



UNEMPLOYMENT, INFLATION AND HEALTH PRODUCTIVITY IN NIGERIA

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Abstract

The study examined the interactive effects of inflation and unemployment on health productivity in Nigeria with a view to examining the nexus among inflation, unemployment and health productivity in Nigeria between 1986 and 2024.). The objectives of the study were achieved using Dynamic Ordinary Least Square (DOLS) technique. The findings of the study revealed that inflation has a marginally detrimental effect on health productivity while unemployment, maintains positive correlation with health productivity. The results of the interactive effects revealed that the declining rate of inflation positively affects health productivity while unemployment magnify the effect and reducing rate of unemployment positively affect health productivity while inflation rate augments the effect. The study concludes that that high unemployment and inflation can result in a reduction in health productivity and general health in Nigeria.

Keywords: Unemployment, Inflation, Health Productivities and Economic Growth

Introduction

Macroeconomic problems have long plagued the Nigerian economy, with unemployment and inflation being two recurring and related problems. The country went through a period of fast economic

growth and higher government spending after the oil boom of the 1970s. This prosperous phase, however, was brief because the oil glut of the 1980s caused a recession, a sharp decline in the value of the naira, and the subsequent implementation of the Structural Adjustment Programme (SAP)

(Ochayi, 2024). Also, a period of stagflation, which signals the start of a protracted battle with high unemployment and inflation rates (Felix & Moukhtar, 2022).

Concern over the connection between these economic indicators and the health sector is on the increase. Nigerian economic policy has traditionally prioritised controlling unemployment and inflation over addressing their indirect effects on human capital, especially health. The significant influence of these macroeconomic factors on public health outcomes, healthcare delivery, and overall national productivity has been brought to light by recent research and commentary (Ajayi & Akpocha, 2023). For instance, high inflation raises the price of energy, drugs, and medical supplies for healthcare facilities, which lowers the standard and affordability of services. This can therefore worsen health outcomes and lower worker productivity (Adebayo, 2024). Similar to this, growing unemployment causes household income to drop, which makes it increasingly difficult for people to afford expenses for healthcare. This, in turn, raises morbidity and lowers overall health productivity (Eke, Onyishi, & Ugwu, 2020). A crucial area for scholarly research is Nigeria's continuing multifaceted problems with unemployment, inflation and poor health outcomes. These macroeconomic factors have a significant influence on the productivity and well-being of Nigerians and are not distinct from one another. These significant findings and gaps in the body of existing literature serve as the foundation for the motivation behind this study. Moreover, Nigeria is grappling with high inflation and unemployment, severely affecting health and

productivity. The unemployment rate, particularly among youth, remains elevated, while inflation erodes household purchasing power while key issues include diminished access to healthcare due to rising service costs, leading to postponed medical care, and food insecurity resulting from reduced household income (Tolu, Adewale, & Oluwaseun, 2024).

Literature Review

Theoretical Framework

The study is premised on the Human Capital Theory which suggests that investing in knowledge, abilities, and health increases lifetime earnings and productivity, as employees with better health are more productive, earn more, and boost the economy. This theory provides a framework for understanding the detrimental impacts of inflation and unemployment (Lichtenberg, 2018). High inflation devalues income and savings, making it more difficult for citizens and the government to invest in health and education. Similarly, unemployment is a loss of human capital accumulation and a loss of productivity. Not only does an unemployed person not contribute to current output, but they are also more likely to suffer from poorer health, which will further reduce their future productivity. As a result, the theory highlights how macroeconomic instability impacts a nation's labour force and prospects for growth over time, impacting future generations.

Empirical Review

Using a long-term panel data set, Strandh (2024) discovered that health shocks -

especially mental health problems - that occur during an unemployment period can have a long-lasting detrimental effect on health and well-being, which can impact productivity over the long run. Equally, unemployment often results in the loss of health insurance, especially in economies with a weak social safety net. Job loss frequently results in a significant reduction in access to medical care, which delays treatment and worsens health outcomes, thereby lowering future health productivity, according to a study by Loh (2022) on the US healthcare system during economic shocks. Also, it is evident that households must reallocate their budgets as a result of high inflation, which reduces purchasing power. According to Gottlieb & O'Shaughnessy (2023), lower-income households are more likely to reduce discretionary health spending, like dental care or non-essential prescription drugs, during times of high inflation. This can have long-term effects on their productivity and health, particularly for people with fixed incomes or little savings, inflation can be a significant cause of anxiety and concern.

Leiter (2024) discovered a strong link between high rates of inflation and a rise in the prevalence of stress-related illnesses like mental health disorders and hypertension, which have a direct effect on a person's capacity for productivity. Similarly, the sharp rise in medical costs is a defining feature of inflation. According to Lichtenberg, (2018), rising medical costs may make it harder for some people to get care, but they can also be a result of new, efficient medical technology.

In addition, dietary decisions may be directly impacted by inflation-driven increases in the price of food and other necessities. The impoverished are disproportionately impacted by inflation, which forces them to buy less expensive and frequently less nutrient-dense foods, as demonstrated by Moraes & Vianna (2021). Chronic illnesses, nutritional deficiencies, and a decline in mental and physical productivity can result from this.

The effect of economic shocks on the relationship between productivity and health has been the subject of recent studies. A study by Barrot & Sauvagnat (2023) examined how global crises, which frequently involve high unemployment and inflation, result in a reduction in productivity and general health. They discovered that these shocks exacerbate health disparities by disproportionately affecting vulnerable populations.

The study by Yakubu, Audu & Yahaya (2024) uses a Vector Autoregression model to analyze the impact of inflation and unemployment on poverty and the human development index in Nigeria. It is found out that a shock to inflation increases unemployment and poverty while reducing government spending on human development through education and health.

Suhaili (2025) explored the impact of unemployment and inflation on Nigeria's human capital development, revealing a significant negative correlation between these factors, which is crucial for health and productivity. Also, Felix & Moukhtar (2022) investigated the dynamic relationship between inflation and unemployment in Nigeria, providing a foundational reference

for understanding the macroeconomic context and its impact on health productivity. While Aderounmu (2021) examined poverty drivers in Nigeria, highlighting their impact on unemployment and inflation, affecting the country's development, health, and productivity, and suggesting policy interventions. The study by Ikwen, Ogar & Agba (2022) linked macroeconomic factors to health outcomes in Nigeria, highlighting the negative impact of high inflation on maternal and infant mortality rates, urging further research.

Onwuemeka (2024) investigated the connections among poverty, unemployment, and inflation in Nigeria. Many Nigerians' living standards are still declining despite the country's economic growth, with poverty levels being exacerbated by a lack of jobs and declining real wages. To investigate these dynamics, the study uses an Autoregressive Distributed Lag (ARDL) model. Key findings show that while there is no long-term correlation between the variables under investigation, there is a positive short-term correlation between poverty levels and unemployment, inflation, and income inequality.

Though, previous empirical studies have examined the relationship between these macroeconomic factors and overall economic health in Nigeria, but the combined impact of both unemployment and inflation on health productivity, especially in Nigeria has not been investigated. Also, the efficiency and output of a growing population as a function of their health status which is referred to as health productivity coupled with intertwined relationship of the selected macroeconomic variables on health

productivity in Nigeria have not been investigated, hence, the need for this study.

Methodology

Model Specification

The model depicting the relationship among inflation, unemployment and health productivity in Nigeria is hereby specified in this study. Following the theoretical framework adopted in this study, health productivity and economic variables like population growth, unemployment and inflation are assumed to have complicated but intertwined relationship.

The relationship can be specified as

HTP

$$= f(INF, UNE, POP)$$

Where, HTP is health productivity, INF stands for inflation rate, UNE is rate of unemployment and POP is the population growth rate.

Equation 1 can be written in an estimable form as

$$HTP = \alpha + \beta INF + \theta UNE + \gamma POP + \varepsilon_t \quad 2$$

Where, α is a constant whose value is an estimate of the efficiency and output of a population's workforce as a function of their health status

β is the coefficient (which indicates the effect of inflation rate on health productivity)

θ is the coefficient (which indicates the effect of unemployment rate on health productivity)

γ is the coefficient (which indicates the effect of population growth rate on health productivity)

ε is the stochastic error term (which captures other potential factors that influence health productivity in Nigeria).

However, following the modification of the works of Akbar, Akbar & Ullah (2020) and Piper, Ferrari-Filho & Lélis (2020), the health productivity (HTP) is captured by the interactive effect of both inflation (INF) and unemployment rates (UNE).

Then, equation 2 becomes

$$\begin{aligned}
 HTP_t = & \beta_0 + \beta_1 INF_t + \beta_2 UNE_t \\
 & + \beta_3 (INF_t * UNE_t) \\
 & + \beta_4 POP_t \\
 & + \varepsilon_t
 \end{aligned}
 \tag{3}$$

The parameters β_1 and β_2 represent the direct effects of inflation and unemployment rates respectively while β_3 signifies the conditional interactive effects of the inflation and unemployment rates.

Measurement and Sources of Data

The study made use of annual time series secondary data over the study period. The description and measurement of variables and the sources of data are presented in Table 1 below.

Table 1: Description and Measurement of Variables

Variables	Description	Measurements	Source of Data
HTH	It describes the efficiency and output of a population's workforce as a function of their health status	Out-of-pocket expenditure (% of current health expenditure)	World Development Indicators (WDI, 2024)
INFL	Rate at which prices increase overtime resulting in a fall in purchasing power of money.	Inflation rate	Central Bank of Nigeria Statistical Bulletin (CBN, 2024)
UNE	Unemployment, total (% of total labour force) (modeled ILO estimate)	Unemployment rate	IMF (2024)
POP	It captures the total number of residents in a country	Change in population as a % of Total population	World Development Indicators (WDI, 2024)

Results and Findings

Unit Root Test

An Augmented Dickey-Fuller (ADF) unit root test was conducted to determine the stationarity or otherwise of the variables used in this study and the results are presented in the Table 2.

Table 2: ADF Unit Root Test Results

Variable	ADF Statistic At Level	P-value	ADF Statistic At First Difference	P-value
HTP	-2.5043	0.1239	-7.3853	0.0000
INF	-4.3046	0.0016	-7.3279	0.0000
UNE	-3.4270	0.0168	-6.5720	0.0000
POP	-1.4144	0.5651	-4.7352	0.0005

Source: Author's estimation (2025)

Results from Table 2 show that with an ADF statistic of -2.5043 and a p-value of 0.1239, the Health Productivity (HTP) indicates that it is non-stationary at level, indicating that HTP is integrated of order one, I(1). On the other hand, an ADF statistic of -4.3046 with a p-value of 0.0016 confirms that inflation (INF) is stationary at level, I(0), and at both level and first difference.

ADF statistics show significant results at both level and first difference, and unemployment (UNE) is stationary at level I(0). Population Growth (POP), on the other hand, is integrated of order one, I(1), as it is non-stationary at level but becomes stationary at first difference.

In summary, the results reveal that while population growth (POP) and health productivity (HTP) are stationary following first differencing I(1), inflation (INF) and unemployment (UNE) are stationary at level I(0).

Interactive Effects of Inflation and Unemployment on Health Productivity in Nigeria

Similarly, by using Fixed leads and lags specification (lead=1, lag=1) as well as Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth, a Dynamic Least Squares (DOLS) was employed to examine the interactive effects of inflation and unemployment on health productivity in Nigeria. The results are presented in Table 3.

Table 3: Results of the Interactive Effects of Inflation and Unemployment on Health Productivity in Nigeria

Dependent Variable: HTP				
Method: Dynamic Least Squares (DOLS)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	-6.5618	5.2922	-1.2398	0.2301
POP	-0.4853	13.862	-0.0350	0.9724
UNE	-2.842	1.99493	-0.9476	0.3552
INF*UNE	1.4811	1.3737	1.0781	0.2944
C	4.425	1.1448	1.4793	0.1554
R-squared	0.8529	Mean dependent var		72.583
Adjusted R-squared	0.7327	S.D. dependent var		3.2262
S.E. of regression	3.0044	Sum squared resid		171.51

Source: Author's estimation (2025)

From the results in table 3, a coefficient of -6.5618 and a p-value of 0.2301 show that inflation has a negative effect on health productivity. This suggests that although higher inflation may reduce purchasing power and increase healthcare costs, the effect is statistically insignificant in this model. Also, with a p-value of 0.3552 and a coefficient of -2.842, unemployment has a negative but statistically insignificant impact on health productivity. This implies that, even though the effect is not statistically significant, higher unemployment may have a detrimental effect on health productivity through mechanisms like poverty, loss of income, and restricted access to healthcare. The results also show that changes in health productivity are not significantly explained by the population growth rate with a

coefficient of -0.4853 and p-value of 0.9724, which is small and inconsequential. The results are in line with the findings of Barrot & Sauvagnat (2023) that high unemployment and inflation result in a reduction in productivity and general health. The findings are also in line with the work of Strandh (2024) that health shocks especially mental health problems that occur during an unemployment period can have a long-lasting detrimental effect on health and well-being, which can impact productivity over the long run. Equally, unemployment often results in the loss of health insurance, especially in economies with a weak social safety net.

Moreover, the interaction between inflation and unemployment in Nigeria shows a positive but statistically insignificant

relationship with (Coefficient = 1.4811, $p = 0.2944$). Although each of these factors has a negative impact on health productivity, their combined effect is less harmful, possibly as a result of households using unconventional coping strategies during these trying times. This points to a complicated relationship in which the effects of unemployment and inflation might not just reinforce one another. The results are in consonance with the work of De Neve (2019), which discovered that the trade-off between inflation and unemployment has distinct effects on health outcomes. On the contrary, the results are not in line with the work of Adeosun, Gbadamosi & Odior (2025) that Nigeria's macroeconomic environment, which is characterised by high inflation, contributes to its poor health outcomes.

Both inflation and unemployment decrease health productivity, though the effects are minimal. The positive interaction term suggests that high inflation and high unemployment together lessen the expected negative impact on health productivity, possibly due to substitution effects and resilience in the informal sector. Policymakers should address inflation and unemployment as interlinked issues; combined anti-inflation and job creation strategies may more effectively mitigate their detrimental effects on health productivity than addressing each individually. Despite the fact that unemployment and inflation have a negative impact on health productivity in Nigeria, their combined effect is positively moderating, suggesting that their combined influence is less detrimental than when taken into account separately. This demonstrates

the complex interrelationship between macroeconomic variables and health, with some structural and informal economy components offering some protection against anticipated negative consequences. Also, the model fit analysis, R-squared 0.8529, indicating that the independent variables account for about 85% of the variation in health productivity while the model might not ignore important factors influencing health productivity, as indicated by the adjusted R-squared of 0.7327.

Summary and Conclusion

The broad objective of this study is to examine the nexus among inflation, unemployment and health productivity in Nigeria between 1986 and 2024. Relevant data for this study were obtained from Central Bank of Nigeria Statistical Bulletin (CBN, 2024), International Monetary Fund (IMF, 2024) and World Development Indicator (WDI, 2024). Data collected were analysed using appropriate descriptive statistics (such as tables and line graph). Econometric technique of Dynamic Ordinary Least Squares (DOLS) was used. The results of the interactive effects of DOLS estimates revealed that the declining rate of inflation will positively affect health productivity while unemployment will magnify the effect while reducing rate of unemployment will positively affect health productivity while inflation rate will augment the effect. The findings of this study conclude that high unemployment and inflation can result in a reduction in health productivity and general health in Nigeria. Following the findings of this study, it is

recommended that, to address inflation - health productivity nexus, Nigeria needs data-driven and focused policy interventions, such as food subsidies, affordable housing schemes and restore a single digit inflation rate.

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