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IMPACT OF HEALTHCARE DELIVERY ON PRIMARY OUTPUT SECTOR IN NIGERIA

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Abstract

This study examines the impact of healthcare delivery on primary output sector using the ordinary least squares (OLS) with annual secondary data from 1984 to 2022 sourced from Central Bank of Nigeria Statistical Bulletin and Index Mundi Database. The co-integration and regression analysis of the variables were used to analyze the data. The result of this study shows that independent variables (life expectancy and mortality rate) have significant impact on the agricultural sector output in Nigeria which means that agricultural output is dependent on healthcare. From this study the government is advised to ensure that specialized free medical care should be provided to large farmers to maintain their ability to continue working in the agricultural industry. This will significantly improve and maintain our large-scale farmers' human capacity. In addition, to enable technical efficiency in the provision of their services, committees or agencies should be established to regularly monitor and assess performance and track the use of resources, health policies, and changes. Regular monitoring and evaluation of the implementation of health financing policies and initiatives is necessary.

Keywords: healthcare, agricultural, industry, medical care, efficiency, resources.

Introduction

Economic analysis suggests that human labor productivity, which is directed toward the primary sector and includes activities like agriculture, and health care, are inextricably linked. In Nigeria, the government has made some financial investments in the health sector over the years, which are thought to have an impact on the productivity of people working in the primary sector. The government's financial investments in the healthcare industry are both the recurrent

and capital expenditure on health (Olaniyan et al., 2013). The government's capital expenditure dropped from N7.3 million in 1970 to N4.88 million in 1972 before increasing once more to N126.75 million in 1974. In 1982, it fell precipitously to N79.2 million. Health capital spending fell from N72.9 million in 1982 to an all-time low of N17.2 million in 1987. This change was brought about by the government's increased focus on employee salary payments and less attention to capital expenditure (Fatuase et al., 2016). There was a notable increase to N297.96m in 1988. The figures fell to N137.3m by 1991, but in 1992 they fell to N33.72m. From N586.2 million in 1993 to N17,717.42 million, N33,396.97 million, and N34,647.9 million in 2003, 2005, and 2007 correspondingly, the amount increased gradually. Health capital expenditures were N64,922.9 million in 2008, N79,321.09 million in 2011, and N82.98 million in 2015 (Emeana et al., 2018).

One of the most important human needs is better health care. The World Health Organization (WHO, 2013) estimates that poor health and short life expectancy account for half of the differences in economic development between industrialized and developing countries. One of the most important components of a policy to support broad-based national development is the provision of health care. It is well recognized that the prevalence of illnesses like HIV/AIDS lowers human productivity in poor nations (Akindele, 2013). Therefore, the main goal of every nation is to empower its human capital by allocating significant public expenditures to the health sector. Since health is a type of human capital, its significance cannot be overstated. The economy of any country depends on both productive agriculture and excellent health; the former increases an individual's physical and mental capacities, which in turn improves production and labor effectiveness. Due to the loss of labor and expertise from productive adults, disease dramatically lowers agricultural labor output in underdeveloped nations (Opaluwa et al., 2010, IITA, 2007).

To reduce the problem of food scarcity, the government has launched several initiatives, such as the Green Revolution Scheme and the River Basin Development Authorities, but to no avail. Nigeria's poverty is exacerbated by several variables, including disease and climate change, which have an inexorable impact on human health (Oseni et al., 2013). Most Nigerians (more than 70%) rely on agriculture as their primary source of income, and there have been instances of food insecurity that have resulted in malnutrition and further impacted human health. Many farming households, which make up the majority in the research region, have less economic prospects due to poor health caused by illnesses and ailments (Jason, 2019). This has a severe impact on the impoverished who are caught in a never-ending cycle of poverty. Nigeria's health status patterns are like those of many other Sub-Saharan African countries, but they are worse

than one might anticipate given the country's GDP per capita, even with massive government investment and bilateral and international aid in the health sector (Aminu et al., 2020). The health industry is experiencing an unparalleled brain drain because of poor human resources and policy management. Many medical experts are leaving the country in search of better working circumstances overseas (Peters, 2008).

The Nigerian health system is in a state of complete collapse; the finance of healthcare is particularly badly affected, particularly in the impoverished continent where there are significant health care issues. In farm households, poor health has three main effects: family time is diverted to care for the sick; savings and assets are lost because of illness and its aftereffects; and absenteeism from work owing to morbidity and eventual mortality (Akinkugbe et al., 2009, Olajide, 2014).

There is a similar pattern in the ongoing health expenditures. From N12.48 m in 1970 to N59.47 m in 1977, it grew gradually until dropping to N40.48 m the following year. Both the Federal Government's resolve to enhance the health care system with the windfall of oil wealth and the way government policy has been disposed to health issues are reflected in the pattern of health expenditures during this time (Olusesan et al., 2005, Bloom et al., 2008). From 1984 to 1986, recurring expenditure climbed from N101.55m to N134.12m when the recurrent expenditure as a percentage of total expenditure reached 77.4 percent. The value of recurrent health spending fell dramatically in 1987 to N41.31m before it grew consistently from N422.80 in 1988 to N24,522.27m in 2001. From N40,621.42 in 2002 to N44,551.63, N58,686.56, and N72,290.07 in 2005, 2006, and 2007, this number increased once more. Recurrent health spending was N18,200.0 million in 2008, N21,542.9 million in 2011, N179.99 million in 2013, and N257.72 million in 2015 (Hannah et al., 2021).However, Nigeria's primary output sector saw a total monetary value of N14,037.83 million in 2011, and N15,816.00, N16,816.555m, N18.018.61m, and N19,936.97m from 2012 to 2015.

In addition to negatively impacting the welfare of impacted households, health issues also have an adverse effect on agriculture and economic growth because they reduce the number of hours that can be spent on economic activities, cause human resources to be lost too soon, and increase the financial burden on rural households due to the high cost of treating illnesses (Titus et al., 2015). The detrimental effects of poor health, particularly on the welfare of farming households, have been demonstrated by primary sector research, which has an impact on overall economic development. Against this background, this study is aimed at examining the impact of healthcare delivery on primary output sector in Nigeria from 1980-2016.

Literature Review

According to Gary Becker and Jacob Mincer's Human Capital Theory, any activity that would increase an individual's productivity would generate human capital. Additionally, it asserts that the production of quantifiable economic value depends on human capital, which is the total pool of knowledge and expertise. Macroeconomic development theory is the foundation of the classicists' idea of human capital. According to the notion, there are various types of capital, such as education, computer training, and medical expenses (Gillispie et al., 2010). Therefore, it is consistent with the traditional definition of capital to state that education, training, healthcare, and other expenses are capital investments. These are not just expenses; they are investments with calculable, worthwhile returns. In contrast to earlier times when economic power was based on material possessions like farms, industries, and machinery, human capital development is now considered essential since it increases economic productivity (Barret, 2010, Chung et al., 2006).

According to the endogenous growth theory, increased investment in human capital and a quicker rate of innovation are directly responsible for productivity gains. This theory, sometimes referred to as the new theory, uses endogenous factors to explain an economy's long-term growth rate. Kenneth J. Arrow, Rober, and Paul M. Romer formulated this idea. E. Lucas highlights the technical advancements brought forth by investment rates, human capital stocks, and capital stock sizes. According to this idea, economic growth is also significantly influenced by investments in knowledge and capital innovation. More specifically, this theory states that a country's human capital will lead to economic growth, which makes the healthcare industry crucial because human capital is dependent on an individual's health status (Cutler et al., 2001). It emphasizes the necessity for institutions in the public and private sectors to support innovation and offer incentives for people and businesses to be creative. Additionally, the accumulation of knowledge plays a crucial role in determining growth, meaning that knowledge industries like biotechnology, electronics, software, and telecommunication are becoming more and more significant in developed nations (Licchetta et al., 2016).

According to Arthur et al. (2020) the process of preserving health by preventing and treating illnesses and diseases that affect both the physical and mental aspects of people is known as healthcare. Individuals, communities, and nations all have different access to human health care, which is occasionally impacted by social and economic factors. Healthcare systems are designed to address the health demands of the community (Ikudayisi et al., 2019). A well-functioning healthcare system requires a robust financing mechanism; a well-trained and suitably paid personnel; trustworthy information on which to base decisions and policies; and

well-maintained health facilities and logistics to supply quality medications and technologies (Mekonnen et al., 2021). Since healthcare accounts for a large portion of a nation's GDP, it is handled with considerable care.

The foundation of each country's growth and development is, as is well known, its health sector. However, in Nigeria, the delivery of quality healthcare services with anticipated funding has been a pipe dream for several years (Aboubacor et al., 2017). Nigeria's health sector is therefore in complete disarray; there are few hospitals and medical facilities, particularly in rural areas; there are few medications; despite advanced technology, there is inadequate and substandard equipment; and there is a lack of infrastructure support, including diagnostic labs, electricity, water, and other facilities, which leads to misdiagnosis. According to Ajala et al. (2005) claims that the provision of healthcare has devolved into a private matter that is reliant on one's capacity to pay for basic medical and laboratory services. These have made the burden of sickness worse. Disease surveillance is extremely inadequate, and medical records are kept in a crude manner. Particularly in developing countries like Nigeria, where out-of-pocket expenses account for more than 70% of all private health spending, health care financing is severely impacted. This can erode the limited advancements made in the health system. Hence, the increasing out-of-pocket cost due to the heavy burden on most poverty-stricken households which has kept them in the vicious cycle of poverty trap paired with very low per capita health spending (Aregbeyen, 2001, Omotosho et al., 2016).

Funds from various sources, such as the government, households, businesses, and donor organizations, are gathered for the purpose of sharing financial risk among larger population groups and paying for services from both public and private health care providers. This process is known as health financing. According to Kreider et al. (2011), the only goals of health financing are to make money available, guarantee that cost-effective interventions are chosen and acquired appropriately, provide suitable financial incentives to healthcare providers, and guarantee that everyone has access to quality healthcare.

Due to financial limitations, the government is unable to provide all health care services on its own. Therefore, minimal fees that are lower than the cost of providing these services are charged to guarantee the continuous provision of sufficient, consistent, and high-quality services. For example, appropriate pricing policies are a result of Nigeria's economic slump over the past 20 years, which has reduced funding for many essential sectors of the economy, including health. These services include mortuary services, hospital bed and feeding services, private/special admittance facilities, private ambulance use, laboratory and auxiliary services, surgical operation fees, specific prenatal care, and more (Deaton, 2006).

The life expectancy at birth indicates the population's overall mortality rate. It encapsulates the overall mortality trend that affects children, adolescents, adults, and the elderly. According to the current mortality rate, life expectancy can be defined as the average number of years that a newborn is expected to live. It differs by region and is influenced by several factors, including income, diet, lifestyle, access to healthcare, and the pertinent mortality and morbidity rates. A statistical indicator of an organism's projected lifespan, life expectancy is dependent on the year of birth, the organism's current age, and other demographic characteristics, such as gender (Onodugo et al., 2016).

The word "mortality" comes from the Latin word "mors," which signifies "death." The number of deaths (generic or from a specific cause) in each population at a given time is known as the mortality rate. Additionally, there are various kinds of mortality rates, such as: Infant mortality rate is calculated by dividing the number of live births each year by the number of children that die before becoming one year old (Alaimo et al., 2001). The number of maternal fatalities associated with childbearing divided by the number of live births each year is known as the maternal mortality rate. A key indicator of human capital, which supports productivity and raises output, is the mortality rate, which can be used to assess whether an economy's population is growing or shrinking (Iorlamen et al., 2014) (Eneji et al., 2013).

Activities in the primary sector involve the direct extraction of natural resources from the environment. Mining, quarrying, forestry, fishing, and farming are all included in this industry. Typical jobs in this industry include harvesting crops, harvesting fish, felling trees, and mining minerals. The acquisition of raw materials that form the basis for the manufacturing of commodities in other economic sectors depends on these operations. All things considered, the primary sector agriculture is essential to meeting basic needs and promoting economic growth (Moller, 2005).

Across the world, agriculture continues to play a significant role in the growth of any economy. In addition to serving as the primary source of food, it is a significant source of income for the majority of the world's poor, who live in rural areas, especially in Asia and Africa (Kim et al., 2013; Rice et al., 2018). Over half of the population of African nations works directly or indirectly in agriculture, which is the continent's main economic activity. The world's top priority has been raising agricultural production to guarantee a greater supply of food to feed the expanding population (Udemezue et al., 2018). Growth in agricultural productivity is crucial for reducing poverty and enhancing wellbeing, particularly for rural households (Van Kippersluis et al., 2013). Without increasing agricultural output, no nation has been able to maintain a swift transition out of poverty and famine (Licchetta et al., 2016). In contrast, hunger

has been unavoidable in nations where agricultural productivity has fallen short of other sectors or collapsed (Titus et al., 2015; Moller, 2005; Oseni et al., 2013).

Simply put, establishing a sustainable agricultural development path means raising living standards by producing enough revenue and ensuring there is adequate food for current and future generations (Udemezue and Osegbue, 2018). But rather than turning a stagnant agricultural sector into a modern, dynamic one, the challenge of agricultural development is to speed up the increase of agricultural productivity and production in line with the expansion of other sectors of a modernizing economy. For comparatively lengthy periods of time, agricultural development that fell within the conservative model's purview was able to maintain the growth rate in agricultural production at about 1.0% annually in various parts of the world. The demand for agricultural output is expected to expand at a pace of 3-5% in developing nations, which is incompatible with this rate (Udemezue and Osegbue, 2018).

Good health is essential for leading a socially and economically productive existence. Households suffer greatly from poor health due to debilitation, high costs, lost work, and infrequently, fatalities. Agricultural productivity is impacted by poor health. Lack of access to healthcare services frequently results in illnesses going untreated. Access to healthcare services and their efficient use by people are prerequisites for development in all its manifestations (Olajide et al., 2014). Access to health services is a multifaceted process that includes elements like care quality, geographic accessibility, availability of the appropriate type of care when needed, financial accessibility, and service acceptability. On the other hand, healthcare service utilization is linked to service availability, quality, and cost, as well as socioeconomic status and individual user characteristics (Hannah et al., 2021). Odior (2013) investigated the potential impact of increase in government expenditure on health care in Nigeria employing the computable general equilibrium (CGE) model and found that government health spending has a major role in explaining Nigeria's economic growth. They concluded that more funding should go toward the health sector to provide the inhabitants with high-quality healthcare. Investigating the relationship between health care expenditures and health outcomes by Baldacci (2004) utilizing a panel data collection covering 120 developing nations between 1975 and 2000. He found that while lagged health expenditures seem to have no effect on growth, spending on health during a given period has an impact on growth during that same period. This result led him to conclude that health spending has a flow rather than a stock effect when it comes to growth.

In a related study, Anyawu et al (2012) examining the linkage between African countries' (group into different geographical locations) per capita total and government health spending

to under-five and newborn mortality from 1999 to 2004, albeit with varying outcomes. Their findings show that health spending has a statistically significant impact on newborn and under-five mortality, and that overall health spending is unquestionably substantial for African nations based on regional differences. According to their findings, Sub-Saharan Africa has a positive and significant correlation with babies and under-five mortality, whereas North Africa has the opposite relationship.

Methodology

The study adopted expo-facto design. This is because the researcher had no control over the data and variables used in the investigation. The impact of health care on Nigerian agricultural productivity is estimated in this study using an econometric technique. The quantitative approach will be used in the research design, which is particularly important because it will allow for statistical and econometric estimations to be made to achieve the goals of the study.

Using the Ordinary Least Squares (OLS) technique in conjunction with linear regression is the appropriate methodology for research involving secondary data and time series. The main arguments for using linear regression are that the data is secondary and that it allows for the use of traditional econometric tests.

In this research, the independent variables are infant mortality and life expectancy while the dependent variable will be the value of agricultural output. The model is given by

$$AGRICO = \beta_0 + \beta_1 MR + \beta_2 LE + \mu$$

Where:

AGRICO = Agricultural Output

MR = Mortality Rate

LE = Life Expectancy

U = Stochastic Error Term

Where: $\beta' s =$ The Parameters of the independent variables to be estimated.

Method of Evaluation

Preliminary Test

Stationary (unit root) Test

The Augmented Dickey Fuller test will be used for the stationary test to prevent false regression from emerging because of a non-stationary series.

Decision Rule: The variable is considered stationary if, in absolute terms, the ADF test statistic is higher than the MacKinnon critical value at 5%. It is non-stationary otherwise.

Economic Criterion Test (apriori Test)

To assess if the relationship between the variables is consistent with economic theory, the analysis's apriori test will be based on the regression coefficient based on the coefficient of the algebraic signs of the parameters.

Table 1: Apriori Test

VARIABLES	APRIOR SIGN
LE	+VE
MR	-VE

Statistical Test of Significance [First Order Tests]

Test for Goodness of Fit

This test involves the test of the goodness of fit. To evaluate the working hypothesis of this study. R2 the co-efficient of determination is used to measure the explanatory power of the variable. r2 ranges between zero and one ($0 < R2 < 1$). The closely the R2 value approaches 1, the more of the variance in the dependent variables may be ascribed to the independent variables.

T-Test of Significance

T-statistics are used to determine whether the individual regression coefficient is statistically significant. At the 5% level of significance, a two-tailed test will be used. 8.The alternative hypothesis, H1, will be compared against the null hypothesis, Ho.

Decision Rule (T-Test)

If $t_{0.025} < t^*$ Ho will be rejected and the H_1 accepted. Otherwise, the alternative hypothesis H_1 will be rejected, and the null hypothesis Ho be accepted.

F-TEST of Significance

The f-ratio is used to test the overall regression's statistical significance. The test will be run at a significance level of 5%.

Decision Rule (F-Test)

If $f^* > (f_{0.05})$, we say the regression is statistically significance but if otherwise, it means that it is statistically insignificant

Note: t^* = computed t – value

$t_{0.025}$ = tabulated t – value

f^* = Computed f-value

$f_{0.05}$= tabulated f – value

Test of Significance [Second Order Tests]

Autocorrelation Test

To evaluate the dependability of the expected numerical estimates, the Durbin – Watson (D-W) statistics at 5% will be employed to test for the presence of autocorrelation problem. The region of autocorrelation remains:

du< d* < (4-du)

Where:

du = Upper Durbin – Watson

d* = Computed Durbin-Watson

Decision Rule (Autocorrelation Test)

There is no autocorrelation issue if the calculated Durbin-Watson value falls inside the region. However, if the Durbin-Watson calculated value is outside of the regions, autocorrelation is present, and a corrective action, such as using the first difference equation, will be taken.

Diagnostic Test

Normality Test: The normality test will be carried out to establish if the residuals of the model are normally distributed. The basis of the decision will be based on the value of the Jaque-Berra [JB]. We accept the normal distribution null hypothesis if the JB statistics provide a value near or equal to zero; if not, we reject the value that is hypothesized to be the result of the normal distribution.

Heteroscedasticity Test: This test's main objective is to determine whether the residuals' variance remains constant over time, which is based on determining whether the series has the homoscedasticity property. The basis for determining whether the residuals are heteroscedastic is comparing the values of the Computed Chi-Square [X2] and the tabulated version; if the computed X2 is greater than the tabulated X2, we conclude that heteroscedasticity is present in the residuals; if not, we conclude that homoscedasticity is present in the residual series.

Unit Root/Stationarity Test

The Augmented Dickey Fuller test will be used for the stationarity test to prevent false regression from emerging because of a non-stationary series.

Data Required and Sources

The Central Bank of Nigeria (CBN) Statistical Bulletin and Index Mundi Statistical Database will provide the time series data on infant mortality, life expectancy, and the value of agricultural output that are needed for this study.

Results and Discussion

Unit Root Test

The variables must be subjected to a unit-root test to prevent estimating parameters with inaccurate estimations. The summary findings of the unit-root test using Augmented Dickey-Fuller (ADF) statistics are shown in the table below.

Table 2: Unit Root Test

VARIABLE	ADF STATISTIC	CRITICAL-VALUE @5%	ORDER OF INTEGRATION
MORTALITYR	-8.437263	-3.433173	I(1)
LIFE-EXP	-3.282637	-3.433173	I(1)
AGRICOUTP	-4.685226	-3.433173	I(1)

Source: Author's Computation Using E-views Software, 2025

The table above revealed agricultural output, life expectancy, and mortality rate were all steady at first difference, indicating that they are all integrated at order one.

Regression Analysis

Below is a summary table of the regression analysis.

Table 3: Regression Analysis

Variables	Coefficients	Std.Error	t-statistics
Mortality Rate	-0.6866227	0.1153122	-6.325863
Life Expectancy	0.6578721	0.1622826	3.5512546

Durbin-Watson = 1.121572 R-Squared (R^2) = 0.836168 F-statistics =632.8226

Source: Author's Computation Using E-views Software, 2025

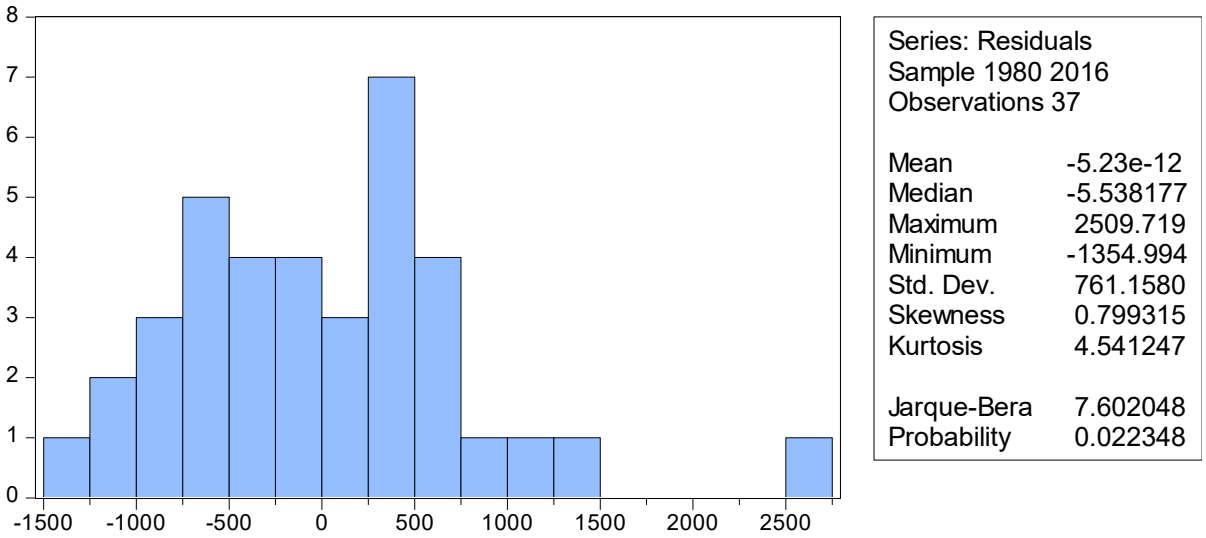
The impact and contribution of healthcare variables (life expectancy and mortality rate) on Nigerian agricultural output are demonstrated by the regression analysis above. At a magnitude of -0.6866227, the numerical coefficient mortality rate produced a negative value. This means that a 1% rise in the mortality rate will, on average, result in a -0.6866227unit loss of potential agricultural output. Because a loss of labor translates into a loss of potential agricultural products, this is consistent with economic a priori expectations.

Conversely, the regression results likewise produced a positive life expectancy numerical parameter with a magnitude of 0.6578721. This implies that in Nigeria, life expectancy and agricultural productivity are directly correlated. It implies that life expectancy has increased Nigeria's agricultural output over the years under study.

The independent variables (life expectancy and mortality rate) have a good explanatory power over the dependent variable (agricultural production), according to the R-Squares (R2), which

came out at 0.836168. It also indicates that 94% of the variation in agricultural output can be explained by variations in healthcare variables. This means that Nigerian agricultural output is significantly impacted by healthcare factors.

Figure 1. Normality Test



Source: Author's Computation Using E-views Software, 2025

The purpose of the normality test was to determine whether the residuals are normally distributed. An example of this is the Jarque-Berra (JB) Statistic. 7.602048 was the result of the JB statistic, according to the Normality table. This implies that the residuals are not distributed efficiently because the JB should provide a value that is nearly or exactly equal to zero. This is explained by the length and durability of the data, though, because a bigger sample size tends to provide a residual that is normally distributed.

Statistical Test of Significance

The table below displays the computed and tabulated values of the t and f statistics.

Table 4: Test of Significance I

Variable	**Computed t***	**Tabulated $t_{0.025}$**	**Decision**
MortalityR	-6.314863	1.68	Significant
LifeExp	4.551254	1.68	Significant

Source: Author's Computation Using E-views Software, 2025

Table 5: Test of Significant II

Statistics	**Computed F***	**Tabulated $F_{0.05}$**
F-Stat	632.8226	2.84

Source: Author's Computation Using E-views Software, 2025

Autocorrelation Test

This tests whether the error is correlated with one another. To do that, we apply the Durbin Watson test with the hypothesis as below

Table 6: Autocorrelation Test

Null Hypothesis	Decision	If
No positive autocorrelation	Reject	$0<d<d_L$
No positive autocorrelation	No decision	$d_L \leq d \leq d_U$
No negative correlation	Reject	$4-d_L<d<4$
No negative correlation	No decision	$4-d_U \leq d \leq 4-d_L$
No autocorrelation positive or negative	Do not reject	$d_U<d<4-d_U$

Source: Author's Computation Using E-views Software, 2025

According to the Durbin Watson table, the estimated d-statistic is 1.111572, with dL = 1.364 and dU = 1.724. Since 0<d<dL =0<1.121572<1.364 falls within the undecided zone, we reject the null hypothesis that there is no positive autocorrelation using the modified d test. As a result, the null hypothesis is rejected.

Granger – Causality

Based on the Granger Causality results, there is a unidirectional causal relationship that implies life expectancy is caused by agricultural productivity. This suggests that as the agricultural sector's output rises, life expectancy gradually increases.

Conclusion and Recommendations

This study has been able to assess how Nigeria's primary output sector is affected by healthcare delivery. Based on the study's findings, it is reasonable to conclude that the agricultural sector is heavily reliant on the health sector, specifically the population's overall health. Nigeria's health sector lacks sufficient staff to advance the primary sector since the federal government has been unable to give it priority. Policy action must be taken immediately.

Maintaining a healthy workforce requires access to healthcare services, but many rural farmers struggle with issues including high expenses, insufficient medical infrastructure, and long commutes to medical facilities. One of the main factors influencing healthcare consumption is distance to medical facilities, which has a detrimental effect on farm output because of a rise in health-related incapacitation. The findings support the notion that poor health is a significant barrier to rural development and food security, and they highlight the vital role that healthcare

plays in increasing agricultural labor efficiency. Access to healthcare is significantly impacted by several factors, including farm size, off-farm income, health extension programs, and accessibility to medical facilities. Family size, farm size, farming experience, and cooperative membership all have a substantial impact on productivity, highlighting the necessity of social and financial resources to improve agricultural results. Incapacity due to illness has a detrimental impact on output, underscoring the financial strain that untreated illnesses place on farming households.

The study's conclusions lead to the following recommendations being made:

1. It is important for the federal government to look into measures to make primary healthcare more accessible. The implementation of new delivery models to expand access, a larger role for private and nonprofit organizations in service delivery, and performance incentives to enhance it are all necessary to expand the reach of primary health care and improve its performance. Invariably, this will help the agriculture industry.
2. Specialized free medical care should be provided to large farmers to maintain their ability to continue working in the agricultural industry. This will significantly improve and maintain our large-scale farmers' human capacity.
3. To enable technical efficiency in the provision of their services, committees or agencies should be established to regularly monitor and assess performance and track the use of resources, health policies, and changes. Regular monitoring and evaluation of the implementation of health financing policies and initiatives is necessary.

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