Does Inequality and Poverty Determine Life Expectancy in Nigeria?

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Abstract
Our study examines relationship among income inequality, poverty, and life expectancy in Nigeria via annual data from 1985–2024. Ex-post facto research design is espoused, while the empirical analysis employs the Augmented Dickey–Fuller (ADF) unit root test to establish the stationarity of the variables. Given, all variables are stationary at level, Ordinary Least Squares (OLS) technique was applied to estimate the long-run relationship, while post-estimation diagnostic tests including, Breusch–Godfrey serial correlation, Breusch–Pagan heteroskedasticity, and CUSUM stability tests were conducted to ensure model robustness. The findings reveal that income inequality exerts a statistically significant and adverse effect on life expectancy in Nigeria, inferring widening income disparities which decreases longevity. Poverty also exhibits a negative relationship with life expectancy; however, its effect is statistically insignificant within the study period. These results underscore the adverse implications of socio-economic disparities for population health outcomes. The study concludes that policies aimed at reducing income inequality through employment generation, income redistribution mechanisms, and improved access to social services are critical for enhancing life expectancy. Strengthening poverty alleviation strategies and expanding public investment in healthcare, other public infrastructure, and human capital development are recommended to promote sustainable improvements in national wellbeing.

Keywords: *Income inequality, Poverty, Life expectancy, Health outcomes, Time-series analysis*

JEL: D63, D63, H13, H49,

1. Introduction

In attempting to answer the question of the relationship existing between Inequality and Poverty in relation to Life Expectancy in Nigeria will require an insight of the concepts. Poverty is among of the world's unsolved problems developing countries like Nigeria will have to mitigate. It has multidimensional nature which is apparent in diverse forms, namely; deficiency of adequate revenue to secure and sustain decent standard of living by addressing issue of hunger and under-nutrition, illness; limited education, shelter and essential services.

Inequality is another societal challenge that pervades the existence of individuals. It is an age long phenomenon which individuals experience disparities and unequal access to socio-economic opportunities. Continuous rise in mortality and morbidity as result of sickness, homelessness or inadequate housing, insecure environments, social exclusion and discrimination according to

Ogbeide, Nwamaka & Agu, (2015) are outcomes of Poverty and Inequality. Poverty and inequality in Nigeria are contradiction because the level of poverty and inequality gap contradicts with abundance of the Nations resources and wealth in all its ramifications. Thus, aptly put that there is poverty in the core of plenty and inequality in the face of economic growth.

Nevertheless, in search of improved standard of living, poverty alleviation and reduction in inequality gap, Nigerian Government at various times have introduced several Programmes some of which are namely; Poverty Alleviation Program (PEAP), Trader Money, National Social Investment (NSIP), N-Power, Conditional cash Transfer, Government Enterprise and Empowerment (GEEP), National Poverty Eradication (NAPEP), etc.

Life Expectancy describes the number of years and individual hopes to live relative to the birth year, his dwelling and the mortality rate given his health and wellbeing, access to health care and prevailing illnesses. The conundrum of poverty and inequality and the far-reaching effect on life expectancy is embedded in the complexity of the differences between countries in life expectancy. Many factors seem to determine this, such as Gross Domestic Product per capita, health care accessibility, poverty and environment. Differences in longevity exist across countries especially in the developed countries.

In Nigeria, the average life expectancy for male is 54.6 and 55 for female, Ghana is 66 and female 68 years, Kenya is 61 while 66 for female. In the developed countries, the life expectancy is higher given their environment such as socio-economic status, health and accessibility to education. For example, in America the life expectancy period ranges between 79 and 82 years for male and female respectively. Australia has 70 and 71 whereas, the United Kingdom has 84 and 82 years for female and male. (Nigeria Bureau of Statistics, UNDP 2023). There is no doubt therefore, that education, health care, employment, economic status and environment amongst others plays critical role in the life expectancy of individual. This understanding is crucial for the developing countries given the scenario highlighted above.

Statement of the Problem

According to World Bank Population Review (2019), an average Nigerian may live slightly older than his 55th birthday. The statistics thus indicates a reduction in human capital and investment potential of a typical Nigeria who has attained above 50years of age. This account for the aggregate GDP of the country where the age after school is high and very short working life given the life expectancy period. Typical Nigeria youth finish university education as an early adult which shortens his period potential work life he spends on employment where he finds one early enough. Ngwen & Manfred (2015), will contend that this scenario contributes to further deepen the poverty rate. The World Bank assessed that as at 2021, more than 711 million people globally lived on less than $1.90 daily. This was great departure compared to 1990 where well over 1.8 billion people lived in extreme poverty in a world of 269 billionaires. Such poverty trend does not give room for extended life expectancy rate.

Several studies including, Anne (2019), and Gopal & Lee (2021), focused on influences such as gender, genetics, health care accessibility, nutrition, exercise, and lifestyle as contributory to low life expectancy. Our studies contrary to these considers the relationship between inequality and poverty as factors which influences life expectancy. These variables need to be explored in Nigeria, hence the study. Moreover, recent government policy on fuel subsidy removal and the floating of the exchange rate seem to widen the inequality gap and consequently increase the poverty rate. The study therefore, examine the relationship between inequality, poverty and life expectancy in Nigeria and covers period, from 1985 to 2024.

2. Literature Review

Conceptual Review

Poverty

Poverty a phenomenon connected with humans are defined differently. Todaro and Smith (2011), define it as inability to attain the smallest level of living standard whereby, the individual cannot afford the comfort of housing, healthiness and education. Hence, deprivation of physiological needs. Poverty is instigated by lack of means of sustainability such as employment, skill or vocation which otherwise would have created means of livelihood. Ewubare and Okpani (2018), describe poverty as a condition typified by extreme deprivation of basic human needs including education, health, access to essential and social services including, portable drinking water.

Poverty is perceived as scarcity, dearth, or the state of lack of substantial possessions or money. World Bank in 2011, define poverty as denial of rudimentary human needs that includes; food, water, hygiene, wear, housing, health care and education. However, it is certain that poverty is relative and defined as economic disparity in the society. It is the major reason for hunger and malnourishment. The Food and Agricultural Organization (2009), estimated that over 900 million people globally are underfed and undernourished, which more often, lead to untimely death.

Inequality

Sociologists and Social scientists have argued the issue of inequality, its indicators and consequences including how to mitigate the consequences. The phenomenon will ever exist because of developmental differences among the society including historical background that have ever existed. Civilizational paths and pattern also determine the degree of inequality. Broadly, inequality is the inadequate or unfair dispersal of resources and prospects among members of a society. In this, it means that is conceived differently given the varied contexts and perceptions. It incorporates diverse, yet overlapping economic or social interaction. Therefore, economic inequality explicates the disparities in income and wealth. Sociologically, it discusses distinguished rights and access to opportunities and welfare base on race, ethnicity, age, gender, sexuality, disability or citizenship statuses. In spatial inequality, there is appearances and implicit gap like regional and rural urban differences. Significantly, inequality could be associated with each other's complex ways across time and space.

Most common metric of all given the above, is Income Inequality which refers to the disparity of income within a population. Such disparity creates social disconnection, and emotional incontinent. Generally, the study of inequality offers different yet, corresponding understandings about its causes and consequences thus, providing better guidance for government when dealing with specific policies aimed at addressing inequality.

Alkire, et al (2015), describes inequality as unable to being equal, expressed in status, rights, and opportunities. They noted that it is a concept of social justice theories, therefore, described as the existing gap or diffusion in the spreading of income among individuals or households within a particular population and expressed in income or economic standing. It is calculated by comparing the income levels of different individuals or households and defining the gap between them.

Life Expectancy

Life expectancy mark time an individual is anticipated to live in accordance with his year of birth, present age, demographic circumstances, and gender. Usual measure for life expectancy is from birth, (Muanya, 2019, Felix 2020). Life Expectancy is the estimated average number of years a person is presumed to stay alive. Such measure is speculative. Life expectancy assumes that age-

specific mortality rates of any year in question would apply to persons born in that year and for the rest of his life. This measure differs with respect to gender, age. race, and geographical place of domicile. This explains why life expectancy is often speculated for groups, set or cross section of people, rather than the entire population. For instance, females born in 2003 in America have life expectancy of about 80.4 years. World Bank (2018), views life expectancy as the number of years newborn child would live if predominant pattern of mortality at birth time of the child were the same throughout the entire life.

Life expectancy therefore, summarizes the mortality in a population. Its Statistics is derived from a mathematical life chat model which creates the hypothetical group.

Theoretical Framework

The study is built on Gopertz theory on Life expectancy.

Gopertz Theory:

Benjamin Gompertz 1825) proposed this theory that has to do with life expectancy. He states that mortality rates rise exponentially on the age of individuals signifying that the older someone is, the likelihood that such individual will die earlier. Gompertz stated that mortality rate is higher when people attained the age of 30years and above. He further that dead rate doubles for every individual every 8-10 years and that the risk of death is fairly stable in the early years of birth but increases more rapidly with age. Planning age therefore will require the expertise of actualists.

The implication of this is that it is not only poverty and inequality that is responsible for high mortality but age plays a significant role when considering life expectancy, The Gompertz theory is significant when considering policies concerning retirement, age and resource allocation.

The theory is relevant to this study because it lay the foundation for public or Government decision in planning retirement scheme or management of public funds.

Empirical Literature Review

Arikpo, et. al (2019), studied the macroeconomic determinants of life expectancy in Nigeria. Variables chosen for the research were income per capita, unemployment, inflation, income inequality, and health investment. Time series data were collected from 1980-2015. The econometric tool was the ordinary least square which enables the estimation of the variables. Outcome of the study showed that major predictor of life expectancy in the model was income inequality. Carbon dioxide emission and 1000 person to a physician were found to be significant in explaining life expectancy. This underscores the need for income redistribution. Recommendations were made to the effect that higher income levels and the engagement of skilled health personnel can stabilize the health system, thus should be prioritized.

Felix and Onyenze (2020), studied population growth, literacy and life expectancy in Nigeria. It examines mediating consequence of literacy on population growth-life expectancy nexus. Econometric technique of time series for data from 1981 to.2018 were adopted for the analysis. Finding revealed that life expectancy was positive to the movement in the population growth rate and tertiary institution enrolment which implies that higher education is significant in the population life expectancy in Nigeria. this shows that tertiary education is capable of influencing life expectancy. Thus, conclude that literacy has a mediating effect on population growth -life expectancy. It therefore recommended that higher institutions should allocate a substantial percentage of its budget to education to increase knowledge base population.

Ane (2019), investigated income and inequality on life expectancy. Panel data of some developing countries were employed and using Palma ratio to measure income inequality. This principally

increased the countries and offer explanations in the analysis related to previous studies. The ratio contains rated 10 percent of the income stake separated from bottom 40 percent. The Palma ratio inequality ration is more critical to changes in income inequality when equated with the Gini-coefficient which agrees with the variation in the inequality measure. It also gives room for more numerical power with the use of fixed effect model. Results obtained from the study indicate that income inequality was strongly related with life expectancy thus, affect the gross domestic per capita on long life, in consonance with prior findings of weakening effect of gross domestic product per capita on life expectancy.

Sede and Ohemeng (2015), carried out a study on socio-economic factor determining life expectancy in Nigeria taking time series, between 1980 and 2011 data. They employed VAR and VECM to analyze the data. Socio-economic indices were proxy for secondary school enrolment, public expenditure on health, per capita income, rate of unemployment and the foreign exchange rate for the domestic currency. The study discovered that socio-economic indices, namely; per capita income, education and public spending on health were potent in influencing life expectancy in. emerging countries. It however, recommended that, life expectancy in Nigeria could be extended when adequate priority is paid to worth of health. Similarly, lack of employment should be prioritized while deliberate actions should be taken checkmate the erosion of purchasing power of individuals and improve upon the welfare of the people.

Momoh et.al (2024), studied the consequence of economic welfare in life expectancy in sub-Sahara Africa for a panel data set of 44 selected countries from 2000-2021. Result of panel granger causality test show that real GDP, secondary school enrolment rate and carbon dioxide emission indicate bidirectional relationship with life expectancy.

3. Methodology

Research Design

This study assumes ex-post facto research design, which is appropriate for analyzing macroeconomic relationships using historic data. Our design allows for empirical investigation of the connection between income inequality, poverty, and life expectancy without manipulation of our study variables. Given the macroeconomic and longitudinal nature of the analysis, time-series econometric techniques are employed.

Data Sources and Sample Period

The study uses annual time-series data covering 1985–2024. Data were obtained from reputable secondary sources, including: National statistical publications, international development databases, World development indicators.

Life expectancy data were sourced from global demographic databases, while data on poverty rate, income inequality, GDP per capita, and total population were drawn from official national and international statistical repositories.

The selected time frame reflects data availability and ensures sufficient observations for robust time-series estimation.

Model Specification

The empirical model examines the consequence of income inequality and poverty on life expectancy in Nigeria, controlling for macroeconomic and demographic factors.

The efficient form of the model is specified as:

LEB_t = f (INEQ_t, POV_t, GDPPC_t, TOP_t)

Where:

- LEB_t = Life Expectancy at Birth
- INEQ_t = Income Inequality
- POV_t = Poverty Rate
- GDPPC_t = Gross Domestic Product per capita
- TOP_t = Total Population
- t = Time period

A Priori Expectations

Based on economic theory and empirical literature:

- \beta_1 < 0: Higher inequality is assumed to reduce life expectancy.
- \beta_2 < 0: Higher poverty is perceived to reduce life expectancy.
- \beta_3 > 0: Higher income per capita is expected to increase life expectancy.
- \beta_4 may be positive or negative depending on demographic pressures

LEB =f (INEQ, POV, TOP, HC) [2]

Where;

LEB = Life expectancy at birth

TNEQ = Economic Inequality

POV = Poverty rate

TOP= Total Population

GDPPC = Gross Domestic Product per capita

For the purpose of estimation, it is necessary to re-write the model in the form of equation as;

$$LEB = \beta_0 + \beta_1 INEQ_t + \beta_2 POV + \beta_3 TOP + \beta_4 GDPPC + \mu_{1t}$$

3

Where: LEB = Life Expectancy at Birth

β_0 = Constant term

$\beta_1, \beta_2,$ = the coefficient of inequality and poverty rate to be determined.

β_3, β_4 = Control variables

μ_{1t} = error or stochastic term.

$\beta_1, \beta_2 > 0$ = the apriori expectation.

Dependent Variable

Life expectancy is defined as the average number of years residual to specified age and has been considered an important indicator of a nation's health, wellbeing and human development.

Independent Variables

Inequality is the unequal dispersal of resources, prospects, and privileges within individuals or groups in a society. It is measured by economic inequality, disparities in income, wealth and assets. Poverty on the other hand, is a state characterized by lack of basic needs necessary for a person to survive and enjoy decent living.

Estimation Technique

We employ Ordinary Least Squares (OLS) estimation technique. This is more appropriate because it provides unbiased Best Linear Estimators (BLUE) in the Gauss–Markov assumptions. The variables were confirmed to be stationary at level. The objective is to determine the long-run association among our variables.

Unit Root Test

To obviate spurious outcome of the regression results, stationarity properties of the variables were scrutinized employing the Augmented Dickey–Fuller (ADF) test.

The test evaluates the null hypothesis to see if a variable contains a unit root (non-stationary) against alternative hypothesis of stationarity.

It is only after confirming stationarity, were the regression estimates considered valid.

Diagnostic and Stability Tests

To ascertain the dependability and robustness of the estimated model, several post-estimation diagnostic tests were carried out: Breusch–Godfrey Serial Correlation LM Test.

To certify the autocorrelation in the residuals. Breusch–Pagan–Godfrey Heteroskedasticity Test.

Affirm constancy of the variance and the error terms, Normality Test (Jarque–Bera), assess if the residuals are normally distributed. CUSUM Stability test, and to see the structural stability of the model over the sample period.

All these ensures that the classical linear regression assumptions are satisfied and that the model is stable and statistically reliable.

4. Result Presentation and Discussion

Table 4. 1: Descriptive Statistics

	LEB	INEQ	POV	TOP	GDPPC
Mean	49.07245	41.20026	54.73526	1.41E+08	249371.1
Median	47.48100	39.45000	54.83000	1.35E+08	117184.0
Maximum	55.44000	56.00000	66.90000	2.19E+08	925981.1
Minimum	45.84300	35.10000	40.10000	83585251	2247.174
Std. Dev.	3.466805	6.557434	6.813179	40821944	275494.3
Skewness	0.582223	0.964755	-0.300469	0.337394	0.906560
Kurtosis	1.760133	2.633380	2.681100	1.884323	2.573717
Jarque-Bera	4.580905	6.107586	0.732803	2.691783	5.492775
Probability	0.101221	0.047180	0.693224	0.260307	0.064159
Sum	1864.753	1565.610	2079.940	5.36E+09	9476103.
Sum Sq. Dev.	444.6934	1590.998	1717.518	6.17E+16	2.81E+12
Observations	38	38	38	38	38

Table4. 1. The descriptive statistics indicates 38 annual observations were employed in the analysis. The variables include Life Expectancy at Birth (LEB) as dependent variable, while Income Inequality (INEQ), Poverty Rate (POV), Total Population (TOP), and Gross Domestic Product per capita (GDPPC) serve as explanatory variables. The summary statistics show moderate variation across the variables, suggesting sufficient dispersion for econometric estimation.

Table4. 2.: The Augmented Dickey-Fuller Test for Stationarity

To avoid spurious regression results, stationarity properties of the variables were observed using the Augmented Dickey–Fuller (ADF) test

Variable	ADF Statistic	5% Critical Value	Order of Integration
LEB	**-3.014421**	**-2.976263**	**I (0)**
INEQ	**-2.566398**	**-1.955681**	**I (0)**
POV	**-3.014157**	**-2.957110**	**I (0)**
TOP	**-3.332145**	**-1.951000**	**I (0)**
GDPPC	**-3.981367**	**-2.945842**	**I (0)**

Source: Extracts from E-view 12. * Level of significance at 5%

The ADF statistics for all variables are more negative than their respective 5% critical values. Therefore, the null hypothesis of a unit root is rejected for each variable. This implies that all variables are stationary at level, I (0).

Since the variables are integrated of order zero, use of Ordinary Least Squares (OLS) is appropriate, and there is no need for cointegration testing.

Table 4.3 Long Term Estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	46.41538	0.696936	66.59916	0.0000
INEQ	-0.072959	0.014711	-4.959431	0.0000
POV	-0.017098	0.011247	-1.520292	0.1380
TOP	3.61E-08	5.96E-09	6.057077	0.0000
GDPPC	6.03E-06	9.12E-07	6.617989	0.0000

R-squared	0.991445	Mean dependent var	49.07245
Adjusted R-squared	0.990408	S.D. dependent var	3.466805
S.E. of regression	0.339533	Akaike info criterion	0.799585
Sum squared resid	3.804317	Schwarz criterion	1.015057
Log likelihood	-10.19212	Hannan-Quinn criter.	0.876249
F-statistic	956.1071	Durbin-Watson stat	2.397676
Prob(F-statistic)	0.000000		

Source: Extracts from E-view 12. * Level of significance at 5%

Our OLS estimation results show the following:

Income Inequality (INEQ)

Coefficient of income inequality is -0.072959, with a t-statistic of -4.959431 and a probability value less than 0.05. This implies that income inequality exhibits negative and statistically significant result on life expectancy in Nigeria.

Interpretation: A one-unit increase in income inequality will give rise to a 0.073-unit reduction in life expectancy, holding other variables constant. Since the model is estimated in level form (not logarithmic), the coefficient does not imply a 7% decrease. The correct interpretation is in unit terms, not percentages. This result suggests that widening income disparities reduce longevity in Nigeria, conceivably through unequal access to healthcare, nutrition, and social services.

Poverty Rate (POV)

The coefficient of poverty is -0.017098, with probability value of 0.1380, and is greater than 0.05 implying that Poverty is negative but statistically insignificant outcome on life expectancy within our period of study. Although higher poverty tends to reduce life expectancy, the effect is not strong enough to statistically deviate from zero at the 5% level.

Control Variables

The inclusion of Total Population (TOP) and GDP per capita (GDPPC) improves the explanatory power of the model and controls for demographic and economic influences on life expectancy.

Table 4. 4: Post Estimation Tests (Normality Test, Breusch-Godfrey Serial Correlation LM Test, Breusch-Pagan- Godfrey Heteroskedastic Test).

	F-Statistics	Prob Value
Normality Test	2.34325 7	0.309862
Breusch-Godfrey Serial Correlation LM Test	37.32881	0.5672
Breusch-Pagan-Godfrey heteroskedastic Test	3.482585	0.0776

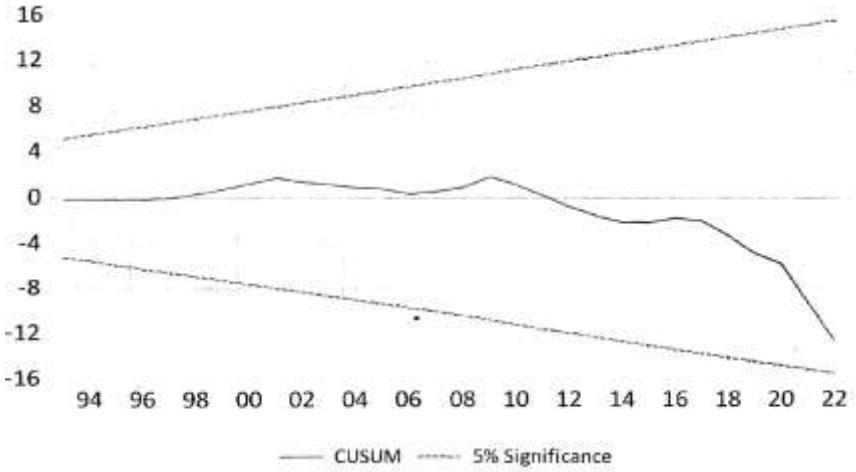
Source: Author 's Computation using E-views 12

In Table 4. 4, the normality test shows probability value of 0.309862 which is greater than 0.05 critical value, accepting our null hypotheses.

The result of the serial correlation test using Breusch-Godfrey Serial correlation LM Test shows the F-Statistics as 37.3288 1, and a chi-square value of 0.5672. This indicates that the probability value of 56% is greater than 5% (0.05) critical value; hence, the study confirms no serial correlation in the model.

The result of the heteroscedasticity test using Breusch-Pagan-Godfrey test shows that the F-statistics is 3.4825 85 and chi-square probability of 0.0776, which suggests no evidence of heteroskedasticity in the model thus, the probability value of the Chi-square is greater than 5% P-value meaning that the independent variables are constant portentous of a strong relationship between inequality, poverty and life expectancy.

Figure 1: Stability Test



Stability test the CUSUM. It directs that the model is stable given that the line lies in-between the upper and lower lines of (+5 and -5) respectively.

Conclusion

We investigated the connection among inequality, poverty and life expectancy in Nigeria and adopted both dependent and independent variables for the study to establish the degree of the relationship. Our control variable were total population (TOP) and gross domestic product per capita (GDPPC). Augmented Dicker Fuller stationarity test employed in the analytics were to determine the most suitable econometric technique to deploy which the Ordinary Least Square technique was chosen. The OLS result shows that Inequality has a negative but significant influence on Life expectancy, while poverty proved negative and insignificant on life expectancy. Our results corroborate with some literatures reviewed in the course of the research. Specific factors were found to influence life expectancy which notably were included poverty and Inequality. It will be noteworthy to stratify the country and assess such relationships according to geo-political zones. Such study will make a significant find for policy determination.

Recommendations

As a corollary to the findings, the following recommendations become necessary;

1. The government should take steps to reduce the level of poverty in the country by creating employment, encourage skills development and entrepreneurship. In so doing, chances are that they could afford better life and reduce diseases and mortality rate will reduce.
2. Reduction of inequality gap through by creating avenues that could create social schemes recreation centers and interactive forums that will cater for all strata of the populace.
3. The implementation of the new minimum wage and ensure income redistribution through taxation. This is critical for social adjustment, veritable ingredient for increase life expectancy and reduce mortality.

References

Abdalali, M. & Mehrjardi, A. S.2015). Determinants of life expectancy: A panel data approach *Asian Economic and Financial Review*, 501), 1251-125

Aghion P, Caroli E, GarcIa-Pefiaiosa C (1999) Inequality and economic growth: the perspective of the new growth theories. JEcon Lit 3 7(4): 1615—1660

Alkire, S., Foster, J., Seth, S., Santos, M. E., Roche, J. M., and Baflon, P. (2015). Multidimensional Poverty Measurement and Analysis', Oxford: Oxford University Press.

Allen, J. (2014). The macroeconomic consequences of poverty and inequality. A dissertation submitted to the Department of Economics and the Graduate School of the University of Oregon.

Arikpo, D.I, Eke, D.I. & Obafemi, N. (2019) Determinants of Life Expectancy in Nigeria: a macroeconomic Analysis. *International Journal of Social Sciences and Economic Research.* 4(4): 2722-2749

Ane, M. 1. (2019). Income inequality and life expectancy. An Unpublished Master's Thesis submitted to the School of Economics and Management, Lund University.

De Vogli, R., Misty, R., Onesotto, R. & Comia, 0. A. (2014). Has the relation between income inequality and life expectancy disappeared? Evidence from Italy and top industrialized countries.

Devdatta R. & Linden, M. (2018). Health, inequality and income: a global study using simultaneous model. *Journal of Economic Structures* 7(22), 18-0121-3

Eauss, M. (2012). Encyclopedia of Enviromentrics. 2nd Edition. John Wiley & Sons Ltd.

Encyclopedia (2018). Life Expectancy. Encyclopedia.com

Ewubare, D. B. & Okpani, A. 0. (2018). Poverty and income inequality in Nigeria (1980- 2017). *International Journal of Advanced Studies in Ecology, Development and Sustainability (IJASEDS)* 5(1), 138— 151.

Felix, J.M.& Onyenze, K. (2020). Population growth literacy and life expectancy in Nigeria. *International Journal of Scientific Research in Education, 13(4), 695-711.*

Food and Agriculture Organization (FAO, 2009). Food security statistics

Galor, 0., & Tsiddon, D. (1997). Technological progress, mobility, and economic growth. The American Economic Review, 87(3), 363.

Institution National de Estadistica (2009). Poverty and its measurement — The presentation of a range of methods to obtain measures of poverty. 2 —

International Monetary Fund (IMF, 2022). Introduction to inequality

Kaldor, N. (1955). Alternative theories of distribution. The Review of Economic Studies, 83-100.

Kolawole, B. & Omobitan, A. (2015). Poverty, inequality and growth in Nigeria: An empirical evidence, Lagos State University, 5 (1) 22-30.

Maclean-Jebbin, F. (2020). Government poverty and life expectancy in Nigeria. *International Journal of Economics, Environmental development and society,* 1(1), 132-147

Meara, E.R.., Richards, S. &Cutler, D.M. (2008). The gap gets bigger: Changes in mortality and life expectancy, by education, 1981-2000. health Affairs 27, no. 2(2008): 350-360.

Mirrlees, J. A. (1971). An Exploration in the Theory of optimum income taxation. The Review of Economic Studies 38(2), 175-208.

Mohammad, H. P. (2015). Revisiting Health and Income Inequality Relationship: Evidence from Developing Countries. Journal of Economic Cooperation and Development, 33(4), 25-62

Momoh, O.A, Ajibola, J.O., & Onakoya, A.B (2024). Life expectancy in sub–Saharan African countries: does economic welfare matter? *Journal of Economics and Allied Research* 9(1):2536-2554)

Muanya, C. (Nov. 2019) Nigerians have fifth worst average life expectancy of 55 years. The Guadian online

Ngwen, N. & Manfred, K. (2015). The impact of life expectancy on economic growth in developing countries, Asian Economic and Financial Review, *Asian Economic and Social Society, 5(4), 653-660.*

Ogbeide, 0., Nwamaka, E & Agu, D. (2015). Poverty and inequality in Nigeria. *Asian economic and financial review*, 5 (3) 43 9-452.

Okun, A. M. (1975). Equality and efficiency: the big tradeoff Washington. D.C: Brookings Institution.

Sede, P. & Ohemeng, W. (2015). Socio-economic determinants of life expectancy in Nigeria (1980—2011). *Health Economics Review* 5(2), 1 -11

Siddique, H. M. A. Nazir, S. Mohey-ud-din., and Kiani, A. K. (2022). The Impact of Poverty on Human Health: A Panel Data Analysis. *Bulletin of Business and Economics*, 11(1), 113-120.

Stiglitz, J. (2012). The price of inequality: How today's divided society endangers our future. New York: W.W. Norton.

The World Bank - DataBanic. (2018). GDP per Capita PPP, USD.

Toby, F., Gesesew, H. A., Bambra, C., Giugliani, E. R. J., Popay, J., Sanders, D., Macinko, J., Musolino, C. & Baum, F. (2020). Why do some countries do better or worse in life expectancy relative to income? An analysis of Brazil, Ethiopia, and the United States of America. International Journal for Equity in Health, doi.org/l 0.1186/s 12939-020-01315-

United Nations Population Division (UNDP, 2023). Life Expectancy of the World Population. Retrieved from http/www.facebook.comlworldometer.info

Watt, P. (2000). Social Investment and Economic Growth: Strategy to Eradicate Poverty, Oxford: Oxfam G.B.

World Bank (2016). World Development Indicators. [online], available at: http://data. worldbank.org/data-catalog/world-development-indicators