7673	-2.9677	Non stat	-5.2727	-2.9719	I(1)
LNLEAF	-0.4864	-2.6251	Non stat	-10.2037	-2.9719	I(1)
LNLEAF	-2.0998	-2.9718	Non stat	-3.5676	-2.9719	I(1)

*Source: compiled by researchers.*

The result of the unit root tests is shown in table 2 above.. The hypothesis of a trend and an intercept was tested for the table. Five variables were stationary at level, but none were stationary at the first difference. Given the outcome, Johansen co-integration test were conducted.

**Table 3: Johansen Cointegration Test (Trace Statistics)**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	
None *	0.882169	130.9363	95.75	0.0000	Significant
At most 1 *	0.638098	71.05826	69.82	0.0397	Significant
At most 2	0.502900	42.59954	47.86	0.1426	Non-significant
At most 3	0.395203	23.02853	29.80	0.2447	Non-significant
At most 4	0.241317	8.948379	15.50	0.3702	Non-significant
At most 5	0.042485	1.215577	3.84	0.2702	

*\*denotes rejection of the null hypothesis at the 0.05 level*

*Source: compiled by researchers*

**Table 4. Johansen Cointegration Test (Maximum Eigenvalue)**

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**	
None *	0.882169	59.8781	40.0776	0.0001	Significant
At most 1	0.638098	28.4587	33.8769	0.1931	Non-significant
At most 2	0.502900	19.5710	27.5843	0.3716	Non-significant
At most 3	0.395203	14.0802	21.1316	0.3585	Non-significant
At most 4	0.241317	7.7328	14.2646	0.4065	Non-significant
At most 5	0.042485	1.2158	3.8415	0.2702	Non-significant

*\*denotes rejection of the null hypothesis at the 0.05 level*

*Source: compiled by researchers*

Using tables 3 and 4 tables above, the null hypothesis is rejected at 0.05 levels when both the trace and Max-Eigen statistics exceed their critical value which is greater than 0.05 critical values, therefore, the null hypothesis is rejected at 0.05 levels, . As a result, the alternative hypothesis that says there are co-integrating equations is accepted. Therefore, at a 5% level of significance, there is a long-run relationship among the variables.

**Table 5: Normalized Co-integration Coefficient (Standard error in parentheses)**

VARIABLES	1.0000000	STD. ERROR	T-STATISTICS
LNGINI	1.272268	(0.24958)	{5.097636}
LNGEH	-0.039795	(0.01713)	{-2.323117}
LNLEX	3.042204	(1.13046)	{2.69112}
LNCAF	-1.666023	(0.14058)	{-11.85107}
LNLAF	-1.104463	(0.42567)	{-2.594646}

The result in the table 5 above can be expressed in a linear form as follows:

$$\text{LNRGDP} = -1.272268\text{LNGINI} + 0.039795\text{LNGEH} - 3.042204\text{LNLEX} + 1.666023\text{LNCAF} + 1.104463\text{LNLAF}$$

In table 5 above, the findings showed a long-run negative relationship between income inequality and economic growth, which is consistent with our previous predictions. A one percent increase in income inequality leads to a 1.272268 decrease in the gdp. The effect is statistically significant with a t-statistic of 5.097636 which is higher than 2.

The result revealed that public expenditure on healthcare has a positive relationship with economic growth. A one percent increase in government spending on health care leads to a 0.039795 increase in economic growth. The t-statistic is 2.323117 (absolute value) which means a statistically and significantly relationship. According to result life expectancy and economic growth have a negative relationship, contrary to the a priori expectation of a positive relationship, as a productive (labour) higher life expectancy would increase economic growth. The result shows that in the long run, a one percent increase in life expectancy leads to a 3.042204 decrease in economic productivity. The t-statistic of 2.69112 reveals that the result is statistically significant. The result confirms the *a priori* expectation that capital formation has a positive relationship with economic growth. Furthermore, a one percent increase in capital formation leads to a 1.666023 increase in economic growth. The result is statistically significant because the t-statistic (11.85107) is greater than 2. The labor force is perceived to have a positive relationship with economic growth, which is consistent with a *priori* expectations. A one percent increase in labor force participation results in a 1.104463 improvement in the economic. Because it is greater than 2, the t-statistic is 2.594646, indicating that it is statistically significant.

**Table 6: Error Correction Mechanism Result**

VARIABLES	COEFFICIENT	STD. ERROR	T-STATISTIC	PROB
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COINTEQ*	-0.163875	0.016308	-10.04868	0.0000
D (LNLEX)	-3.995515	1.089124	-3.668558	
	0.0011			
R <sup>2</sup>	0.554274			
F-stat.	33.57540			
Prob(F-stat.)	0.000004			
Durbin-Watson stat	2.028107			

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Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-stat	1.221981	Prob F (5,24)	0.3293
Obs*R <sup>2</sup>	6.087602	Prob. Chi-X <sup>2</sup> (5)	0.2978
Scaled explained SS	2.410369	Prob. Chi-X <sup>2</sup> (5)	0.7899

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*Source: compiled by researchers.*

The error correction mechanism deals with how short-run errors are corrected in the long-run equilibrium path.

#### **4.2 Policy Implication of Findings**

The investigation on the relationship among income inequality, health status, and economic growth in Nigeria is the general objective of this work. A unit root test was run to determine the variables' stationarity, its results indicated that all of the model's variables are stationary at first difference, the Johansen co-integration test mechanism was used to determine the relationship between the variables in the model based on the unit root test. The normality and heteroskedasticity tests were used to validate the results. These diagnostic tests revealed that the residuals were normally distributed and that errors like heteroskedasticity did not exist.

Firstly, the result revealed that one of the independent variables of interest, income inequality (GINI), had a significant and negative relationship with the economic growth (RGDP), which is in line with the a priori expectation. The negative relationship predicts that economic growth would decline as income inequality rise. However, this result shows that while economic growth has risen in the long run, inequality has decreased. Yet, the country is still regarded as having a very unequal distribution of income levels, and the magnitude of the decline in income inequality is not particularly significant; this situation can be explained by the findings of Okafor et al(2016). Furthermore, government expenditure on health (GEH) in Nigeria was found to be positive and significantly related with economic growth (RGDP), this is consistent with the a-priori expectation stated earlier in this study. This suggest that increasing

government spending on health in Nigeria would result in increased economic growth. The likely explanation is that health is imperative for growth, as shown in the study especially in the third world countries. In addition, healthy individuals tend to live longer, boost per capita output, earning higher level of income, and participate more actively in economic activities that contribute to driving economic growth.

However, looking at healthcare status from the lens of life expectancy as proxy, according to this finding, the higher the life expectancy, the lower the level of economic growth in Nigeria. This finding contradicts previous work of Lawanson and Umar (2021) that found a positive relationship between the two variables. But, according to Cervellati (2011) in the presence of Malthusian (congestion) effects, high life expectancy rates may subsequently lead to an increased population growth, which may reduce income per capita. When fixed factors of production are present, an increase in population generally leads to a decrease in income per capita. As a result, the productivity per person diminishes, leading to a lower average income per individual. This relationship highlights the strain that a growing population can place on limited resources, ultimately impacting economic prosperity on a per capita basis. According to Cervellati this is the source of the strained relationship and implies that, in order to increase economic growth and development, production factors should be increased, and natural resources should be well employed and utilized in order to meet the rapidly growing population growth.

Furthermore, the reason for this negative relationship could be due to a lack of involvement in economic endeavors and Nigeria's rising unemployment rate. Life expectancy may be on the increase but if they do not participate in economic activities that can boost economic growth, or if they are unemployed and do not contribute to the productivity of the country a rise in life expectancy rate will not bring about an increase in growth. From the findings of this study, income inequality may have an adverse effect on economic growth. Also, while government spending on health and life expectancy can have a positive impact on the gdp (economic growth), health status can have a positive or negative effects on it. In order to capture health status, this study used two major variables: government health spending and life expectancy. The study therefore recommended that policymakers should increase productivity by reducing the level of income inequality in the economy, this can be achieved through policies that help to redistribute income to cover the gap between the wealthy and the poor. The government could also boost economic growth by increasing healthcare spending. Life expectancy in Nigeria was discovered to be significant, and it was found to have a negative impact on economic growth. The findings did not match the *a priori* expectation as early stated in this

work. It implies that an improvement in life expectancy would result to a decrease in economic growth. Increasing growth does not always imply lowering life expectancy, but to tackle the factors hindering the effectiveness of life expectancy, which has been identified to be unemployment, fixed factors of production, and lack of participation in economic activities.

### **5.1 Conclusion**

The study empirically evaluated the effects of income inequality and health status on the economic growth of Nigeria. To achieve the research goal, and provide reliable recommendations, secondary data was collected and processed using Johansen Co-integration test. The result of the findings revealed that income inequality has a significant adverse effect on economic growth. There was also a significant positive relationship between government health spending and economic growth in Nigeria, but a negative relationship between life expectancy and economic growth. Also, the findings showed that health status has dual impacts on the country's economic growth. In order to address the negative relationship between life expectancy and productivity growth, the government should prioritize lowering unemployment, increasing citizen participation, and increasing production factors to meet rising population growth.

*Furthermore, capital formation and labor force participation displayed a significant positive relationship with economic growth. This demonstrates that increasing capital formation and labor force participation in the Nigerian economy would aid in economic growth.*

### **5. 2 Recommendations**

Based on the outcome of the findings of this research work, the policy makers are advised to improve and bridge the gap of income equality and health status through income distribution in order to improve productivity growth and the standard of living as well as the development of the country. The government should reform the tax system to make it more progressive, in addition to close all the loopholes in Nigerian tax laws that allow for tax avoidance and evasion, eliminate unfair tax waivers and tax holidays, as well as to reform tax incentive allocation. The revenue generated by the rich's tax should be used to provide public goods and services to improve the well-being of the poor. Economic planning and resource allocation should be directed toward the health sector, as health affects productivity and is a major variable that contribute to economic growth. There should also be room for improvement in the quality and delivery of healthcare services since the negative relationship between life expectancy and economic growth is caused by fixed factors of production and an increasing population, the



government should ensure that all natural resources are employed and used appropriately. Exploring the vast natural resources deposited in the country will be enough to meet the consumption and the socio-economic needs of the growing population as well as to improve their standard of living.

### **REFERENCES**

- Afolalu O.O; Atekoja O.E; Oyewumi Z.O; Adeyeye S.O; Jolayemi K.I; and Akingbade O. (2021). Perceived impact of Coronavirus pandemic on uptake of healthcare services in South West Nigeria. *Pan African Medical Journal*. Vol. 40, No 26.
- Bilan,Y, Mishchuk, H, Samoliuk, N; & Yurchyk, H. (2020). Impact of income distribution on social and economic well-being of the state. *Sustainability*, 12(1), 429-441
- Castells-Quintana, D., Royuela,V., & Thiel, F. (2019). Inequality and sustainable development: Insights from an analysis of the human development index. *Sustainable Development*, 27(3), 448460.
- Cervellati and Uwe S. (2011) Life expectancy and Economic growth: The role of the demographic transition. *Journal of Economic Growth*. Vol.16(2). Pp 99-133
- Doty, M. M., Tikkanen, R. S., FitzGerald, M., Fields, K., & Williams, R. D. (2021). Income Related Inequality in Affordability and Access to Primary Care in Eleven High-Income countries. *Health Affairs*, 40(1), 113-120.
- Effiom, L., and S. E. Edet. (2019) Remittances, capital flight and poverty: empirical evidence from ECOWAS countries. *West African Econ Finance Rev* 19.1: 35-68.
- Erçelik, G. (2018). The relationship between health expenditure and economic growth in Turkey, 1980-2015. *Journal of Politics Economy and Management*, 1(1), 1-8.
- Ezeani, C. C. (2021). Economic inequality: the challenge of humanization of capital and rediscovering the gift-complementarity presuppositions. *Journal of Philosophy*, 1(2), 125-138.
- Góngora-Salazar, P., Casabianca, M. S., & Rodríguez-Lesmes, P. (2022). Income inequality and self-rated health status in Colombia. *International journal for equity in health*, 21(1), 1-14.

- Guzaa, G. M., Ishakb, S., Banic, Y., &Madina, A. (2020). The determinants of income inequality in Nigeria: An autoregressive distributive lag approach. *International Journal of Innovation, Creativity and Change*, 11(12), 218-234.
- Kelani, F. A., Odunayo, H. A., Ozegbe, A. E., & Nwani, S. E. (2019). Health status, labour productivity and economic growth in Nigeria. *Journal of Economics, Management and Trade*, 1-12.
- Lawanson, O. I., & Umar, D. I. (2021). The life expectancy–economic growth nexus in Nigeria: the role of poverty reduction. *SN business & economics*, 1, 1-26.
- Mayah, E., Mariotti, C., Mere, C. E., & Odo, C. O. (2017). Inequality in Nigeria: Exploring the drivers. *Oxfam International*.
- Mdingi, K., & Ho, S. Y. (2021). Literature review on income inequality and economic growth. *MethodsX*, 8, 101402.
- Mushkin, S. J.(1962). Health as an Investment. *Journal of political economy*, 70(5),129-157.
- Nielsen, F., & Alderson, A. S. (1997). The Kuznets curve and the great U-turn: income inequality in US counties, 1970 to 1990. *American Sociological Review*, 12-33.
- Nwosa, P. I. (2019). Income inequality and economic growth in Nigeria: Implication for Economic Development. *Acta Universitatis Danubius. Œconomica*, 15(1).
- Ogunjobi J. O and Olalere S.S (2024) Public health expenditure and human capital development: Implication on economic growth in Nigeria. *International Journal of Latest Research on Humanities and Social Science (IJLRHSS)* Vol.7, Issue 3, pp 201-210
- Okafor S.O; Jegbefuwmen K. and Okafor P.N (2016). Foreign direct investment for sustainable economic growth in Nigeria. *British Journal of Economics, Finance and Management Sciences*. Vol.11, pp 123-141.
- Olamide E.; Ogunjuiba K. and Maredza (2022). Exchange rates volatility, inflation and economic growth in Developing Countries; Panel Data Approach for SADC Economies, *MDPT Vol 10(3)* pp 1-19
- Olaniyi, O. A., & Adekanmbi, A. M. (2022). Income Inequality, Health Care Expenditure and Economic Performance in Nigeria. *Global Journal of Arts, Humanities and Social Sciences*, 10(4), 34-49.

- Schultz, T. P. (1999). Health and schooling investments in Africa. *Journal of economic perspectives*, 13(3), 67-88.
- Shen, C., & Zhao, X. (2022). How does income inequality affect economic growth at different income levels? *Economic Research-EkonomskaIstraživanja*, 1-21.
- Sunde, U, & Cervellati, M. (2012). Diseases and development: does life expectancy increase income growth. *VoxEU.org*, 6.
- Tibber, M. S, Walji, F, Kirkbride, J. B, & Huddy, V. (2021). The association between income inequality and adult mental health at the subnational level—a systematic review. *Social psychiatry and psychiatric epidemiology*, 1-24.
- UNDP (2017) UNDP-GEF Annual Performance Report. [Undp.org](http://undp.org)
- World Bank Open Data (2020) [http://data](http://data.worldbank.org). [Worldbank.org](http://data.worldbank.org)
- Yıldırım, S., Yıldırım, D. C., & Caliskan, H. (2020). The influence of health on economic growth from the perspective of sustainable development: a case of OECD countries. *World Journal of Entrepreneurship, Management and Sustainable Development*, 16(3), 181-194