
GLOBAL CRISIS AND THE NIGERIA ECONOMY: HIV/AIDS AND LIFE EXPECTANCY IN NIGERIA

Gloria Chika Nnakwe

Department of business administration
Wellspring University, Benin City
Mail: nnakweg@gmail.com

Abstract

The study looks at the global economic crisis and the Nigerian economy, with a focus on HIV prevalence and life expectancy in Nigeria. The study examines the influence of HIV/AIDS prevalence on Nigerian economic development, as well as the impact of life expectancy on Nigerian economic growth and labour force productivity on Nigerian economic growth. The study used panel data from four Nigerian states from 2002 to 2021 to investigate four variables (HIV/AIDS, life expectancy rate, labour force productivity, and GDP rate). The acquired data was analysed with the SPSS software using Ordinary Least Square statistics. According to the study findings, HIV/AIDS and labour force productivity both have a negative influence on Nigerian economic growth, but life expectancy increases Nigerian economic growth. This implies that issues impacting life expectancy, such as new born mortality, maternal health, and environmental factors, must be given substantial consideration if Nigeria is to attain sustainable development.

Key words: HIV/AIDS (Human Immune deficiency Virus/Acquired Immune Deficiency Syndrome); Life Expectancy; and Labour Productivity

Introduction

The health-related difficulties of their labour force, such as the presence of infectious illnesses like HIV/AIDS, have a negative impact on the productivity of many nations across the world. In 2000, the United Nations (UN) Millennium Declaration called for 189 affluent and poor nations (including African countries) to promote human development by 2015. Following this, the Millennium Development Goals (MDGs) were established, with eight targets set: eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality and empowering women, reducing child mortality rates, improving maternal health, combating HIV/AIDS, malaria, and other diseases, ensuring environmental sustainability, and developing a global partnership for development in these countries from 2005 to 2015.

While the Western nations have achieved the MDG targets, many African, Asian, and Latin American countries are still trailing behind in meeting some of the stated goals. The first Millennium Development Goal is to eliminate severe poverty and hunger by 2015. None of the African nations have met the aim; however, Angola, Benin, Ghana, Liberia, Malawi, Mauritania, Mozambique, Rwanda, Swaziland, and Tanzania are on course to do so: Angola, Benin, Ghana, Liberia, Malawi, Mauritania, Mozambique, Rwanda, Swaziland, and Tanzania (World Bank, 2020). Except for Sub-Saharan Africa, the number of residents who are living on less than \$1.25 per day has decreased in every area. In 1990, the poverty rate in SSA was 51%; while this has decreased by 3% in the subsequent 25 years to 48%, it remains higher than the developing-country average (World Bank, 2014). SSA is the epicentre of the HIV epidemic, accounting for 70% of all new HIV infections in 2012. Nonetheless, the United Nations (UN) introduced the Sustainable Development Goals (SDGs) on September 22, 2014, at the sixty-ninth UN General Assembly meeting, with the goal of advancing the UN's work. The SDGs were created to fulfil the MDGs' aims beyond 2015. One of the SDGs is to reduce yearly new HIV/AIDS infections by three-quarters by 2030 and to achieve universal treatment for HIV/AIDS patients by 2040.

Sub-Saharan Africa's economic growth is low on average, and the causes contributing may be visible, while some are definitely undetected. According to Okochi and Okpuzor (2011), the poor economic performance of Sub-Saharan Africa is driven by a variety of variables, one of which is the presence of infectious illnesses such as HIV/AIDS. The African health care system is generally inadequate, owing to a lack of enough financing, poor infrastructure, and insufficient research to address and manage the rising number of difficulties, such as the prevalence of HIV/AIDS and TB (World Bank, 2020).

Some of the empirical work on the influence of HIV/AIDS prevalence on growth was primarily focused on single-country study Bell et al. (2006) and Thurlow and Wobst are two examples of these investigations (2004). Asiedu (2012) and Over (2012) are two that have focused on cross-country or panel analysis (1992). Using the classic static panel technique, the studies above investigated the links between HIV/AIDS and economic growth. The current study will add to the body of knowledge in the following ways. First, a dynamic model is used instead of a static model since the dependent variable (HIV/AIDS) is dynamic in nature. Second, using life expectancy as a proxy for human capital development allows for a more dynamic investigation of the health–growth nexus in Nigeria.

Empirical studies on HIV/AIDS, life expectancy, and economic growth have shown inconsistent results. Furthermore, there is a scarcity of research concentrating on the impact of HIV/AIDS, life expectancy, and other control factors such as labour force productivity on economic growth, particularly in the Nigeria setting. As a result, further investigation is needed.

Objectives of the Study

The aim of the study is to examine global crisis and the Nigeria economy with emphasis on HIV prevalence and life expectancy in Nigeria. Other specific objectives are:

- i.) To ascertain the impact of HIV/AIDS prevalence on Nigeria economic growth.
- ii.) To find out the impact of life expectancy on Nigeria economic growth
- iii.) To observe the impact of labour force productivity on Nigeria economic growth.

Research Hypotheses

H₀₁: HIV/AIDS prevalence does not have positive impact on Nigeria economic growth.

H₀₂: Life expectancy does not have positive impact on Nigeria economic growth.

H₀₃: Labour force productivity does not have positive impact on Nigeria economic growth.

LITERATURE REVIEW

Conceptual Framework

The disease, Acquired Immune Deficiency Syndrome (AIDS), caused by Human Immunodeficiency Virus came to limelight in the 1980s. Although the Scientist believe that the HIV originated from a particular virus found in Chimpanzee in West Africa, in the 1930s, transferred to human through blood during hunting.

At the onset , the prevalence right was very high, but due to the advent of antiretroviral therapy (ART), improved quality health care and condition of life of people living with HIV/AIDS, (PLWHA), free counseling and testing , CD4 count and Viral load monitoring, there has been a reduction in the number of transmission and death.

Modes of transmission include: use or sharing of unsterilized sharp objects, sexual risky behaviour, blood transfusion, mother to child transmission through breast feeding and so on. Unlike in the past, testing positive to HIV/AIDS is no longer a death sentence due to several government intervention as well as that of the United State, Presidential Emergency Plan for Aids Relief (PEPFAR) which has expended thousands of dollars on enlightenment, test kits, drugs, training and retraining of health care providers, care of support for PLWHA in collaboration with the Nigeria government to increase life expectancy rate of HIV/Aids patients and support for people affected by HIV/AIDS (PABA).

Life Expectancy

The term life expectancy means the number of years one is anticipated to live from the time of birth. Life expectancy is dependent on the estimated average age that members of a specific or certain population will be at death. According to Esteban Ortiz-Ospina (2017) we have the cohort and period life expectancy.

The cohort life expectancy is the average life length of a given group born at a particular year, to do this analysis you must observe all the people in the group till death before you can calculate their life expectancy, while the alternate method is assuming the average life for a presumed group to be unveiled from birth to death to the mortality rate captured at a particular year. This method is usually applied in calculating life expectancy matric.

Noteworthy, is that some persons may die at the exact speculated life expectancy while some may die either much earlier of later. There are factors that can affect life expectancy rate, like accessibility to quality and affordable health care, infant/maternal mortality rate, environment and so on.

In Nigeria for example, life expectancy as documented by Demographics of Nigeria (2021) stood at 60,87 years, with male having an average of 59 years and female, 63 years, which puts Nigeria to the lowest in both Africa and the world.

Theoretical Review

Either implicitly or explicitly, nearly all the prevention interventions on HIV/AIDS are based on theory. Some of these theories depend on the belief system of the people that giving accurate information regarding transmission and prevention of HIV/AIDS will lead to a change of behaviour. Researchers has established countless times education alone cannot propel change of behaviour in so many people.

Health Belief Model

The health belief model or theory was postulated in the 1950s states that health attitude relays on people's socio-demographic behaviour, knowledge and personal traits. It states that a person has to depend on the following assumptions to be able to change his or her attitude:

- Detected susceptibility to a form of health challenge ("am I at risk for HIV/AIDS")
- Detected seriousness of the condition; ('how serious is HIV/AIDS, how hard would my life be if I contract the disease')
- Opinion in effectiveness of the present behaviour; ('condom s are effective against HIV transmission')
- Direction to action; (witnessing the death or serious illness of a close friend or family member)
- Detected positive outcomes of preventive behaviour; ('if I start to observe the rudiments of prevention of mother to child transmission of HIV/AIDS by adhering to my drugs, will I give birth to a HIV negative child?')
- Challenges of taking the right action; ('I don't like taking drugs')

In health belief model or theory, making a concerted effort towards change of behaviour will amount to individuals personal beliefs. Individuals will want weigh the benefits into against the cost. To bring about change, gain must be higher than cost. Putting HIV/AIDS consideration, interventions usually targets detected thought of risk, beliefs in seriousness of AIDS (treatment is very expensive) beliefs in effectiveness of condom use and expected outcome of its use or postponing the beginning of sexual relations.

Empirical Review

There exist several related studies on HIV/AIDS, life expectancy and economic growth. This section reviews few of such studies.

Olaleye et al. (2017) investigated the amount of impairment and its relationship to quality of life among persons living with HIV/AIDS in Ibadan, Nigeria's largest metropolis. This study included 360 PLWHA (274 females and 86 men) aged 37.799.37 years. They were drawn from anti-retroviral clinics at one secondary and one tertiary healthcare facility in Ibadan, Nigeria. Disability and quality of life were evaluated. At $p = 0.05$, data were analysed using the Chi square and Kruskal Wallis tests. Almost a quarter (23.6 percent) reported being currently unwell, with HIV/AIDS-related symptoms being the most often reported ailment (42.5 percent). The majority of these patients (71.1%) had mild to severe impairments. There were no significant ($p > 0.05$) connections between disability and age, gender, or work status. Disability was however, significantly associated with level of education, alcohol use, CD4 count, history of tuberculosis and QoL ($p < 0.01$).

Waziri et al. (2016) examined the effect of the prevalence of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) and life expectancy on the economic growth of 33 Sub-Saharan African (SSA) countries over a period of 11 years (2002–2012). The study employed a dynamic panel approach as opposed to the static traditional approach utilised in the literature. The dynamic approach became eminent because of the fact that HIV/AIDS is a dynamic variable as its prevalence today depends on the previous years.

The result revealed that HIV/AIDS is negatively correlated with economic growth in the region, with a coefficient of 0.014, and significant at the 1% level. That is, a 10% increase in HIV/AIDS prevalence leads to a 0.14% decrease in the GDP of the region. Tackling HIV/AIDS is therefore imperative to the developing Sub-Saharan African region and all hands must be on deck to end the menace globally. Sede and Ohemeng (2015) examined the socio-economic determinants of life expectancy in Nigeria using data from 1980-2011. Judging from the endogeneity feature of the variables, A VAR and VECM frameworks were employed. Socio-economic features were proxy by secondary school enrolment, government expenditure on health, per capita income, unemployment rate and the Naira foreign exchange rate. It was found that, the conventional socio-economic variables such as per capita income, education and government expenditure on health considered to be highly effective in determining life expectancy of developing countries are not significant in the case of Nigeria. The study however suggests that, life expectancy in Nigeria could be improved if attention is given to quality of government health expenditure, unemployment and measures to halt the depreciation of the Nigerian Naira against major foreign currency. Turan (2009) examined life expectancy and economic development: evidence from micro data. Using birth and sibling histories from Demographic Health Surveys conducted in sub-Saharan Africa. The study constructs age-specific birth rates and age-specific mortality rates at the country-region level. The study used this data to test the implications of a general equilibrium model linking life expectancy to fertility, education, and labour supply. The study shows that increased life expectancy lowers fertility, but the size of the effect is small. The study finds no difference between high HIV countries (those with greater than 5 percent prevalence) and low HIV countries, ruling out the possibility that fear of infection dramatically lowers fertility. Furthermore, the study finds a positive relationship between life expectancy and education. Within high HIV countries, however, the relationship between life expectancy and education is less robust. Finally, the study finds a weak positive relationship between life expectancy and labour force participation for females, but no relationship among males. Overall, the new data suggests that in sub-Saharan Africa, increases in life expectancy will have a positive impact on growth through fertility and education but the effect will be small.

Cervellati and Sunde (2009) investigate the causal effect of life expectancy on economic growth by explicitly accounting for the role of the demographic transition. In addition to focusing on issues of empirical identification, this paper emphasizes the role of the econometric specification. We present a simple theory of the economic and demographic transition where individuals' education and fertility decisions depend on their life expectancy. The theory predicts that before the demographic transition improvements in life expectancy primarily increase population. Improvements in life expectancy do, however, reduce population growth and foster human capital accumulation after the onset of the demographic transition. This implies that the effect of life expectancy on population, human capital and income per capita is not the same before and after the demographic transition. Moreover, a sufficiently high life expectancy is ultimately the trigger of the transition to sustained income growth. The study provides evidence supporting these predictions using data on exogenous mortality reductions in the context of the epidemiological revolution. Mohammed (2020)

examined the impact of HIV/AIDS on labour productivity in Nigeria using annual time series data for the period 1990 to 2018. To determine the long-run and short-run dynamic relationships between the variables, an ARDL bound testing approach to cointegration was employed. The results revealed that there is a long-run relationship between HIV/AIDS and labour productivity in Nigeria. In the short-run, there is a negative but insignificant relationship between HIV/AIDS and labour productivity in Nigeria. A percentage increase in HIV/AIDS caused labour productivity to decrease by about 0.14% in the short-run. Therefore, the study recommends that the government should ensure the sustainability of free Antiretroviral Therapy to People Living with HIV/AIDS. Also, the government should ensure that the Work Place Policies are adhered to protect the People Living with HIV/AIDS against any form of discrimination at the workplace,

METHODOLOGY

This study examined five variables using panel data from four (4) states in Nigeria; namely Edo State (Southern Nigeria); Lagos State (Western Nigeria); Kano State (Northern Nigeria) and Imo State (Eastern Nigeria) to measure the effect of the prevalence of HIV/AIDS and life expectancy on economic growth, from 2002 to 2021. The data were sourced from Nigeria Bureau of Statistics (NBS) indicators. Regression analysis was performed to analyse the data acquired using Statistical Package for Social Sciences (SPSS) 20.0.

Also, the following research model will be used to estimate our data:

$$RGDP_{it} = \beta_0 + \beta_1 HIV/AIDS_{it} + \beta_2 LER_{it} + \beta_3 LFP_{it} + u_{it}$$

Where RGDP = Percentage growth in the annual GDP per capita as the dependent variable;

HIV/AIDS = Human immunodeficiency virus, which refers to the percentage of people aged between 15 and 49 years;

LER = Defined as the number of years as individual would live from the date of his/her birth to the date of his/her death;

LFP = Is the labour force productivity, defined as the working population aged from 18-65 years.

DATA ANALYSIS

Regression Analysis (OLS)

Table 1: Regression analysis output for the impact of HIV/AIDS, Life Expectancy and Labour Force Productivity on Nigeria economic growth.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.925 ^a	.884	.854	.5434		
a. Predictors: (Constant), HIV/AIDS, LER, LFP						
ANOVA ^b						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.643	1	8.744	3.653	.118 ^a
	Residual	.923	18	.063		
	Total	9.566	19			
a. Predictors: (Constant), HIV/AIDS, LER, LFP						
b. Dependent Variable: RGDP						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.045	1.232		1.83	.023
	HIV/AIDSLE	-.431	.315	.321	1.215	.318
	R	.455	.462	.472	1.43	.038
	LFP	-.035	.563	.365	1.33	.341
a. Dependent Variable: RGDP						

Test of Hypotheses

The research is based on three hypotheses. Based on the regression analysis result, the hypotheses are evaluated.

Hypothesis One

H₀₁: HIV/AIDS prevalence does not have positive impact on Nigeria economic growth.

If the coefficient of HIV/AIDS in table 1 is less than zero, the null hypothesis is accepted; otherwise, the null hypothesis is rejected.

Table 1 shows that the HIV/AIDS coefficient is -0.431. As a result, the null hypothesis is accepted, implying that HIV/AIDS prevalence does not have positive impact on Nigeria economic growth.

Hypothesis Two

H₀₂: Life expectancy does not have positive impact on Nigeria economic growth.

If the coefficient of LER in table 1 is less than zero, the null hypothesis is accepted; otherwise, the null hypothesis is rejected.

Table 1 shows that the LER coefficient is 0.455. As a result, the null hypothesis is rejected, implying life expectancy has positive impact on Nigeria economic growth.

Hypothesis Three

Ho₃: Labour force productivity does not have positive impact on Nigeria economic growth.

If the coefficient of LFP in table 1 is less than zero, the null hypothesis is accepted; otherwise, the null hypothesis is rejected.

Table 1 shows that the LFP coefficient is -0.035. As a result, the null hypothesis is accepted, implying that labour force productivity does not have positive impact on Nigeria economic growth.

Discussion and Implications of Results

The elasticity of HIV/AIDS is inelastic, resulting in a percentage rise in HIV/AIDS prevalence in Nigeria. This means that a 10% rise in the prevalence of HIV/AIDS results in a 0.14 percent loss in the region's GDP, which is consistent with the theory and corroborated by Waziri et al (2016). The remaining independent variables are all inelastic, resulting in inconsistent findings.

According to Mohammed's research, labour force productivity is adversely associated to growth (2020). Among the independent variables, life expectancy has the highest elasticity of 0.455 and is positively connected to growth. This finding implies that a 10% increase in life expectancy leads to a 4.55% increase in the GDP, and it is supported by Turan (2009) study.

Conclusion

Based on data available over a 20-year period, this study examined the impact of HIV/AIDS prevalence and life expectancy on economic growth in four (4) Nigerian states. To fulfil the study's aims, regression statistics were used. The findings show that HIV/AIDS is statistically significant and inversely connected to growth, which is consistent with theory and confirmed by several earlier studies. The rate of life expectancy is likewise positively associated to growth, which is compatible with economic theory. According to economic theory, labour force productivity is adversely associated to growth.

The following suggestions are given based on the findings of this research. Future research is needed to establish the impact of HIV/AIDS and life expectancy rates on economic growth in Nigeria utilizing a micro approach, since interaction with persons affected will offer a genuine picture of their health state.

It is strongly suggested that a community effort be made to educate individuals, particularly kids, about the dangers of communicable illnesses such as HIV/AIDS. The family should take the lead in educating their children at home in order to limit or eliminate dangerous behaviour. The government of Nigeria, in collaboration with non-governmental organizations (NGOs), should develop disease-fighting strategies, such as making anti-retroviral available and affordable in health-care delivery centres, and funds generated by international donor agencies should be used effectively and efficiently in fighting HIV/AIDS and other related diseases in the region. The outcome of life expectancy demonstrates a favourable link with regional economic growth.

This indicates that issues impacting life expectancy, such as new born mortality, maternal health, and environmental factors, must be given substantial consideration if Nigeria is to attain sustainable development and economic growth.

References

- Asiedu, E., Lin, Y. and Kalonda-Kayama, I. (2012). The impact of HIV/AIDS on foreign direct investment: Evidence from Sub-Saharan Africa. *Economics Department WP Series*, University of Kansas.
- Bell, C., Devarajan, S. and Gersbach, H. (2006). The long-run economic costs of AIDS: A model with an application to South Africa. *World Bank Economic Review*, 20(2), 55-89.
- Cervellati, M. and Sunde, U. (2009). Life expectancy and economic growth: The role of the demographic transition, *IZA Discussion Papers* 4160, Institute of Labour Economics, South Africa.
- Mohammed, B. M. (2020). Impact of HIV/AIDS on labour productivity in Nigeria, *African Journal of Health Economics*, 9(1).
- Okochi, V, Okpuzor, J. (2011). Micronutrients as therapeutic tools in the management of sickle cell disease, malaria and diabetes. *African Journal of Food, Agriculture, Nutrition and Development*, 4(13), 1568-1579.
- Olaleye, O. A., Adetoye, A. A. and Hamzat, T. K. (2017). Disability and quality of life among people living with HIV/AIDS in Ibadan, Nigeria. *Medical Journal of Zambia*, 44(3).
- Over, M. (1992). *The macroeconomic impact of AIDS in sub-Saharan Africa*. Washington, DC: World Bank, Population and Human Resources Department.
- Sede, P. and Ohemeng, W. (2015). Socio-economic determinants of life expectancy in Nigeria (1980 – 2011), *Health Economics Review*, 5(2).
- Turan, B. (2009). Life expectancy and economic development: Evidence from micro data, University of Houston. Available at: <https://uh.edu/~bkturan/lifeexpect.pdf>. Accessed on: 13/3/2022.
- World Bank (2020). *The millennium development goals (MDGs) report*. Washington D.C: World Bank.
- WHO/HSS/HWA/litreview; 2010, at canfar.com: accessed on 24/3/22 Unaid-99-27: accessed on 24/3/22