



## The Effects of Unemployment, Poverty and Food Insecurity on Life Expectancy in Nigeria: A Dynamic Analysis Using ARDL

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### Abstract

This study examined the effects of unemployment, poverty and food insecurity on life expectancy in Nigeria using time series data from 1990-2023. To carry out this study, key variables were sourced from the World Bank online data base which includes Life expectancy index as dependent variable, Unemployment rate, Poverty rate, Food insecurity (proxied by hunger statistics), Inflation rate and exchange rate as independent variables where exchange rate and inflation rate were considered as intervening variables. From the ARDL model utilized as the estimation technique, it was discovered that inflation rate was statistically significant in the short run; however, long run analysis showed unemployment rate, poverty rate, inflation rate and food insecurity were statistically significant at 5% level. The granger causality test showed direct causality between: food insecurity and life expectancy in Nigeria; food insecurity and exchange rate; unemployment rate and exchange rate. The study concluded that government through the use of monetary and fiscal policy should curb the rising effects of unemployment in the country; tackle the problem of food insecurity with all the resources it can muster to avoid losing a large percentage of the labour force to hunger, depression, suicide and eventually, death in the near future and also look into the level of poverty because of the long run poverty effect exacerbated by rising inflation in the country.

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**Keywords:** life expectancy, unemployment rate, poverty rate, inflation rate, exchange rate, food insecurity, ARDL

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### Introduction

A country's economic prosperity is assessed not only by its GDP or per capita income, but also by the average life expectancy of the labor force (people) who create it. This shows that life expectancy is linked to economic growth and development. A priori, it is assumed that life expectancy should grow in eras of economic prosperity and joy while also falling short in times of economic despair. Life expectancy According to WHO, is the mean amount of years that a baby is projected to survive if he or she is exposed to the sex and age-specific mortality rates that existed at the time of his or her birth, for a certain year, in a given nation, territory, or geographic region. It describes the mortality trend that occurs throughout all age groups—children and adolescents, adults, and the elderly (WHO, 2019) <sup>[14]</sup>.

The Organization for Economic Cooperation and Development (OECD) determines life expectancy at birth as the average number of years a newborn can expect to live if current death rates remain constant. According to Cervantes *et al.* (2019) <sup>[6]</sup>, life expectancy is a measure of the length and quality of life a person is expected to live within a geographical area assuming that the factors affecting longevity do not change. This means that there are various socioeconomic variables influencing life expectancy. Recognizing what life expectancy portends for a nation's economy, most governments prefer to consider seriously aspects like health care spending, food poverty, level of employment, environmental management, and sustainability, among others, to guarantee that the life expectancy index stays positively growing (Arikpo *et al.*, 2019; Onwube *et al.*, 2021; Chukunalu, 2024; Bilas *et al.*, 2014; Sede & Ohemeng, 2015) <sup>[3, 10, 7, 4, 12]</sup>.

Nigeria, like other nations that are developing, experiences differences in illness and death associated with a wide range of socioeconomic status measures, including per capita GDP, fertility rate, literacy among adults rate, per capita calorie consumption, health care expenditure, the availability of potable drinking water, urban residents, unemployment rate, and nominal exchange rate (Sede & Ohemeng, 2015) <sup>[12]</sup>. According to WHO statistics from 2018, Nigeria's life expectancy at birth is predicted to be 55 years, ranking 178th out of 194 WHO member states globally. Nigeria was rated 15th out of 17 nations in the West African sub-region in terms of life expectancy, with Cape Verde having the greatest life expectancy at birth (73 years) and Sierra Leone having the lowest.

Numerous research investigations have shown an upward correlation between life expectancy and economic growth. For example, the study by Onwube *et al.* (2019) provides support to the contention that public health spending can be reduced to unimportant status when health facilities are largely insufficiently developed. However, some studies share a different empirical posture such as the study by Sede and Ohemeng, (2015) <sup>[12]</sup> which concluded that health, per capita income, and education expenditure of the government are not significantly determinants of life expectancy in Nigeria. Chukunolu (2024) <sup>[7]</sup> also asserted that environmental degradation erodes life expectancy through decrease in food security over the long run. This shows that there is no consensus on the subject. However, this study seeks to make a departure from the nexus between life expectancy and growth in the economy by focusing on the effects of unemployment, poverty and food insecurity on life expectancy in Nigeria. By empirically investigating the link between these variables that are social economic factors, the questions: what are the effects of socioeconomic factors on life expectancy? And what is the direction of causality between socioeconomic factors and life expectancy? For correspondence of the study, the paper is further organized into the literature review, methodology and data analysis sections respectively.

### Research Questions

The research questions stated below will serve as a guide to the study:

1. To what extent does unemployment impact on life expectancy in Nigeria?
2. How does inflation rate impact on life expectancy in Nigeria?
3. In what ways has exchange rate affected life expectancy in Nigeria?
4. What is the relationship between poverty and life expectancy in Nigeria?
5. What is the relationship between food insecurity and life expectancy in Nigeria?

### Research Hypotheses

Additionally, the study formulates the following research hypotheses:

**H0<sub>1</sub>:** There is no significant relationship between unemployment and life expectancy in Nigeria.

**H0<sub>2</sub>:** There is no significant relationship between inflation rate and life expectancy in Nigeria.

**H0<sub>3</sub>:** Exchange rate has no significant relationship with life expectancy in Nigeria.

**H0<sub>4</sub>:** Poverty has no significant relationship with life expectancy in Nigeria.

**H0<sub>5</sub>:** There is no significant relationship between food insecurity and life expectancy in Nigeria.

### Theoretical Literature: The theory of social suffering

The theoretical basis rests on the theory of social suffering put forward by Kleinman (1997) <sup>[9]</sup>. Kleinman (1997) <sup>[9]</sup> sees "Social suffering" as a resultant consequence of war, famine, depression, disease, torture - the whole problem of humans resulting from political, economic, and institutional forces and its effect on the people. According to the idea, socioeconomic and sociopolitical causes can sometimes produce sickness, as is the case with the structural violence of deep poverty; and social institutions, such as healthcare bureaucracy, that are formed to respond to pain can exacerbate the suffering.

The following demonstrates that concerns with life expectancy in Nigeria are a result of the interaction of points (i) and (ii) above. The theory is appropriate for Nigeria because it describes the consequences of economic forces that have been suppressed owing to economic troubles or blatant misplacement of prioritizing health (well-being) as a key element of output in any economy.

### Empirical Literature

A few empirical studies exist on the subject as it concerns Nigeria, but a few produced some interesting findings. For instance, Onwube *et al.* (2019) used the ARDL technique to investigate the link between public health spending and health outcomes in Nigeria, and they discovered that public health expenditure was inversely connected to life expectancy. The study's findings offer credence to the concept that public health investment can be made unimportant when health infrastructures are substantially underdeveloped, poverty rates are high, institutional inefficiency abounds, and good governance is not entrenched (Bokhari, *et al.*, 2007; Rajkumar & Swaroop, 2007; Riman & Akpan, 2010; Sede & Ohemeng, 2015) <sup>[5, 13, 12]</sup> but the study goes contrary to other findings (Akinkugbe & Afeikhena, 2006; Anyanwu & Erhijakpor, 2009). Overall, GDP per capita, extent of education achieved, institutional efficiency, poverty reduction, government health investment, and others are regarded to promote health and contribute to an increase in life expectancy.

Sede & Ohemeng, (2015) <sup>[12]</sup> studied the socio-economic determinants of life expectancy in Nigeria. The variables used in their study included: GDP per capita, nominal exchange rate, secondary school enrollment rate, public health expenditure, and unemployment rate. Analysis from their VAR and VECM frameworks revealed that government expenditure on health, per capita income, and education did not significantly affect health outcomes. However, the study recommended that government expenditures be made more qualitative. Life expectancy is positively correlated with GDP per capita and education level (Bilas *et al.*, 2014; Sede & Ohemeng, 2015) <sup>[4, 12]</sup>.

A study by Arikpo *et al.* (2019) <sup>[3]</sup> on 'Determinants of Life Expectancy in Nigeria used variables such as income per capita, unemployment, inflation, income inequality, health investment; health system (measured by physician per 1,000 population) and the environment (measured by the carbon dioxide emission index). The variables were estimated using the Ordinary Least Squares technique. Their analysis revealed that income inequality contributed the most to increased life expectancy. Other macroeconomic variables that proved to be significantly related to life expectancy were income per capita, government capital expenditure on health, carbon dioxide emission and physician per 1,000 population. The study emphasizes the importance of redistributing income, increase in income levels in Nigeria, and the engagement of skilled health personnel as positive drivers of

life expectancy.

The study of Bilas *et al* (2014) <sup>[4]</sup> on 28 European countries investigated the determinants of life expectancy at birth in the European Union (EU) from 2001 to 2011. Data used in the study were GDP per capita, level of education and life expectancy at birth. Panel least squares was used in analyzing the data. They found that GDP per capita and level of education jointly explain between 72.6 and 82.6% of differences in life expectancy at birth among the EU countries. The study concluded that per capita GDP is a significant determinant of life expectancy. This, according to the authors, implies that high GDP per capita translates to increased income in the economy which makes healthcare affordable and accessible to the people. Level of education can also increase life expectancy because increase in the level of education can potentially increase the level of awareness, exposure, and consciousness that heightens the need to live better lives and take care of one's health (Bilas *et al.*, 2014) <sup>[4]</sup>.

Similarly, Delavari *et al.* (2016) <sup>[8]</sup> carried out an investigation into the socioeconomic determinants of life expectancy in Iran using GDP per capita, number of doctors per 10,000 population, degree of urbanization, food availability, CO2 emission, total fertility rate, inflation rate, and literacy rate for Iran. Their analysis from ordinary least-square (OLS) regression found that GDP per capita, ratio of doctors to 10,000 population, food availability, literacy rate, and total fertility were significant determinants of life expectancy in Iran.

### Model specification

The *Ex-post facto* research design was adopted since the

study utilized secondary data. The use of secondary data justifies the methodology used in investigating “the effects of unemployment, poverty and food insecurity on life expectancy in Nigeria: 1990-2023”. The model specified in the work of Arikpo *et al* (2019) <sup>[3]</sup> on ‘Determinants of Life Expectancy in Nigeria’ was adopted and modified to suit the study's purpose. The model of Arikpo *et al* (2019) <sup>[3]</sup> used variables such as income per capita, unemployment, inflation, income inequality, health investment; health system measured by physician per 1,000 population and the environment measured by the carbon dioxide emission index. However, this study improves on their study by regressing life expectancy on exchange rate, Inflation unemployment rate, poverty rate and food insecurity. Hence the model can be written as:

$$LEI = \beta_0 + \beta_1 UNEMRATE + \beta_2 EXRATE + \beta_3 POVRATE + \beta_4 INFRATE + \beta_5 FOODINSEC + \mu$$

Where,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 < 0$

LEI= Life Expectancy Index.

UNEMRATE = Unemployment Rate.

EXRATE = Exchange rate

INFRATE = Inflation rate

POVRATE = Poverty Rate

FOODINSEC = Food Insecurity

From the model above; the *a priori* expectations are summarized as follows:  $b_1 < 0$ ,  $b_2 < 0$ ,  $b_3 < 0$ ,  $b_4 < 0$ . and  $b_5 < 0$ . The data used were sourced from The World Bank online data base (World prospectus: 1990-2023).

### Data analysis: pre-test: Unit Root Test Summary

Table 1: Elliot-Rothenberg Stock Point Optimal test

| Variable  | ERS (Level) | 5% Critical | ERS (1 <sup>st</sup> DIFF) | 5% Critical | Remark |
|-----------|-------------|-------------|----------------------------|-------------|--------|
| Leindex   | 41.98077*   | 2.970000    | 19.80657                   | 2.970000    | I(0)   |
| Unemrate  | 0.699541    | 2.970000    | 19.62533*                  | 2.970000    | I(1)   |
| Exrate    | 33.86028*   | 2.970000    | 6.095997                   | 2.970000    | I(0)   |
| Povrate   | 3.972370*   | 2.970000    | 1.657465                   | 2.970000    | I(0)   |
| Foodinsec | 79.51134*   | 2.970000    | 0.003562                   | 2.970000    | I(0)   |
| Infrate   | 3.972370*   | 2.970000    | 1.657465                   | 2.970000    | I(0)   |

Source: E-views 9 regression output

The Augmented Dickey–Fuller unit root test above shows that the variables were stationary at I (0) and I (1); hence fit

for an ARDL model estimation.

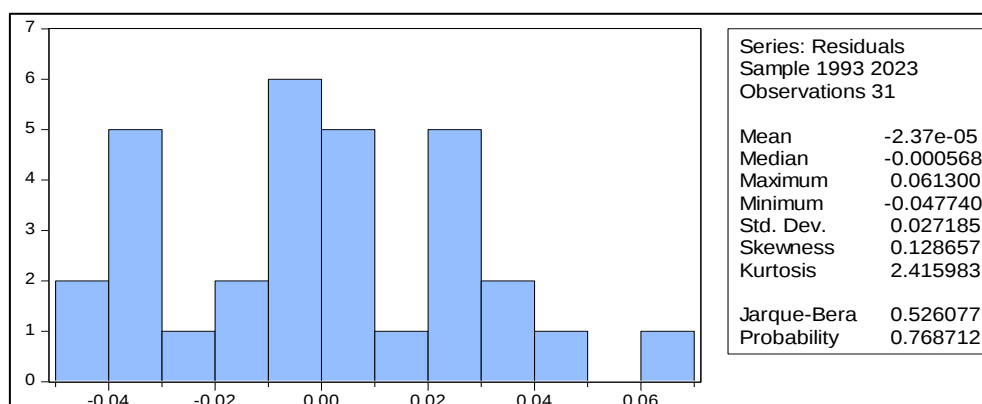


Fig 1: Histogram-Normality Test

From the figure above, the Jarque-Bera prob. value was observed to be greater than 0.05; hence the data is normally

distributed.

**Table 2:** Ramsey RESET Test

|                  | Value      | df      | Probability  |
|------------------|------------|---------|--------------|
| t-statistic      | 0.547670   | 13      | 0.5932       |
| F-statistic      | 0.299942   | (1, 13) | 0.5932       |
| F-test summary:  |            |         |              |
|                  | Sum of Sq. | df      | Mean Squares |
| Test SSR         | 0.000500   | 1       | 0.000500     |
| Restricted SSR   | 0.022170   | 14      | 0.001584     |
| Unrestricted SSR | 0.021670   | 13      | 0.001667     |

**Decision:** Since prob. F-statistic (0.3022) > 0.05, there is no specification error in the model at 5% level of significance.

**Table 3:** Cointegration test: ARDL Bounds test

| Test Statistic        | Value    | k        |
|-----------------------|----------|----------|
| F-statistic           | 274.5625 | 5        |
| Critical Value Bounds |          |          |
| Significance          | I0 Bound | I1 Bound |
| 5%                    | 2.14     | 3.34     |

The result above shows that the F-statistics exceeds the I (0) run relationship in the model. and I(1) bounds respectively; hence, there is evidence of long

**Table 4:** Correlations

|           | Leindex | Exrate  | Foodinsec | Infrate | Povrate | Unemrate |
|-----------|---------|---------|-----------|---------|---------|----------|
| Leindex   | 1       | 0.8272  | 0.7662    | -0.2874 | -0.7003 | 0.5100   |
| Unemrate  | 0.8272  | 1       | 0.8436    | -0.1302 | -0.4824 | 0.2459   |
| Exrate    | 0.7662  | 0.8436  | 1         | -0.2468 | -0.4116 | 0.2282   |
| Infrate   | -0.2874 | -0.1302 | -0.2468   | 1       | 0.0628  | -0.0617  |
| Povrate   | -0.7003 | -0.4824 | -0.4116   | 0.0628  | 1       | -0.4596  |
| Foodinsec | 0.5100  | 0.2459  | 0.2282    | -0.0617 | -0.4596 | 1        |

**Source:** E-views 9 Regression output

From the table above, UNEMRATE, EXRATE and FOODINSEC had positive relationship with LEI. However, POVRATE and INFRATE, had negative relationship with LEI. The relationship between INFRATE and LEI; and POVRATE and LEI respectively; are apt in Nigeria in the sense that poverty and inflation have a negative effect on

income and as a result, on life expectancy in the end. UNEMRATE, EXRATE and FOODINSEC were expected to be negative, but turned out positive in the end; implying their signs did not meet or a priori expectations, but their magnitude were relatively strong.

### Data analysis: ARDL Output

**Table 5:** ARDL Cointegrating and Long Run Form

| Cointegrating Form: long run result                           |             |            |             |        |
|---------------------------------------------------------------|-------------|------------|-------------|--------|
| Variable                                                      | Coefficient | Std. Error | t-Statistic | Prob.  |
| D(EXRATE)                                                     | 0.000522    | 0.000289   | 1.806743    | 0.0923 |
| D(EXRATE(-1))                                                 | -0.000859   | 0.000558   | -1.538937   | 0.1461 |
| D(FOODINSEC)                                                  | -0.001504   | 0.004848   | -0.310252   | 0.7609 |
| D(FOODINSEC(-1))                                              | -0.000373   | 0.007220   | -0.051672   | 0.9595 |
| D(FOODINSEC(-2))                                              | -0.031462   | 0.007076   | -4.446222   | 0.0006 |
| D(INFRATE)                                                    | -0.001808   | 0.000803   | -2.252387   | 0.0409 |
| D(POVRATE)                                                    | -0.003575   | 0.012366   | -0.289085   | 0.7768 |
| D(POVRATE(-1))                                                | -0.015791   | 0.012040   | -1.311546   | 0.2108 |
| D(UNEMRATE)                                                   | -0.026681   | 0.045294   | -0.589068   | 0.5652 |
| D(UNEMRATE(-1))                                               | 0.174810    | 0.153018   | 1.142414    | 0.2724 |
| D(UNEMRATE(-2))                                               | 0.232819    | 0.109570   | 2.124833    | 0.0519 |
| CointEq(-1)                                                   | -0.021893   | 0.006840   | -3.200481   | 0.0064 |
| Cointeq = LEINDEX - (0.0570*EXRATE + 1.4662*FOODINSEC -0.1284 |             |            |             |        |
| *INFRATE + 1.1229*POVRATE -13.6140*UNEMRATE )                 |             |            |             |        |

**Source:** E-views 9 Regression output

### Short run result

**D (EXRATE):** had a positive and insignificant relationship with life expectancy in Nigeria in the short run at 5% level of significance.

**D (INFRATE):** had a negative and significant relationship with life expectancy in Nigeria in the short run at 5% level of significance.

**D (POVRATE):** had a negative and insignificant

relationship with life expectancy in Nigeria in the short run at 5% level of significance.

**D (UNEMRATE):** had a negative and insignificant relationship with life expectancy in Nigeria in the short run at 5% level of significance.

**D (FOODINSEC):** had a negative and insignificant relationship with life expectancy in Nigeria in the short run at 5% level of significance. The summary of the short run

result is shown below:

**Table 6:** Short-run result summary

| Variable      | Relationship with LNLEI | Significant relationship with LNLEI |
|---------------|-------------------------|-------------------------------------|
| D (UNEMRATE)  | Negative                | No                                  |
| D (EXRATE)    | Positive                | No                                  |
| D (INFRATE)   | Negative                | Yes                                 |
| D (POVRATE)   | Negative                | No                                  |
| D (FOODINSEC) | Negative                | No                                  |

The ECM coefficient was negative and significant at the 5% level of significance; hence, implying any that any short run

dis-equilibrium in the model will be corrected at the rate of approximately 0.64% per annum.

**Table 7:** Long Run Result

| Long Run Coefficients |             |            |             |        |
|-----------------------|-------------|------------|-------------|--------|
| Variable              | Coefficient | Std. Error | t-Statistic | Prob.  |
| Exrate                | 0.056959    | 0.031382   | 1.815011    | 0.0910 |
| Foodinsec             | 1.466177    | 0.496236   | 2.954598    | 0.0105 |
| Infrate               | -0.128396   | 0.047360   | -2.711055   | 0.0169 |
| Povrate               | 1.122949    | 0.246248   | 4.560235    | 0.0004 |
| Unemrate              | -13.613977  | 5.554360   | -2.451043   | 0.0280 |

Source: E-views 9 Regression output

**EXRATE:** had a positive and insignificant relationship with life expectancy in Nigeria in the long run at 5% level of significance.

**INFRATE:** had a negative and significant relationship with life expectancy in Nigeria in the long run at 5% level of significance.

**POVRATE:** had a positive and significant relationship with life expectancy in Nigeria in the long run at 5% level of

significance.

**UNEMRATE:** had a negative and insignificant relationship with life expectancy in Nigeria in the short run at 5% level of significance.

**FOODINSEC:** had a positive and insignificant relationship with life expectancy in Nigeria in the short run at 5% level of significance. The summary is shown below:

**Table 8:** long run result summary

| Variables | Coefficient sign | A priori expectation | Remark                            |
|-----------|------------------|----------------------|-----------------------------------|
| Unemrate  | Negative         | Negative             | Conforms with expectation         |
| Exrate    | Positive         | Negative             | Does not Conform with expectation |
| Infrate   | Negative         | Negative             | Conform with expectation          |
| Povrate   | Positive         | Negative             | Does not Conform with expectation |
| Foodinsec | Positive         | Negative             | Does not Conform with expectation |

Source: E-views 9 Regression output

From the table above, it can be seen that UNEMRATE and INFRATE were the variables that met our *a priori* expectations. However, from the test of hypotheses carried

out, it was discovered that all the variables were statistically significant in the long run with the exception of EXRATE.

**Table 9**

| Variable  | Relationship with LNLEI | Significant relationship with LNLEI |
|-----------|-------------------------|-------------------------------------|
| Unemrate  | Negative                | Yes                                 |
| Exrate    | positive                | No                                  |
| Infrate   | Negative                | Yes                                 |
| Povrate   | Positive                | Yes                                 |
| Foodinsec | Positive                | Yes                                 |

The Adjusted R-squared = 0.999940 or 99% implies a very good fit of the model.

The Observed R-squared prob.value= 0.4631 > 0.05; validates the absence of heteroscedasticity in the model.

#### Diagnostic tests: Heteroscedasticity and autocorrelation

**Table 10:** Heteroskedasticity Test: Breusch-Pagan-Godfrey

|                     |          |                      |        |
|---------------------|----------|----------------------|--------|
| F-statistic         | 0.913132 | Prob. F(17,13)       | 0.5774 |
| Obs*R-squared       | 16.87118 | Prob. Chi-Square(17) | 0.4631 |
| Scaled explained SS | 2.435378 | Prob. Chi-Square(17) | 1.0000 |

**Table 11:** Breusch-Godfrey Serial Correlation LM Test

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 0.047187 | Prob. F(1,13)       | 0.8314 |
| Obs*R-squared | 0.112092 | Prob. Chi-Square(1) | 0.7378 |

The Observed R-squared prob.value= 0.7378 > 0.05; validates the absence of autocorrelation in the model. This is also corroborated by the residual plot below:

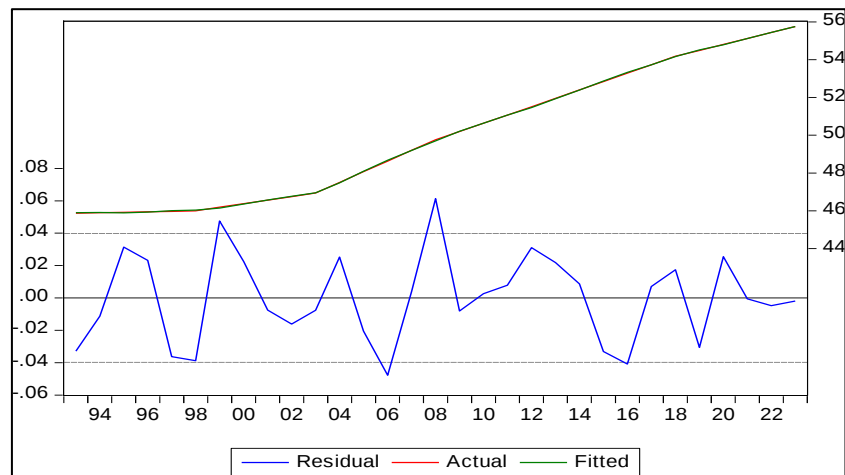


Fig 2: Residuals

The residual line lies below the actual and fitted lines; hence, absence of the problem of serial correlation in the model.

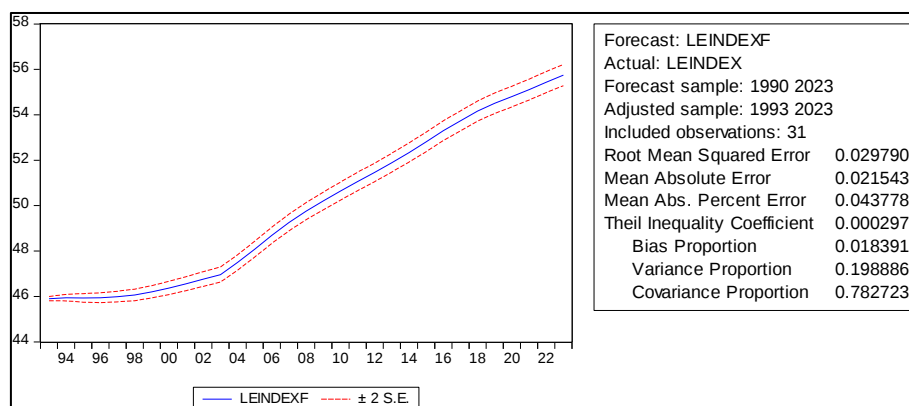


Fig 3: Forecast analysis

The forecast above is not biased, with a negligible bias proportion of 0.018391 and a small variance proportion of 0.196866. The majority of the forecast errors are due to the covariance proportion component, which is 0.782723 (approximately 78%). The Theil inequality coefficient, which measures the accuracy of a set of predictions generated from a sample model, is shown above to be 0.000297.

### Test for Causality

**H<sub>0</sub>:** There is no causality between unemployment rate, exchange rate, inflation rate, poverty rate, food insecurity and life expectancy at  $\alpha = 0.05$ .

**H<sub>1</sub>:** There is causality between unemployment rate, exchange rate, inflation rate, poverty rate, food insecurity and life expectancy at  $\alpha = 0.05$ .

**Decision:** The Granger causality test results revealed that there is evidence of uni-directional correlation between food insecurity and life expectancy in Nigeria; food insecurity and exchange rate; unemployment rate and exchange rate (See appendix).

### Results and Implications

Unemployment had a negative relationship with life expectancy as expected and also found to be statistically significant in the long run at the 5% level. This relationship is apt judging from the rate of unemployment in the economy fuelled by rising inflation and capital losses that has forced firms to leave Nigeria and small business to down size their staff strength. With the resultant effect, people would take to survival as their priority over health; hence, affecting their

life expectancy. The government hasn't done much to address these economic issues either and it bears the bulk of the blame for the level of economic depression being faced today. Except something is done to redress the level of unemployment rate, it is expected that health care will continue to be a preserve of the elite in Nigeria.

Poverty rate had a positive relationship with life expectancy as expected, but was found to be statistically significant in the long run at the 5% level. This finding can be supported by the fact that the rate of poverty has been worsened by poor management of the economy since the past consecutive administrations via their harsh economic policies. This fact has impoverished many Nigerians and led to increased cases of death and suicide due to hunger.

Food insecurity which was proxied by hunger statistics had a positive relationship with life expectancy as expected and also found to be statistically significant in the long run at the 5% level. This relationship is apt judging from the prevalence of hunger/food insecurity due to economic mis-management in the Nigerian economy. Also, food insecurity has hit the highest level since the last three decades in Nigeria fuelled by rising inflation, high cost of food importation from abroad and border closure issues, exchange rate problems etc. these problems put together have made the average Nigerian hungry as the value of the Naira continues to fluctuate without a solution in sight. This has made life expectancy more precarious as people find it difficult to feed. This has led to high levels of crime rate, suicide rate and ultimately the increase in mortality rate in the long run. The implication of increased food insecurity in Nigeria is that life expectancy

index may fall below the current levels and affect the population as well as the labour force. The causality between food insecurity and life expectancy provides an empirical testament to above.

Inflation rate had a negative relationship with life expectancy, but statistically significant at the 5% level in the long run. This finding is suggestive of the fact that the increased level of inflation in the country which has been worsened by the removal of oil subsidy has been the major cause of increased cost of food items and sundry household items. The rate of inflation appears to be rising steadily in Nigeria because the cost of transportation has been the bane of economic management in Nigeria. Sadly, the rate of inflation has affected other rates such as interest rate and monetary policy rates as well. Unless the level of inflation is curbed, it might further affect purchasing power and overall economic well-being in the long run.

The exchange rate exhibited a positive link with life expectancy, although it was not statistically significant at the 5% level in the long term. Surprisingly, there was no inverse link between the exchange rate and life expectancy. This could be attributable to the fact that Nigerians are not sensitive to exchange rate gyrations and will always find a way around it to keep on earning a living. The assumption is that despite the figure of exchange rate, Nigerians will still develop means of factoring it into the economy livelihood and still live according to their means; hence, keeping their life expectancy within check in the long run.

Overall, the model demonstrated a strong fit of variables, as seen by an adjusted R-squared of 99%, with no significant influence from breaches of econometric assumptions. The forecast evaluation revealed that the forecast was in line with the bias proportion, variance and covariance proportion, and Theil coefficients, respectively.

### Conclusion and Recommendations

The study concludes that unemployment rate and inflation rate, particularly, were the significant drivers of negative life expectancy in Nigeria. This implies that economic depression proxied with unemployment rate and inflation rate have decreasing effect on life expectancy in Nigeria economy while exchange rate, poverty rate and food insecurity showed positive effect on life expectancy in Nigeria. Thus, Nigerians have shown positive resilience to the harsh effects of exchange rate fluctuations, poverty and food insecurity in the short run. The study therefore recommends as follows:

1. The government should through the use of monetary and fiscal policy curb the rising effects of unemployment in the country. Unemployment has a negative effect on income, output and prices as well as life expectancy in the long run as revealed from the study. Employment opportunities would ensure that people have a stable source of income with purchasing power to monitor their level of health in the long run; hence, a better chance longevity.
2. The government should tackle the problem of food insecurity with all the resources it can muster to avoid losing a large percentage of the labour force to hunger, depression, suicide and eventually, death in the near future. The ways of ensuring food security is by empowering the marketing boards of agricultural produce, supply farming inputs, stabilizing the Naira and exchange rate and opening the borders to other cheap routes for moderate importation of food. These will go a long way in ensuring that there is food security in addition to local produce in the markets.
3. The level of poverty, should also be looked into. The

reason is that poverty rate in the long run may trigger unemployment, decline in output and fuel rising prices if not checked. Thus, honest means of reducing the incidence of poverty should be devised and implemented in the long run.

4. The level of inflation in the country is alarming and the government should as a matter of urgency look into the situation to reduce its effect on income, output and employment in the long run.

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