

INEQUALITY, HEALTH AND PRODUCTIVITY OUTCOMES: THE CATASTROPHY OF NIGERIA'S STUNTED GROWTH

By

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ABSTRACT

The disastrous effect and impact of inequality on growth and development of nations is well documented in the Literature. Inequality which creates conditions for poverty to thrive are not only trending economic issues in public discourse today, they two strike negatively at the heart of man's existence. This occurs through their impacts on health outcomes leading to catastrophic productivity outcomes, slow economic and declining growth and development of nations. An important component of a man's life remains his health which significantly impacts his capacity and ability to participate through an effective engagement with the environment. The plethora of natural and human resources of any nation supported with appropriate technology and policy enactment should ideally spur such an economy towards sustainable growth and development. This can however be illusionary and unattainable where the mobilization, utilization and distribution of the resource base of the nation is compromised and structurally defective and skewed. This study using data obtained from official sources and analyzed using a generalized method of moments (GMM) finds that inequality which has heightened and created conditions for poverty to become endemic in Nigeria has had catastrophic impact on health and productivity outcomes and the nation's growth. This has impacted negatively on productivity both for the individual and that of the nation. The nation's growth has thus become stunted in comparison with its contemporaries given its resource endowments. It recommends that appropriate measures such as fair taxation, vigorous enactment and enforcement of policies and a fairer re-distribution of the nation's wealth be pursued towards reducing extreme income and wealth inequalities and poverty.

1.0 INTRODUCTION

One important component of a man's life remains his health which significantly impacts his capacity and ability to participate through an effective engagement with the environment in pursuit of his daily economic, social and Political objectives. Good health enables man not only to perform these activities effectively and maximally given his potentials, but also gives him the opportunity to exploit his environment and reap the social maximum in life. It is not only fundamental to his existence considering its impact on his daily living but has profound implications for productivity increases and overall economic growth and development. The optimal and beneficial outcomes of economic activities can however be negatively impacted if the moral, psychological, social and just systems of the society are compromised. In a world of disorder, where selfishness, individualism and manipulation have taken Centre stage in governing the affairs of man, productivity, social justice and economic progress can be heavily and negatively compromised. This is especially so where the system of resource mobilization, allocation, utilization and distribution are unjust, unfair and heavily

unequal. It is within this context that we can situate how inequality which accentuates poverty can have profound negative impact on growth of any economy.

The distinct interconnection between Health and Productivity outcomes and their mutually self-reinforcing relationship is a well-established and documented phenomenon in the literature. Productivity increases-driven by rising output per worker- is largely dependent on the rate at which a healthy labour force is able to participate in the process of productivity and specifically when output per worker rises over time holding **material resources** and **technology** constant. It is a known economic fact that Economies become more prosperous when output per worker rise over time leading to an overall increase in the production of the goods and services needed to improve the material wellbeing of the populace.

In recognition of the above, nations across the globe have deliberately adopted and pushed for policies that are aimed at expanding the social, political and the productive space of the economy by pushing for opportunities to drive inclusive growth. This has been the development focus of nations in the last two quarters of the century in the singular belief that it holds the key towards poverty reduction by eliminating inequalities and sustaining economic growth. Such countries work towards reducing the extent of social and economic inequalities and poverty in the populace to minimal levels such that a large proportion of the population is allowed access to the means of production. Fighting the scourge of inequality and the incidence of poverty has therefore become a key social, economic and political policy issue for governments and policy drafters.

Inequality which creates conditions for poverty to thrive are not only trending economic issues in public discourse today. They two strike negatively at the heart of man's existence. This occurs through their impacts on health outcomes leading to catastrophic productivity **outcomes**, slow economic and declining growth and development of nations. It can be safely asserted that 'Poverty persists in the world today not because we cannot feed the poor, but because we cannot satisfy the greed and avarice of the rich and this has been the driving force for inequality to persist across the globe'. This is a significant statement of fact and has profound implications for economic relations and outcomes in our world today.

Income and wealth inequality is described in the literature as the existence of disproportionate distribution of total income among households whereby the share going to the rich in a country is far greater than that going to poorer persons especially in developing countries. This is largely due to differences in the amount of income derived from ownership of property/assets and to a lesser extent the result of difference in earned income coming from active engagement in productive activities. The logical deduction from this is that those with a disproportionately higher income may not necessarily be in possession of these incomes and wealth as a result of any extraordinary effort. It is most often the result of privileged ownership of assets and property acquired through rent seeking activities or unfair means and passed on from generation to generation. Studies by scholars such as Hamel, K. B. Tong and M. Hofer. (2019), Feng, Z, Wang, W, Jones, K and Li, Y. (2012), Alich, Ali, Kory Kantenga, and Juan Sole. (2016) have revealed that both economic and political institutions have played a significant part in entrenching inequalities in poor countries of the African continent. The long run impact of this situation is the endemic nature of poverty that is prevalent in Africa today.

Poverty is a serious economic and social problem that afflicts a large proportion of the world's population and manifests itself in diverse forms. It ranges from lack of income and productive assets to maintain sustainable livelihoods, chronic hunger and malnutrition, homelessness to lack of durable goods, disease, and lack of access to clean water. It also resonates in lack of education, low life expectancy, social exclusion and discrimination, high levels of unemployment, high rate of infant and maternal mortality, and lack of participation in the decision-making process. These conditions often results where the social and economic environment creates situation for social and economic exclusion in resource mobilization, allocation, distribution and utilization laying the foundation for inequality to thrive. Formally, the World Bank describes poverty as a situation where an individual lacks the minimum levels of income needed to obtain or satisfy the basic physical needs of food, clothing and shelter in order to ensure continued survival.

2.0 LITERATURE REVIEW

There are several empirical literatures and research results linking inequality to poverty and their twin impact on health and productivity outcomes. (Ogbeide E. N. & D. O. Agu (2015), Onyema, O. M. (2012). These studies have identified a bi-directional positive relationship between good Health and productivity increases. It is often hypothesized that good health leads to greater productivity and increased productivity on the other hand improves the health of the population. There could also be a reverse case, poor health results in decreased productivity where impaired labour on account of ill health contributes less to productivity. At the other end, when productivity is low, less goods and services are produced and available to consumers and this reduces the welfare of the population; in either scenario, the health and capacity of the individual and the productive capacity of the economy is negatively impacted.

It is acknowledged that there is a casual relationship between health and productivity on the one hand and inequality and poverty on the other. In one case, good health leads to productivity increases-which is the effect, in another; productivity increases causes health to improve. In the case of inequality and poverty, there are also negative bi-directional relationship between inequality and poverty. Where inequality abounds, the incidence of poverty is heightened because people have neither the means to improve their livelihoods in order to sustain productive life or are encumbered by disease conditions that renders them ineffective in productivity. On the other hand, heightened incidence of poverty serves only to further worsen the level of inequality in the population.

Scholars are agreed that health is an important form of human capital through its influence on labour and workers' productivity by increasing their physical capacities for productivity. Good health endows the worker with the strength and endurance, mental capacities, cognitive functioning and reasoning ability for effective participation in the production process. Labour is seen as the **'means and end of productivity'**, it is the only factor that creates value, influences its price and those of other factors and sets the general level of productivity. Evidence of this link is increasing at the microeconomic level as revealed by studies done by Savedoff and Schultz 2000; Schultz 1999a, 1999b, 2002; Schultz and Tansel 1992; Strauss and Thomas 1998. There are also strong Macroeconomic links between health and income creation and its distribution through investments. This leads to long term economic growth and make advances in medicine and technology possible contributing to a significant reduction in the burden of human infectious diseases around the world.

Badeork-Waters (2015), Brown, Webb, and Haddad (2018), Strauss (2016), World Bank (2013) and Goodman (2018) have all captured the Microeconomic and Macroeconomic relationships between health and income creation. They believe that if labour spends longer hours in production, it is able to raise the level of productivity significantly by raising per unit output. Productivity loss on the other hand can occur if labour is unable to allocate its time effectively to productive engagement resulting from either illness, absenteeism or death. It needs to be noted that healthy labour that is present at work can cause productivity increases and ensure opportunity for longer working life and this can cause incomes to rise. There is no doubt that good health enhances increases in productivity of labour, prolongs longer working life for the average worker or the average person while enabling them to obtain better opportunities for higher paying jobs.

There are indeed well established strong cross-country correlations between measures of aggregate health, such as life expectancy or low child mortality and per capita income. Social scientists such as McKeown (1976), Pritchett and Summers (2006) commonly regard these correlations as reflective of a causal link running from income to health while others believe it runs from health to income. The literature has continued to grow since that of Farmer (1996) linking social determinants of health including poverty, race, ethnicity, social marginalization, physical environment, and other factors to infectious diseases, including influenza, malaria, tuberculosis, Ebola, and other diseases. These studies have explored how the very frameworks used to describe infectious diseases obscured their origins in poverty and social inequalities. Higher incomes promote access to many of the goods and services believed to produce good health and longevity. This is possible when there is better access to a nutritious diet, safe and clean water and sanitation, good health care. This standard view has however been challenged in recent years by the possibility that the income-health correlation can also be explained by a causal link running the other way that is from health to income.

In several countries of the world especially in the developing ones, prolonged incidence of income and wealth inequality has become so entrenched which unfortunately has led to the endemic nature of poverty in these countries especially in Africa. Poverty has ravaged several African countries making it almost impossible to overcome the many challenges of growth and development especially as regards to the development of the needed human capital to stimulate growth. The situation is essentially the result of low incomes occasioned by poor productivity, inequality in ownership and distribution of wealth and other forms of productive assets.

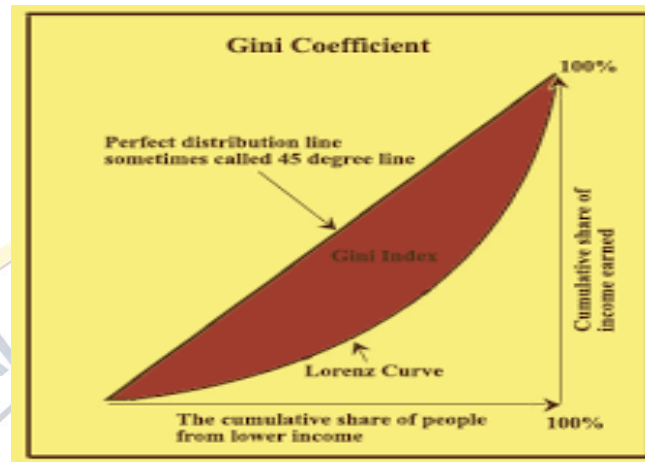
Studies have revealed that in most African societies, there is a striking positive relationship between high levels of income inequality and low school enrolment, low life expectancy, high fertility rates, low wages and reduced labour supply. Over time, these conditions have become vicious thereby accentuating the incidence of poverty. According to the WHO report, 2024, on a global scale, poverty was estimated to be the major cause of death and health related issues for well over 1.2 billion people in 2017 alone. The poor are often forced to live in environmentally unhealthy areas which exposes them to further disease infections through unsafe and unclean water and poor sanitation. They are also unable to escape these infections due to poor or low incomes which largely results from deprivation or skewed incomes and resource distribution.

According to (CPRC, 2014), believed that poverty is dynamic and transitory, resulting in different sectors and groups of the population moving in and out of the poverty trap over time. Poverty is more common in young families, for example, when asset ownership is low and dependency ratios are higher. In the case of countries in Sub Saharan Africa, poverty is chronic rather than transitory. Poverty has a multi-dimensional effect on the life of the average person. Some features of this are overcrowding where people have no access to decent accommodation and are forced to live in overcrowded environments and this increases the incidence of disease occurrence and prevalence especially for infectious diseases. In poor countries, several groups lack access to clean and portable water which increases their susceptibility to either disease condition or have low paying jobs, especially where they face inappropriate workplace discriminations through policy design. All of these have implications for health care delivery and worker productivity. The above scenario stems from a complex interplay between inequality and poverty.

Specifically, poverty is experienced for most of one's life, and often passed onto one's children due to poor asset ownership. This argument is supported by the individual theory of Poverty advocated by Oscar Lewis (1966). The ideological stance of this theory is that we cannot blame an individual's poverty on the geography or other persons, not even the political power structure. Man is the origin of his own poverty. He is poor because poverty is in him (inherent) and his attitudes like laziness, lack of education, teenage parenting, single female-headed family which makes them impotent to favorably scramble for economic freedom and convenience. As such, this demeanor becomes a culture for man which he passes on from one generation to the next resulting in a vicious cycle of poverty (see Jordan, 2014), this philosophy, however, remains argumentative among researchers of poverty and policymakers.

There is no doubt that poverty accentuates inequality leading to greater consequences for the poor and becomes a cycle in the long run. Indeed, the ECA 2015a reports that more than 42 per cent of the people in sub-Saharan Africa (or roughly 400 million people) still live on less than \$1 a day, which supports what UNDESA (2018a) had reported. It does mean that many Africans remain trapped in dire poverty, heavily dependent on a fragile natural resource base and are therefore vulnerable to economic and environmental shocks. According to the United Nations Development report of (2022), Africa has the worst income distribution index in the world. The continent's distinctive problem in respect to growth is that its economies have not been growing to keep pace with its population growth, dwindling resources and poor rate of capital accumulation and this has consequences for growth and development.

Inequalities in income and other economic indicators, such as asset ownership have remained skewed and persistently so in several developing countries which is also true of Nigeria. The extent to which inequality has become noticeable in an economy is measured by the Gini index. The index measures the proportion of a nation's population that lives in poverty compared to the proportion of those that have access to income and other economic opportunities. With a Gini coefficient index of .49 or 49 per cent, the continent's inequality and poverty story is pretty scary. This situation has naturally found itself into the Nigerian society and has thus had significant impact on its growth. The Gini specifically measures the aggregate numerical proportion of income inequality between two proportions of the population that does not have access to income, or other economic opportunities. A typical gini figure for Nigeria is presented below and which measures the extent of inequality in the population.



The Nigeria's inequality as measured by the Gini coefficient

Scholars are argued that the foundation for income and wealth inequality was firmly laid from Africa's colonial history. These studies have documented the workings and effect of institutions on income generation and its fair or unfair distribution that can lead to inequality and its overall impact on growth and development of nations. These scholars believe that where institutions are weak or can easily be manipulated, they create conditions for unequal distribution of state resources amongst the members of society. In sum, weak institutions create conditions for privileged individuals to capture the means or resources of state for their benefits.

The importance or otherwise of institutions in the efficient utilization of resources and its fair distribution in any society has its firm roots in the nature of the colonial structure of several countries especially in Africa. Acemoglu, Johnson and James (2000), have documented strong correlation results between early institutions which stems from colonialism and institutions today and inferring that current institutions have a first-order effect on current economic performance and even resource distribution. The implications are that these early institutions which developed based on colonial culture or legacies were a major determinant of per capita income and its nature of distribution. A clear example is that Africa is poorer than the rest of the world today not because of pure geographic or cultural factors, but due to worse institutions that have shaped her economic fortunes. Not only are institutions critically impactful on economic outcomes or performance, they have significant and robust implications on environmental factors and disease conditions and prevalence.

Acemoglu, (2004), asserts that economic institutions are important in helping to efficiently allocate resources, they also determine who gets profits, revenues and residual rights of control. All these most often coalesce into enhancing or aggravating income and wealth distribution in such a society. He however argues that these economic institutions do not provide the guarantee that all individuals and groups in society will prefer the same set of institutions because different economic institutions often lead to different patterns of resources distribution. A conflict of interest which is likely to ensue from such difference in distribution of resources arising from institutions will be resolved dependent on the political power and structure of the society or groups. This is where access to existing resources, previous political, social and economic positions and privileges will play a significant role in determining present access and control of state resources. The exercise of absolute or significant

political power often leads to economic inefficiencies and further creates inequalities and aggravates poverty levels. This is because those who control power often lack the moral and political commitment in the fair use of such powers especially relating to resources in a judicious manner. They prefer to use such powers in their best self-interest which impacts negatively on efficient resource utilization and distribution.

According to North and Thomas, (1973), the fundamental explanations to comparative economic growth is differences in institutions. They define these institutions as ‘...*the rules of the game in a society or more formally, are the humanly devised constraints that shape human interactions*’. According to them, these institutions structure incentives in human exchange, whether political, social or economic. Of significant importance to economic outcomes are the economic institutions in any society such as the structure of property rights and the presence and perfections of market. The absence of these basic fundamentals distorts the structure of economic incentives in such a society leading to unequalled access to the resource base of that society. This creates a distortion to the incentives to invest in both physical and human capital or to even adopt more efficient methods of production through appropriate technologies that are needed to raise productivity.

Generally, output and productivity growth or differences today are largely the outcomes of the type or nature of our institutions which were either inherited or that have developed over time from our colonial past. Theoretically, rising per capita income portends appropriate positive signals for improved individual health outcomes especially where health care financing is heavily borne by individuals. Access to income and needed assets makes it possible for the individual to pay for his health care services in an out-of-pocket payment arrangement or be able to maintain his health insurance premium over time which is required to fund his health care. With a robust and rising income profile, individuals have better access to nutrition and diet, cleaner environment, sustainable social habits which all raise the health status of the individual. The resulting impact will be a healthier population, healthy workforce, longer life expectancy and lower disease burden which all resonate in greater participation of the labour force in the process of production. The opposite will result where income levels are low and remain stagnant which unfortunately is the current case and experience in Nigeria.

3.0 METHODOLOGY

Theoretically, rising per capita income portends appropriate positive signals for improved individual health outcomes especially where health care financing is heavily borne by such individuals. This makes it possible for the individual to pay for his health care services in an out-of-pocket payment arrangement or be able to maintain his health insurance premium over time which is required to fund his health care. With a robust and rising income profile, individuals have better access to nutrition and diet, cleaner environment, sustainable social habits which all raise the health status of the individual. The resulting impact will be a healthier population, healthy workforce, longer life expectancy and lower disease burden which all resonate in greater participation of the labour force in the process of production. The opposite will result where income levels are low and remain stagnant.

The interest of this work is to examine and espouse how inequality and poverty-two similingly inextricably linked, interrelated and mutually self-re-enforcing economic phenomenon have negatively impacted on the health and productivity outcomes of the average worker and by implication the Nigerian economy. The consequences of the huge negative impact of inequality and

poverty have re-vibrated in a slow growing economy and development of the Nigerian economy in spite of the enormous human and natural resource base and endowment of the country.

An analysis of the macroeconomic data is necessary to give further vent and corroborate the statistics revealed in the body of the work. In dealing with most macroeconomic time series data, it needs to be noted that they are almost always trended and are therefore non-stationary. A test of unit root was conducted to determine their level of stationarity and the order of integration of the underlying regressors. This enabled one to draw a valid and conclusive inference from the results especially when the computed value of the F-statistics falls within the upper and lower bounds. This work adopts two models to assess the impact of inequality and poverty on health and productivity outcomes in Nigeria with a view to determining the extent to which they have eroded the social and economic wellbeing of the Nigerian population through low and declining productivity.

To assess these impacts, two models are cast to capture the effects of income and wealth inequality on productivity. The functional form of the first model is thus:

$$\text{Model I: } RGDP = f(GINI, IMR, LEXP, PCI) \dots\dots\dots 1$$

Where RGDP - is real per capita GDP and is the dependent variable

GINI - Measure of income of inequality

IMR - Infant mortality rate

LEXP - Life expectancy at birth

PCI - Per capita income

The second model is that of the impact of declining health outcome (proxy for life expectancy) on productivity and the functional form of the equation is cast thus:

$$\text{Model II: } LEXP = f(RGDP, GINI, IMR, PCI) \dots\dots\dots 2$$

Where LEXP - Life expectancy measured in years and is the dependent variable

RGDP - Real GDP

GINI - Measure of income inequality/poverty

IMR - Infant mortality

PCI - Per capita income

The time varying form of the variables in the equation is thus given as:

$$RGDP_t = GINI_t + IMR_t + LEXP_t + PCI_t + \epsilon_t \dots\dots\dots 3$$

indicating that over time, all variables are subject to change. The variables stated above are thus defined as GDP stands for the growth rate of the country's gross domestic product rather than the absolute figures, this will account for productivity growth, a reference of the rate of participation of the labour force in production. The simple interpretation of the 1st model is that real GDP is influenced by the extent of income and health inequality, the rate of population growth- proxy by infant mortality rate, the life expectancy at birth of the adult population and the per capita income. Due to the nature of the data sourced for the study, appearing in different values, a natural log of the variables is taken thus:

$$\Delta RGDP_t = \Delta \log_e GINI_t + \Delta \log_e IMR_t + \Delta \log_e LEXP_t + \Delta \log_e PCI_t + \varepsilon_t, \dots \dots 4$$

Where ε_t is the stochastic error term.

The variables are log in order to normalize the data as well as to capture the extent of the elasticity of each variable.

In the second model, the time varying form of the equation is given as:

$$LEXP_t = RGDP_t + GINI_t + IMR_t + PCI_t \dots \dots \dots 5$$

In equation 5, life expectancy of the population (a health outcome) is the dependent variable, and is influenced by the real per capita GDP, the extent of income inequality, the infant mortality rate and the per capita income. A log of this equation is taken and the resultant equation becomes:

$$\Delta \log_e LEXP_t = \Delta \log_e RGDP_t + \Delta \log_e GINI_t + \Delta \log_e IMR_t + \Delta \log_e PCI_t + \varepsilon_t \dots \dots 6$$

Where ε_t is the respective stochastic error term in each of the equations.

The econometric forms of equations 4 and 6 then respectively become:

$$\Delta \ln RGDP_t = \beta_0 + \beta_1 \sum_{i=1}^k \Delta \ln RGDP_{t-1} + \beta_2 \sum_{i=1}^k \Delta \ln GINI_{t-1} + \beta_3 \sum_{i=1}^k \Delta \ln LEXP_{t-1} + \beta_4 \sum_{i=1}^k \Delta \ln IMR_{t-1} + \beta_5 \sum_{i=1}^k \Delta \ln PCI_{t-1} + \varepsilon_t \dots \dots \dots 7$$

$$\Delta \ln LEXP_t = \alpha_0 + \alpha_1 \sum_{i=1}^k \Delta \ln LEXP_{t-1} + \alpha_2 \sum_{i=1}^k \Delta \ln RGDP_{t-1} + \alpha_3 \sum_{i=1}^k \Delta \ln GINI_{t-1} + \alpha_4 \sum_{i=1}^k \Delta \ln IMR_{t-1} + \alpha_5 \sum_{i=1}^k \Delta \ln PCI_{t-1} + \varepsilon_t \dots \dots \dots 8$$

Where i is to be determined by the optimal lag length criterion d order of integration and β_0 and α_0 are the unrestricted intercepts in the two models while ε_t are the stochastic errors terms in each equation which account for shocks.

For the purpose of obtaining robust results, model estimation is done using the generalized method of moments (GMM). The productivity growth model is in line with several growth models developed by different authors on the relationship between productivity and inequality with lagged dependent variables to account for convergence. Given the impacts of inequality on productivity, income inequality is endogenous.

The data used for this study were scoped from records of the office of the National Bureau of Statistics covering the period 1990-2023.

Table 1: Summary of the Cointegration Output

Unrestricted Co-integration Rank Test (Trace) Results

Hypothesized No of CE (s)	Eigenvalue	Trace value	0.05 Critical Value	Prob ^{xx}
None ^x	0.700373	98.77981	69.81889	0.0001
At most 1 ^x	0.638807	60.21288	47.85613	0.0023
At most 2 ^x	0.436059	27.62590	29.79707	0.0872
At most 3 ^x	0.220649	9.296099	15.49471	0.3387
At most 4 ^x	0.040372	1.318716	3.841465	0.2508

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

*denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The co-integration test result presented in the table above indicates that at least two equations are highly co-integrated given their probability values, the eigenvalue and trace statistic at the 5% level.

Table 2: Summary of the Maximum Eigenvalue Test

Unrestricted Co-integration Rank Test (Maximum Eigenvalue) Results

Hypothesized No of CE (s)	Eigenvalue	Trace value	0.05 Critical Value	Prob ^{xx}
None ^x	0.700373	38.56692	33.87687	0.0128
At most 1 ^x	0.638807	32.58699	27.58434	0.0104
At most 2 ^x	0.436059	18.32980	21.13162	0.1180
At most 3 ^x	0.220649	7.977383	15.26460	0.3810
At most 4 ^x	0.040372	1.318716	3.841465	0.2508

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

*denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The co-integration result of Table 1 is also found for the max Eigenvalue at the 5% level. The implication is that there are at least two long run association between these variables and do have influence on the dependent variable and results of the study. Where the relationship is negative, it will drag into the long run and vice versa. These long run association suggests that given prevailing social, economic and environmental circumstances, health and productivity growth will continue to be negatively impacted by the existence of inequality and the prevalence of poverty.

Table 3: Summary of the Normalized Co-integration Test

Unrestricted Co-integration Coefficients (normalized by $b^*S11^*b=1$)

GDP	GIN	IMR	LEXP	PCI
-0.463619	0.138501	-0.220053	-1.782747	0.001245
-0.030572	-0.000349	0.187611	1.232002	-0.001090
-0.154570	0.221038	-0.642001	-4.615582	-8.663005
0.359022	0.230438	0.295383	2.045041	0.001395
-0.297629	-0.1598862	-0.048090	-1.283484	0.002580

Source: Author's Computation

The results above are the normalized cointegration equations. Gross domestic product for Nigeria is influenced by several factors including income levels and its distribution, life expectancy of the labour force as well as the rate of population increase or decrease through infant mortality. The results of the cointegration equations reveal two long run relationship in the variables, this indicate that the variables listed in the model have impact on the growth of the Nigerian economy howbeit marginally and in some instances negatively.

To further ventilate the position of the study, results from the two models are presented individually below.

Table 4: Regression Outputs with GDP as dependent Variable

Variable	Coefficient	Std. error	t-statistic	P-value
INGIN	-0.263	0.154	-0.404	0.689
INIMR	0.167	0.080	1.718	0.096
INLEXP	-0.131	0.240	2.391	0.023
INPCI	0.004	-0.004	3.740	0.000

Source: Author's Computation

These results speak for itself. When GDP (proxy for productivity) is cast as a dependent variable, inequality and life expectancy exhibit negative relationship with productivity growth in line with the a priori expectation at the 5% per cent level of significance. This is to be expected, any shortened life span will result in lower productivity outcomes, resulting from the fact that savings rates will fall even with a growing population as is the case with Nigeria. Naturally countries with higher productivity growth rates often have higher savings rates because rate of savings and population growth rate are key determinates of growing per capita incomes. Nigeria unfortunately does experience this. Slow productivity growth has profound negative effect on workers' and family wellbeing especially in the long run where rising rates of inflation erodes their income. Falling productivity rates result largely from growing rates of absenteeism and/or reduced participation on account of ill health and poor income earnings. The negative relationship between life expectancy and gdp growth rate is also a natural fallout of the impact of absenteeism from work on overall productivity. When workers are encumbered by ill health, the rate of absenteeism rises meaning less participation in the process of production. Productivity slowdowns have been a major dilemma for most developing countries. Growing absenteeism also has significant negative impact on savings and income growth especially if wages are paid on the basis of marginal productivity.

GDP per capita of countries with similar GDPs including Nigeria

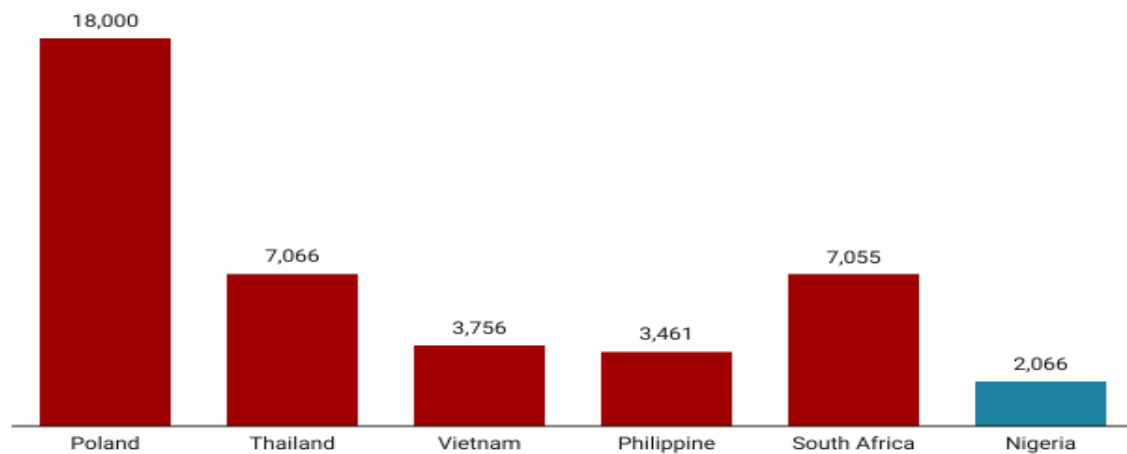


Chart: BusinessDay • Source: World Bank • Created with Datawrapper

The stunted nature of Nigeria's growth becomes even more obvious from the graph above which shows a comparable view of per capita GDP figures of countries in a similar income and resource trajectory with Nigeria. While per capita gdp is **\$18,000** in Poland, **\$7,066** in Thailand and **\$7,055.00** in South Africa, it is a mere **\$2,066** in Nigeria. These countries have made more spectacular progress in their economic development effort than Nigeria has over the years in spite of the enormous natural resource endowment that the country has. Nigeria's GDP per capita is lower compared to these other nations, indicating not just a lower standard of living for its citizens but creating and sustaining greater income skew-ness and disparities. Despite being Africa's largest economy, Nigeria lags behind in terms of GDP per capita and other human development indices when compared to the countries mentioned above.

Inequality equally negatively exerts strongly on the rate of productivity growth of the nation which aligns with results from several studies. This negative effect results from a shrinking income base especially for the low- and middle-income earners which would have served as a buster for productivity increase through increased consumption. When and where income is disproportionately distributed and concentrated in the hands of a few rich individuals, it negatively impacts on productivity through declining savings and investments. The few rich members of society maintain consumption habits that are injurious to domestically produced goods and in preference for imported ones. This often serves as a disincentive to local production; local producers can hardly keep to the standard of foreign producers. The consequences of a shrinking domestic production is to further shrink consumption which is needed to stimulate increasing productivity.

The association between growth rates and infant mortality as well as per capita income show some positive influence. This is to be expected- as economies grow, health care funding should rise, however this association is weak. As for per capita income, the association is virtually flat and significantly so. Reports from the National Bureau of Statistics indicate that per capita income has stagnated over the years and against a rising population growth rate, this can only worsen the

incidence of poverty. Rising per capita real income can significantly fight the incidence of poverty by reducing inequality if the trend is sustained over the long-run.

Results of the second model adopting life expectancy as the dependent variable are presented below.

Table 5: Summary of Regression Outputs for Model II

Variable	Coefficient	std error	t-statistics	P-value
INGDP	-0.062	0.154	-0.404	0.689
INIMR	0.138	0.080	1.718	0.096
INGIN	0.576	0.240	2.391	0.023
INPCI	0.007	0.002	3.740	0.000

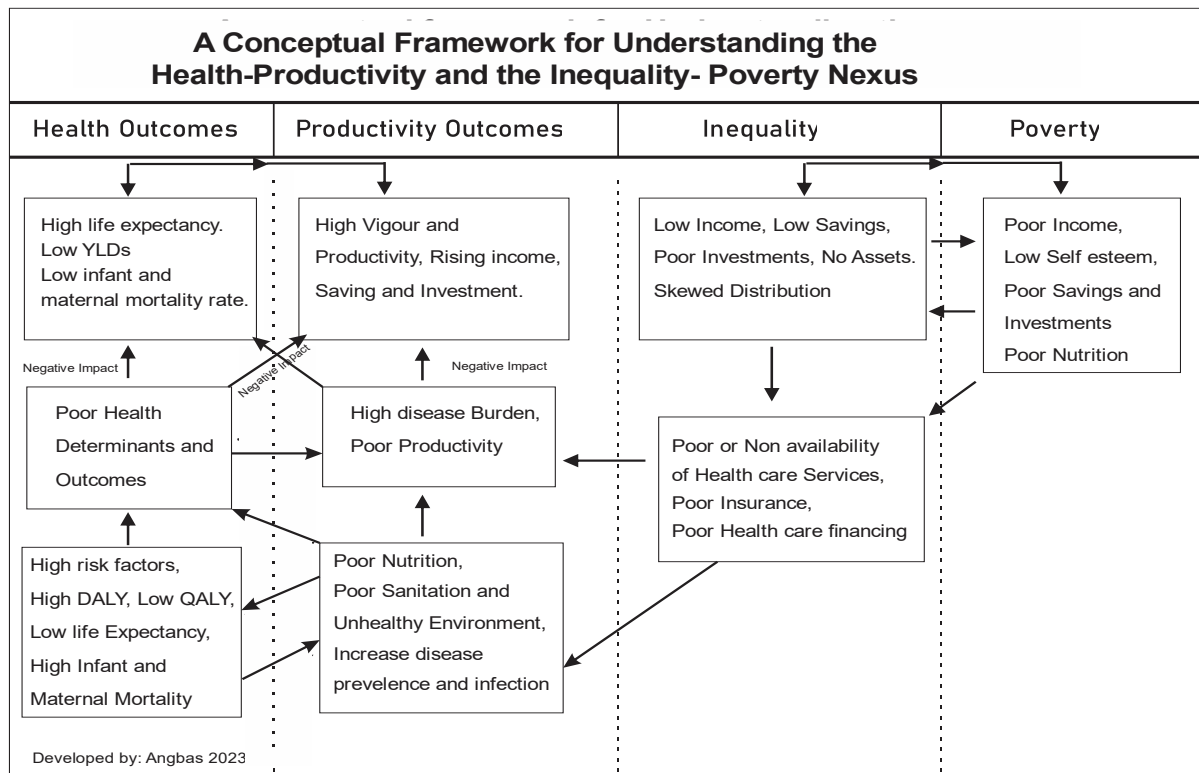
Source: Author's Computation

From the results above, life expectancy exerts negatively on growth rates which supports results from the first model. This can be interpreted as productivity falling resulting from less participation of the labour force in the production process. The average productive life of the individual ranges between 18-55 years during which time he is at his optimum best in terms of his physical, mental and emotional stability. Nigeria's quality adjusted life years (**QALY**), the disability adjusted life years (**DALY**), the disability adjusted life expectancy (**DALE**), all coalescing into years lost due to disability (**YLDs**) reveal that the average working life of the worker is significantly reduced on account of ill health. This has implication for productivity increases. These statistics all cast a significant doubt on the ability of its aging labour force to meaningfully contribute to productivity increases in the long run. A rapidly growing population should be a precursor for an expanding labour force that can stimulate productivity increase through rising incomes, savings, consumption and investments, unfortunately, this is not the case in Nigeria.

The infant mortality rate, the inequality index and per capita income all have weak association with life expectancy. The persistently low per capita income of the average Nigerian lends credence to the high rate and prevalence of poverty in the land where records reveal that over **133 million** Nigerians are multi dimensionally poor and this has only heightened the rate and level of inequality in the country. The few rich in society have adopted an ever-increasing sophistication in their methods of accumulating more wealth thereby widening the income gap further. Although some of the variables are not significant enough creating a situation of rejecting the a priori expectation, it boils down to what Obaseki (stated that economic conditions of a large number of developing countries are unpredictable in relations to a priori expectations. Data gathering and processing is most time suspect due to either human error or deliberate manipulation by processors which can impact results of the study. This however does not diminish results of studies as most findings corroborate the situations on the ground which speaks to the feelings of citizens.

The author presents a graphic picture of how inequality and poverty affects health and productivity outcomes in Nigeria leading to the catastrophic nature in which it has diminished overall growth of the Nigerian economy in the diagram below.

Figure 1: A conceptual framework for understanding –Health- Productivity and Inequality and Poverty Nexus



Source: Author's Design, 2024

The pictorial diagram shown above depicts how income inequality and poverty work through their negative bi-causal interactions to create conditions that exposes the poor in society to vulnerable living conditions thereby compounding their health status. This heightens disease burden on the vulnerable and limits their ability to fight its scourge and also limits their capacity for active participation in the process of productivity. There are several diseases that are opportunistic in nature and only manifest where poverty is prevalent and their incidence is rising in Nigeria today. Diseases such as cholera, diarrhea, meseales, tuberculosis, malaria and dysentery are generally labelled opportunistic because they thrive on conditions that are simple and common. They take advantage of the state of the poor and vulnerable members of society because they cannot attack their occurrence due to low income. These diseases are not just common; their incidences are pervasive while their burdens and effect are taking a significant negative foot hold in many poor neighborhoods and societies today wreaking havoc on human lives and creating catastrophic impacts on healthy living and productivity. This situation is often created by deliberate public policies that are designed and tilted unfavorably against the low, vulnerable and middle-income households. Inability of these groups to fight or defend their positions leads to continuous exposure to disease infections accentuated by poor living conditions and poor environmental factors. Productivity loss resulting from absenteeism, ill health and poor incomes only resonate in declining growth and overall slow growth and development of the country.

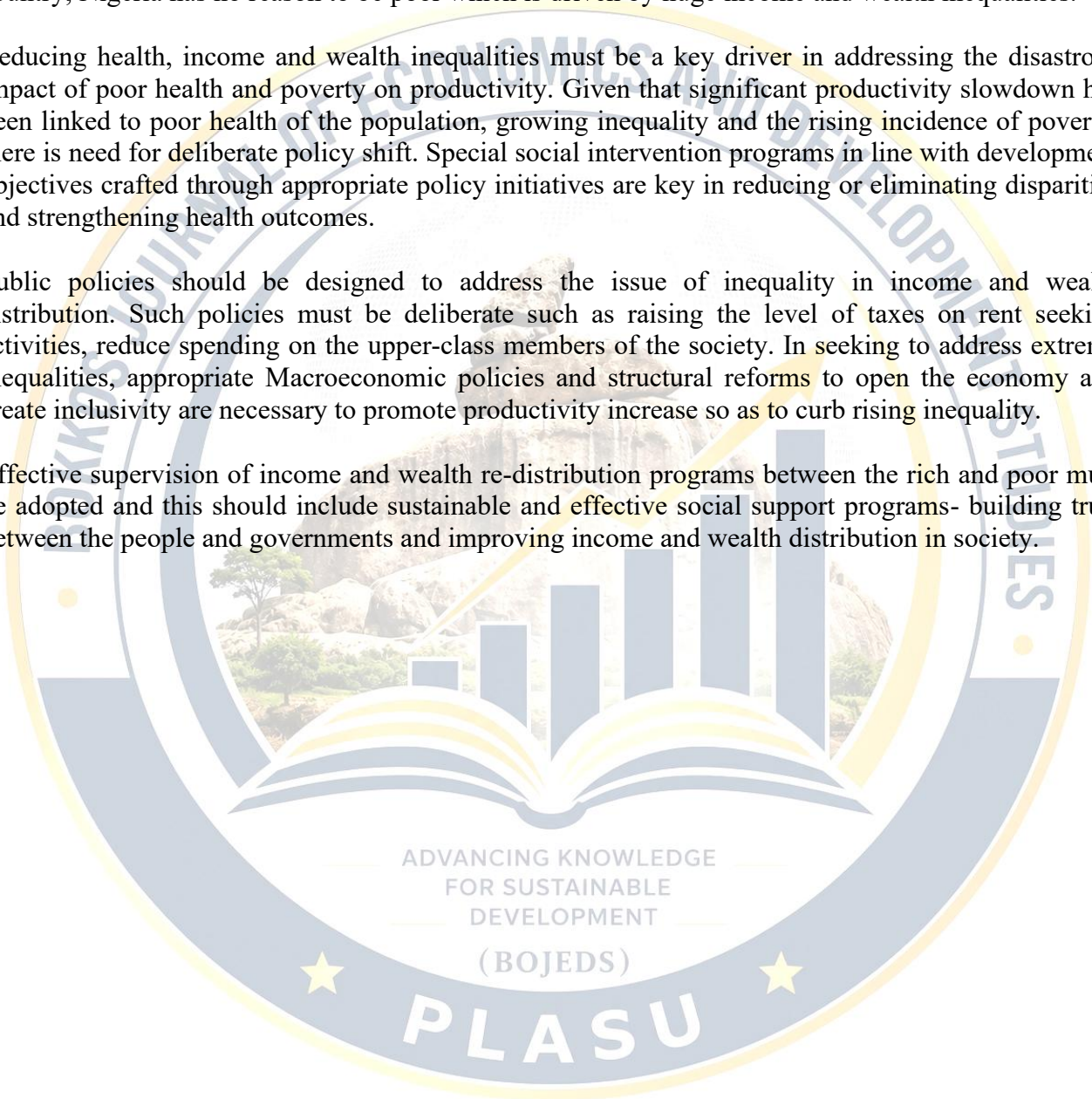
4.0 CONCLUSION

One can therefore surmise that Nigeria's economic growth has been both catastrophically poor and stunted in large part over the years essentially due to the endemic nature of income and wealth inequality and the excruciating nature of poverty in the land. Results analyzed above based on the data available clearly reveal these facts. Given the enormous natural resource endowments of the country, Nigeria has no reason to be poor which is driven by huge income and wealth inequalities.

Reducing health, income and wealth inequalities must be a key driver in addressing the disastrous impact of poor health and poverty on productivity. Given that significant productivity slowdown has been linked to poor health of the population, growing inequality and the rising incidence of poverty, there is need for deliberate policy shift. Special social intervention programs in line with development objectives crafted through appropriate policy initiatives are key in reducing or eliminating disparities and strengthening health outcomes.

Public policies should be designed to address the issue of inequality in income and wealth distribution. Such policies must be deliberate such as raising the level of taxes on rent seeking activities, reduce spending on the upper-class members of the society. In seeking to address extreme inequalities, appropriate Macroeconomic policies and structural reforms to open the economy and create inclusivity are necessary to promote productivity increase so as to curb rising inequality.

Effective supervision of income and wealth re-distribution programs between the rich and poor must be adopted and this should include sustainable and effective social support programs- building trust between the people and governments and improving income and wealth distribution in society.



REFERENCES

- Acemoglu, D., 2002, Technical Change, Inequality, and the Labor Market, *Journal of Economic Literature*, XL: 7-72.
- Aghion, P., E. Caroli, C. Garcia-Penalosa (1999) Inequality and economic growth: The perspective of the new growth theories. *Journal of Economic Literature* 37(4): 1615-1660.
- Aguiar, Mark, and Mark Bils. 2015. "Has Consumption Inequality Mirrored Income Inequality?" *American Economic Review* vol. 105, no. 9, 2725–2756.
- Aigokhan, B.E. 2008. Growth, inequality and poverty in Nigeria. ACGS/MPAMS Discussion Paper No.3. United Nations Economic Commission for Africa (UNECA) Addis Ababa, Ethiopia, February.
- Alichi, Ali, Kory Kantenga, and Juan Sole. 2016. "Income Polarization in the United States." International Monetary Fund Working Paper WP/16/121.
- Anyanwu J. C. & Erhijakpor A. E. (2010) "Do International Remittances Affect Poverty?"
- Arndt C, McKay A, Tarp F. Growth and Poverty in sub-Saharan Africa. Oxford, England: Oxford University Press; 2016.
- Arthur E. (2015) *Health Expenditure, Health Outcomes and Economic Growth in Sub-Saharan Africa* (Doctoral dissertation, University of Benin) (2015). *Asian Economic and Financial Review*. 5(3), 439-452
- Awe and Rufus (2019) "Determinants of Income Distribution in the Nigeria Economy: 1977-
- Ball, Lawrence (2018) "Long-Term Damage from the Great Recession in OECD Countries." National Bureau of Economic Research (NBER) Working Paper no. 20185.
- Bakare A. S. (2018) "Measuring the Income Inequality in Nigeria: The Lorenz Curve and Growth, 5(1), 5-32.
- Barro, R. J. (2021) "Inequality and Growth in a Panel of Countries". *Journal of Economic* 2(7), 84-94
- 2005". *Journal of International Business and Management* Vol. 5(1), 126-137.
- Bivens, Josh. (2016) *Progressive Redistribution without Guilt: Using Policy Changes to Shift Economic Power and Make Incomes Grow Fairer and Faster*. Economic Policy Institute.
- Bivens, Josh. (2019.) *A "High-Pressure" Economy Can Help Boost Productivity and Provide Even More "Room to Run" for the Recovery*. Economic Policy Institute.
- Fosu, A. K (2018) Growth Inequality and Poverty reduction in Developing Countries Recent Global Evidence. *Research In Economics* [Google Scholar](#)
- Feng, Z., Wang, W., Jones, K., and Li, Y. (2019) An exploratory multilevel analysis of income, income inequality and self-rated health of the elderly in China, *Social Science and Medicine* Vol. 75, pp. 2481– 2492. 11.Finance. 7(2), 51-61.
- Flegg, A.T. (2021) Inequality of income, illiteracy and medical care as determinants of infant mortality in underdeveloped countries, *Population Studies*, Vol. 36, No.3, pp. 441-458.
- Growth in Nigeria: Further Empirical Evidence". *International Journal of Economics and*
- Hamel, K., B. Tong and M. Hofer. (2019). Poverty in Africa is Now Falling-but not Fast Enough. Future Development. <https://www.brookings.edu/blog/futuredevelopment/2019/03/28/poverty-in-africa-is-now-falling-but-not-fast-enough/> [Accessed: 27, April; 2021]
- Hanna R, Olken B. A. (2018) Universal basic incomes versus targeted transfers: Anti-poverty programmes in developing countries. *Journal of Economic Perspectives*. 32(4):201-226
- Hermes N. (2014) Does microfinance affect income inequality? *Applied Economics*. 2014;46(9):1021-

- Ibrahim V. H and Uchichi, T. U (2020) Income Inequality and Poverty in Nigeria. An Empirical Analysis- Journal of Economics and Finance
- Kolawole, B. O., O. A. Omobitan & J. O. Yaqub (2019) "Poverty, Inequality and Rising Middle Class: Statistically or Economically Growing?" Developing Country Studies
- Ogbeide E. N. & D. O. Agu (2019) "Poverty and Inequality in Nigeria: Any Causality?"
- Onyema, O. M. (2018) "The Dynamics of Poverty and Income Distribution: Is the Nigerian Gini Coefficient Approach". American Journal of Economics. 2(1), 47-52
- Osahon S. & A. K. Osarobo (2011) "Poverty and Income Inequality in Nigeria: An Empirical Assessment". JORIND 9(2), 447-452.

