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DO INFLATION DYNAMICS MATTER FOR HEALTH OUTCOMES IN SUB-SAHARAN AFRICAN COUNTRIES?

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Abstract

Inflation may affect population health by reducing household purchasing power, increasing the cost of food and healthcare, and weakening the real value of public health budgets. However, empirical evidence on whether inflation independently predicts health outcomes in Sub-Saharan Africa remains limited and inconclusive. This study examined the effect of inflation on life expectancy and under-five mortality in 27 Sub-Saharan African countries from 2000 to 2024. It adopted a positivist research philosophy and a longitudinal, non-experimental panel research design. Annual secondary data obtained from the World Bank's World Development Indicators were analysed using fixed-effects regression models with robust standard errors, following model selection through the Hausman specification test. The results showed that inflation had a positive but statistically insignificant effect on life expectancy and a negative but statistically insignificant effect on under-five mortality. Thus, contemporaneous changes in general consumer prices did not independently explain variations in either health outcome after accounting for relevant country-level conditions. The findings suggest that inflation may influence population health indirectly through changes in food prices, healthcare costs, real household income, and the purchasing power of public health expenditure. The study concludes

that price stability remains important for protecting household welfare, but inflation-control policies alone may be insufficient to improve population health. Such policies should be complemented by measures that strengthen household purchasing power, protect the real value of health budgets, expand universal health coverage, and improve access to essential healthcare services.

Keywords: Inflation dynamics; life expectancy; under-five mortality; health outcomes; purchasing power; panel data; Sub-Saharan Africa

INTRODUCTION

Health outcomes are widely regarded as fundamental indicators of human development because they reflect not only the performance of healthcare systems but also the socioeconomic and environmental conditions under which populations live. Improvements in life expectancy and reductions in child mortality depend on access to quality healthcare, adequate nutrition, safe living conditions and the economic capacity to obtain essential goods and services. Marmot and Allen (2020) demonstrate that income security and broader socioeconomic circumstances remain important determinants of population health. Similarly, the World Health Organization (2023) observes that persistent economic vulnerability can constrain access to healthcare and slow progress in health outcomes, particularly in low- and middle-income countries. Consequently, understanding the macroeconomic conditions that shape people's ability to maintain good health remains important for both health and economic policy.

Inflation is one of the macroeconomic conditions that may influence population health by changing the real value of household income and public resources. It refers to a sustained increase in the general price level, which reduces the quantity of goods and services that a given amount of money can purchase. When nominal incomes do not increase at the same rate as consumer prices, households experience a decline in purchasing power and may be compelled to reduce or postpone expenditure on healthcare, nutritious food, sanitation and other health-enhancing necessities. Takura (2022) explains that increasing treatment prices can restrict access to medical services, especially, where households finance healthcare directly. Movsisyan et al. (2024) further establish that the health consequences of inflation tend to be more pronounced among economically disadvantaged populations whose budgets are already concentrated on essential consumption.

Several pathways can therefore connect inflation to health outcomes. At the household level, higher prices may force families to substitute nutritious food with cheaper alternatives, delay medical consultations, discontinue treatment or reduce expenditure on preventive

healthcare. These adjustments may progressively increase exposure to disease and avoidable mortality. Mishra and Narayan (2022) argue that inflation affects health mainly through its effect on the affordability of food, transport and medical care. At the health-system level, inflation can increase the cost of pharmaceuticals, medical equipment, energy, construction and remuneration of healthcare workers. Zhou et al. (2020) show that macroeconomic price pressures can reduce the real value of healthcare resources, potentially limiting the quantity and quality of services that health budgets can support.

These inflationary pressures may have different implications for different dimensions of population health. Life expectancy reflects cumulative survival conditions and the long-term performance of socioeconomic and healthcare systems. It may decline where prolonged price instability restricts access to healthcare, adequate nutrition and acceptable living conditions. Under-five mortality, by comparison, is particularly sensitive to household deprivation, maternal healthcare, nutrition, immunisation and the availability of timely treatment for preventable childhood illnesses. Inflation may therefore affect child survival more rapidly where families have limited savings, weak social protection and high dependence on out-of-pocket health expenditure. Şentürk and Ali (2021) found a negative long-run relationship between inflation and life expectancy, suggesting that persistent price pressures can gradually compromise population longevity. Bao et al. (2022) similarly reported that increasing inflation was associated with lower life expectancy and increased infant mortality, although their analysis was concentrated on developed economies.

The potential health consequences of inflation are especially relevant to Sub-Saharan Africa. Despite improvements in several health indicators, the region continues to record comparatively low life expectancy and high under-five mortality. The World Bank (2024) indicates that average life expectancy in the region remains considerably below that of high-income economies. The World Health Organization (2023) also reports that preventable infectious diseases, maternal health complications, inadequate nutrition and limited healthcare coverage continue to contribute substantially to mortality. These challenges exist alongside constrained household incomes, extensive informal employment and limited financial protection against healthcare costs. As a result, inflation may compound existing vulnerabilities by increasing the cost of essential goods while weakening the real value of household and government resources.

The structure of healthcare financing in the region further increases the potential importance of inflation. Many healthcare systems in Sub-Saharan Africa remain dependent on a combination of government expenditure, development assistance and direct household payments. Ataguba et al. (2023) observe that high out-of-pocket expenditure remains a major

barrier to achieving universal health coverage in the region. When consumer prices rise, households that already face financial barriers to care may delay treatment or rely on less effective alternatives. Piatti-Fünfkirchen and Ally (2022) similarly explain that restricted fiscal space limits the ability of governments to maintain and expand essential health services. Inflation can aggravate this constraint by increasing the nominal cost of medical inputs without producing a corresponding increase in the real purchasing power of public health budgets.

Nevertheless, the empirical relationship between inflation and health outcomes remains inconclusive. Mishra and Narayan (2022) found that inflation was associated with increased mortality and reduced life expectancy, with stronger adverse effects in low- and middle-income countries. Bao et al. (2022) also established that inflation was associated with unfavourable population health outcomes. However, Movsisyan et al. (2024), after reviewing evidence drawn from different geographical and economic contexts, found substantial heterogeneity in the direction, magnitude and statistical significance of the estimated effects. This heterogeneity suggests that the relationship may depend on the type and persistence of inflation, the health indicator examined, household coping mechanisms and the strength of national healthcare and social-protection systems.

Existing research also presents important geographical and methodological limitations. A considerable proportion of the evidence originates from developed economies, global samples or individual-country studies whose findings may not adequately represent the institutional and economic conditions of Sub-Saharan Africa. For example, Bao et al. (2022) focused on developed economies, while Şentürk and Ali (2021) examined a single national setting. Although global analyses provide broader comparative evidence, they may conceal region-specific relationships arising from differences in healthcare financing, income levels, market structures and policy capacity. Furthermore, some studies examine healthcare expenditure rather than final health outcomes. Zhou et al. (2020), for instance, provide useful evidence on how inflation affects healthcare costs, but their analysis does not directly establish whether such cost pressures translate into changes in life expectancy or child mortality.

Another limitation is that inflation is frequently incorporated as a control variable rather than examined as the principal determinant of health outcomes. Consequently, limited attention has been given to whether annual changes in consumer prices independently explain variations in population health after controlling for demographic, environmental, institutional and health-system conditions. The use of cross-sectional designs in some studies also makes it difficult to account for unobserved characteristics that differ across countries but remain relatively stable over time. Wachira and Gachoki (2024) demonstrate the importance of panel-data approaches in examining economic and health relationships in African settings. Panel estimation is

particularly valuable because it combines cross-country and intertemporal information while controlling for country-specific heterogeneity that could otherwise bias the estimated relationship.

The study contributes to the literature in three main ways. First, it directs attention to Sub-Saharan Africa, where the health effects of inflation may differ from those observed in developed and global samples because of high household vulnerability, limited fiscal space and weak financial protection. Second, it evaluates two complementary health outcomes, thereby establishing whether inflation has similar implications for population longevity and child survival. Third, it isolates the relationship between inflation and health outcomes while accounting for relevant demographic, environmental, health-system and institutional conditions. The study therefore addresses the central question: Do inflation dynamics matter for health outcomes in Sub-Saharan Africa? Evidence from the analysis can inform the coordination of price-stabilisation, social-protection and health-financing policies intended to preserve access to essential healthcare during periods of economic instability.

MATERIALS AND METHODS

Research Design

The study adopted a quantitative longitudinal non-experimental panel research design to examine the relationship between inflation and health outcomes across Sub-Saharan African countries. The longitudinal design made it possible to observe changes within countries over time while accounting for differences across countries. Panel-data analysis was appropriate because inflation and health outcomes vary both temporally and geographically, while some country-specific characteristics remain relatively stable. According to Baltagi (2021), panel-data models improve estimation efficiency and control for unobserved heterogeneity that may otherwise bias regression estimates. Since the variables were observed without manipulation, the study was observational and the estimated relationships were interpreted as associations rather than definitive causal effects.

Study Coverage and Research Sample

The target population comprised the 48 countries classified as part of Sub-Saharan Africa by international development institutions. The analytical sample was restricted to countries classified as lower-middle-income, upper-middle-income or high-income and for which sufficiently consistent macroeconomic, health, environmental and institutional data were available. Countries classified as low-income were excluded because of substantial gaps and inconsistencies in the indicators required for the econometric analysis. Incomplete

macroeconomic and health reporting remains a significant challenge in several Sub-Saharan African countries and may compromise cross-country comparability (Anyangwe & Mtonga, 2022). Ataguba et al. (2023) similarly identify weaknesses in health-financing and socioeconomic information systems as a continuing limitation to regional health-policy analysis.
Application of the inclusion criteria produced a final analytical sample of 27 countries observed annually from 2000 to 2024. This resulted in a potential panel of 675 country-year observations. However, the regression analysis used 527 complete country-year observations because some control indicators were unavailable for particular country-year combinations. Each country-year constituted the unit of analysis. The study period was selected to provide sufficient temporal coverage for capturing changes in inflation and health outcomes while maintaining reasonable comparability of indicators across the sampled countries.

Data Sources and Collection

The study used annual secondary data obtained primarily from the World Bank's World Development Indicators database. The database provides harmonised macroeconomic, demographic, environmental and health indicators that support comparisons across countries and over time (World Bank, 2024). Control of corruption data were obtained from the Worldwide Governance Indicators database. The use of standardised international databases reduced measurement inconsistencies that could arise from combining national datasets employing different definitions and reporting procedures.

Data were extracted for each country and year using a structured secondary-data collection schedule. The extracted values were cross-checked for consistency, coded and organised into a country-year panel dataset. Data cleaning included examining missing observations, identifying implausible values, ensuring consistent country codes and verifying the measurement units of the variables. The final dataset was analysed using Stata version 16.

Measurement of Variables

The study examined two dependent variables: life expectancy at birth and the under-five mortality rate. Life expectancy was used to represent long-term population health, while under-five mortality captured child survival and the responsiveness of health outcomes among a particularly vulnerable population. The natural logarithms of both measures were used to reduce skewness, stabilise variance and support proportional interpretation of estimated relationships.

The principal explanatory variable was inflation, measured by the annual percentage change in the Consumer Price Index. Consumer-price inflation captures annual changes in the general price level and, consequently, changes in the real purchasing power of income. The

study controlled for other factors that could influence health outcomes, namely population size, environmental quality, official development assistance per capita, universal health coverage and control of corruption.

Table 1: Definition and Measurement of Study Variables

Variable	Role	Indicator and measurement
Life expectancy	Dependent variable	Natural logarithm of life expectancy at birth, in years
Under-five mortality	Dependent variable	Natural logarithm of deaths of children under five per 1,000 live births
Inflation	Main explanatory variable	Annual percentage change in the Consumer Price Index
Population	Control variable	Natural logarithm of total population
Environmental quality	Control variable	Population-weighted exposure to PM2.5 air pollution, measured in micrograms per cubic metre
Official development assistance	Control variable	Natural logarithm of net official development assistance received per capita
Universal health coverage	Control variable	Universal Health Coverage service coverage index
Control of corruption	Control variable	Worldwide Governance Indicators estimate of control of corruption

Population was included because population size may affect the demand for healthcare services and the distribution of public resources. Exposure to PM2.5 air pollution captured environmental health risks that may influence mortality and longevity. Official development assistance per capita represented external resources that could support health and social-sector interventions. Universal health coverage captured the availability of essential health services, while control of corruption represented institutional capacity and the effectiveness with which public resources are managed.

Econometric Model Specification

Separate panel regression models were estimated for life expectancy and under-five mortality. The general empirical model was specified as:

$$HO_{it} = \alpha_0 + \beta_1 INF_{it} + \beta_2 POP_{it} + \beta_3 ENQ_{it} + \beta_4 ODA_{it} + \beta_5 UHC_{it} + \beta_6 CCI_{it} + \mu_i + \lambda_t + \epsilon_{it}$$

Where:

HO_{it}: Health Outcomes (proxied by Life expectancy at birth and/or under five mortality)

INF_{it} denotes the annual inflation rate.

POP_{it}: Population Growth

ENQ_{it}: Environmental Quality

ODA_{it}: Official Development Assistance

UHC_{it}: Universal Health Coverage

CCI_{it}: Control of Corruption Index

μ_i: Country-specific effect

λ_t: Time specific effect

ϵ_{it}: Error term

α_0 is the intercept or constant

β_{1-6} is regression coefficients

ε_{it} is a random error term that accounts for unexplained variations.

Because inflation was measured in percentage points while both health outcomes were transformed into natural logarithms, β_1 was interpreted as a semi-elasticity. Accordingly, a one-percentage-point increase in inflation was associated with an approximate ($100\times\beta_1$) percentage change in the relevant health outcome, holding the control variables constant.

Estimation Procedure

Descriptive statistics were initially generated to summarise the distributions of the study variables. Pearson correlation coefficients and variance inflation factors were subsequently examined to assess the strength of relationships among explanatory variables and identify potential multicollinearity. A variance inflation factor exceeding 10 was treated as evidence of serious multicollinearity.

Both fixed-effects and random-effects panel models were estimated. The fixed-effects estimator controls for unobserved country characteristics that remain constant over time and may be correlated with inflation and the control variables. The random-effects estimator assumes that unobserved country-specific effects are not correlated with the explanatory variables. The Hausman specification test was applied to determine the appropriate estimator. Its null hypothesis was that the random-effects estimator was consistent and efficient, while rejection of the null hypothesis supported the fixed-effects estimator.

The Hausman test was statistically significant for both the life-expectancy and under-five mortality models. The null hypothesis was therefore rejected, indicating that unobserved country-specific characteristics were correlated with the explanatory variables. Consequently, the fixed-effects estimator was selected for the final analysis. The null hypothesis indicated that

inflation had no statistically significant effect on the respective health outcome. Statistical significance was assessed at the 5% level using two-tailed tests.

Panel Diagnostic Tests

A series of diagnostic tests was conducted to evaluate the suitability and reliability of the panel models. The Fisher-type Augmented Dickey–Fuller test was used to examine whether the series contained panel unit roots. Where variables exhibited different orders of integration, the Kao residual-based panel cointegration test was used to determine whether they shared a stable long-run relationship. Evidence of cointegration supported estimation of the models in levels.

The Wooldridge test was applied to assess first-order serial correlation within countries. Groupwise heteroskedasticity was examined using the modified Wald test for fixed-effects models. The Pesaran cross-sectional dependence test was used to establish whether regression residuals were contemporaneously correlated across countries. The cross-sectional dependence tests were statistically insignificant for both outcome models, suggesting that residual shocks were not systematically correlated across the sampled countries. The Wooldridge and modified Wald tests indicated the presence of serial correlation and heteroskedasticity. The final fixed-effects models were therefore estimated using robust standard errors to obtain valid statistical inference in the presence of these violations.

Ethical Considerations

Ethical approval for the study was obtained from the Kisii University Institutional Scientific and Ethics Review Committee under Protocol No. KSU/ISERC/0090/07/26, issued on 1st July 2026. Authorization to conduct the research was subsequently granted by the National Commission for Science, Technology and Innovation under Research Licence No. NACOSTI/P/26/4193083, issued on 18th July 2026. The study relied exclusively on publicly available country-level secondary data and did not involve direct interaction with human participants or the collection of personally identifiable information.

RESULTS

Descriptive Statistics

Table 2 presents the descriptive statistics for the variables included in the analysis. The number of observations varied across variables because of differences in country-year data availability. The logarithm of life expectancy recorded a mean of 4.09 and a standard deviation of 0.12, indicating relatively limited variation across countries and over time. Conversely, the

logarithm of under-five mortality had a mean of 4.12 and a standard deviation of 0.63, demonstrating greater variation in child mortality across the sampled countries.

Inflation recorded an annual mean of 9.62%, with a standard deviation of 30.19%. It ranged from −72.73% to 557.20%, indicating substantial differences in price conditions across countries and years. The dispersion was considerably greater than the mean, reflecting the presence of periods of deflation as well as episodes of extremely high inflation. This substantial variation provided an appropriate empirical basis for examining whether changes in inflation were associated with health outcomes.

The control variables also exhibited meaningful variation. The logarithm of total population ranged from 11.30 to 19.27, while exposure to PM2.5 air pollution ranged from 8.50 to 85.10 micrograms per cubic metre. The UHC service coverage index ranged from 13 to 81, demonstrating considerable disparities in access to essential healthcare services. The control of corruption index ranged from −1.65 to 1.70, indicating marked differences in institutional quality among the sampled countries.

Table 2: Descriptive Statistics of the Study Variables, 2000–2024

Variable	Observations	Mean	Std. dev.	Minimum	Maximum
Life expectancy at birth (log)	648	4.09	0.12	3.77	4.35
Under-five mortality rate (log)	648	4.12	0.63	2.45	5.31
Inflation rate (%)	659	9.62	30.19	−72.73	557.20
Total population (log)	675	15.54	1.86	11.30	19.27
PM2.5 air-pollution exposure	567	32.28	16.72	8.50	85.10
Net official development assistance per capita (log)	640	3.86	1.03	−0.99	6.54
UHC service coverage index	648	45.67	14.70	13.00	81.00
Control of corruption index	621	−0.45	0.69	−1.65	1.70

Source: Researcher's computation based on secondary panel data (2000–2024).

Correlation Analysis

The correlation analysis provided preliminary evidence regarding the direction and strength of the relationships between inflation and health outcomes. Inflation had a weak negative correlation with life expectancy ($r=-0.0922$, $p<0.05$) and a weak positive correlation with under-five mortality ($r=0.0820$, $p<0.05$). At the bivariate level, higher inflation was therefore associated with slightly lower life expectancy and higher under-five mortality. However, the small coefficients indicated that inflation had only a weak linear relationship with the health indicators before other factors were controlled.

Life expectancy and under-five mortality exhibited a strong negative correlation ($r=-0.8302$, $p<0.05$). This result was expected because improvements in child survival contribute to broader gains in population longevity. UHC service coverage was positively correlated with life expectancy ($r=0.4936$, $p<0.05$) and negatively correlated with under-five mortality ($r=-0.7729$, $p<0.05$). Control of corruption was also positively associated with life expectancy ($r=0.3673$, $p<0.05$) and negatively associated with under-five mortality ($r=-0.6099$, $p<0.05$).

No pairwise correlation among the explanatory variables exceeded the conventional threshold of 0.80. The variance inflation factors were also below 10. The results therefore indicated that multicollinearity was not sufficiently severe to undermine the panel regression estimates.

Panel Diagnostic and Model-Selection Results

The panel diagnostic tests supported the estimation of the specified models. The Fisher-type Augmented Dickey–Fuller tests were used to examine the stationarity properties of the variables, while the Kao residual-based cointegration test assessed whether a stable long-run relationship existed among the series. The cointegration results supported estimation of the panel models in levels.

The Pesaran cross-sectional dependence test was statistically insignificant for both models. The life-expectancy model produced a CD statistic of 0.317 ($p=0.7515$), while the under-five mortality model recorded a CD statistic of −0.221 ($p=0.8251$). The null hypothesis of cross-sectional independence was therefore not rejected, indicating that residual shocks were not systematically correlated across the sampled countries.

The Wooldridge test rejected the null hypothesis of no first-order serial correlation in both the life-expectancy model ($F=220.7862$, $p<0.001$) and the under-five mortality model ($F=176.1271$, $p<0.001$). The modified Wald test also rejected the null hypothesis of homoskedasticity in the life-expectancy model ($\chi^2=52{,}297.28$, $p<0.001$) and the under-five mortality model ($\chi^2=6{,}218.05$, $p<0.001$). The final models were consequently estimated using robust standard errors.

The Hausman specification test was significant for both outcome models ($p<0.001$). The null hypothesis that the random-effects estimator was consistent was rejected. The fixed-effects estimator was therefore selected because it controlled for unobserved time-invariant country characteristics correlated with the explanatory variables.

Effect of Inflation on Health Outcomes

Table 3 presents the fixed-effects regression results for the effect of inflation on life expectancy and under-five mortality. Both models were jointly statistically significant. The life-

expectancy model produced an F-statistic of 17.43 ($p<0.01$), while the under-five mortality model recorded an F-statistic of 28.45 ($p<0.01$). The within R^2 values were 0.675 and 0.778, respectively. Therefore, the variables included in the models explained approximately 67.5% of the within-country variation in life expectancy and 77.8% of the within-country variation in under-five mortality.

Table 3: Fixed-Effects Regression Results for Inflation and Health Outcomes

Variable	Life expectancy (log)	Under-five mortality (log)
Inflation, consumer prices (annual %)	0.0000381	−0.0000148
	(0.33)	(−0.10)
Total population (log)	0.182345***	−1.009898***
	(3.25)	(−5.05)
PM2.5 air-pollution exposure	−0.000223	−0.000079
	(−1.12)	(−0.05)
Net ODA per capita (log)	0.005228	−0.029734
	(0.94)	(−1.54)
UHC service coverage index	0.003741***	−0.011855***
	(3.04)	(−3.11)
Control of corruption index	−0.023492	0.096283
	(−1.14)	(1.19)
Constant	1.058619	20.554770***
	(1.28)	(6.99)
Observations	527	527
F-statistic	17.43	28.45
Probability > F	0.0000	0.0000
Within R^2	0.6746	0.7781
Overall R^2	0.1075	0.2678
Country fixed effects	Yes	Yes
Robust standard errors	Yes	Yes

*Robust t-statistics are reported in parentheses. *** p<0.01; ** p<0.05; * p<0.10.*

Source: Researcher's computation based on secondary panel data (2000–2024).

Inflation had a positive but statistically insignificant coefficient in the life-expectancy model (*β=0.0000381, t=0.33, p>0.10*). Given the semi-logarithmic specification, a one-percentage-point increase in inflation was associated with an approximate 0.0038% increase in life expectancy, holding the other variables constant. However, the association was statistically indistinguishable from zero. In the under-five mortality model, inflation had a negative but statistically insignificant coefficient (*β=−0.0000148, t=−0.10, p>0.10*). A one-percentage-point

increase in inflation was associated with an approximate 0.0015% reduction in under-five mortality, holding the other variables constant. Nevertheless, the estimated association was negligible and statistically insignificant.

The regression results therefore differed from the initial bivariate relationships. Although the correlation analysis associated inflation with slightly lower life expectancy and higher under-five mortality, these relationships disappeared after controlling for demographic, environmental, health-system and institutional conditions and accounting for unobserved country-specific characteristics. Inflation did not independently predict either health outcome in the estimated fixed-effects models. Among the control variables, population and UHC service coverage were statistically significant in both models. The UHC service coverage index had a positive relationship with life expectancy ($\beta=0.003741,\ p<0.01$) and a negative relationship with under-five mortality ($\beta=-0.011855,\ p<0.01$). A one-unit increase in the UHC index was associated with an approximate 0.37% increase in life expectancy and a 1.19% reduction in under-five mortality, holding the other factors constant. Environmental quality, official development assistance per capita and control of corruption were not statistically significant in either model. Based on the inflation coefficients, the null hypotheses that inflation has no statistically significant effect on life expectancy and under-five mortality were not rejected. The results showed that annual consumer-price inflation had no statistically detectable independent relationship with either measure of health outcomes in the sampled Sub-Saharan African countries.

DISCUSSION

The study found that inflation had a positive but statistically insignificant effect on life expectancy in Sub-Saharan Africa. The positive coefficient should not be interpreted as evidence that inflation improves longevity because its magnitude was negligible and statistically indistinguishable from zero. Instead, the finding indicates that contemporaneous changes in consumer prices did not independently explain changes in life expectancy after controlling for relevant demographic, environmental, health-system and institutional factors. This differs from Bao et al. (2022), who reported that inflation reduced life expectancy, and Şentürk and Ali (2021), who established a negative long-run relationship between inflation and longevity. The difference may arise because life expectancy reflects cumulative health conditions and may respond to prolonged rather than short-term price pressures.

Inflation also had a negative but statistically insignificant effect on under-five mortality. Although the coefficient suggested a marginal decline in child mortality, its statistical insignificance means that no meaningful relationship was established. This finding contrasts with Mishra and Narayan (2022), who found that inflation increased child mortality, particularly in

low- and middle-income countries. Under-five mortality is directly influenced by nutrition, maternal healthcare, immunisation, sanitation and timely treatment of childhood illnesses. Inflation may affect these factors indirectly through food prices, healthcare costs and household income rather than exerting an immediate independent effect on child mortality.

The absence of significant effects on both outcome indicators suggests that the inflation–health relationship in Sub-Saharan Africa is complex and context-dependent. Movsisyan et al. (2024) similarly found substantial heterogeneity in the direction and magnitude of inflation's health effects across populations and economic settings. Annual consumer-price inflation may be too broad to capture changes in the prices of goods that are directly relevant to health, including food, medicines, transport and medical services. Furthermore, national-level averages may conceal stronger adverse effects among low-income households that devote a greater proportion of their resources to essential consumption.

The findings may also indicate that inflation influences life expectancy and under-five mortality through delayed and indirect pathways. Rising prices can reduce the real value of household income and public health budgets, but their ultimate health consequences may emerge only after prolonged nutritional deprivation, delayed treatment or deterioration in service delivery. Zhou et al. (2020) demonstrate that inflation can weaken the real value of healthcare resources without necessarily producing an immediate change in health outcomes. The contemporaneous specification used in this study may therefore not capture cumulative, lagged, nonlinear or threshold effects of inflation.

CONCLUSION

The study examined the effect of inflation on life expectancy and under-five mortality in 27 Sub-Saharan African countries between 2000 and 2024. The findings showed that inflation had a positive but statistically insignificant effect on life expectancy and a negative but statistically insignificant effect on under-five mortality. Therefore, inflation did not independently explain changes in either health outcome after demographic, environmental, health-system and institutional factors were controlled. The null hypotheses that inflation has no statistically significant effect on life expectancy and under-five mortality were consequently not rejected.

The findings suggest that the relationship between inflation and population health in Sub-Saharan Africa is not direct or uniform. Inflation may influence health through intermediate and delayed pathways, including changes in food and healthcare prices, household purchasing power and the real value of health-sector resources. Its effects may also depend on the persistence and composition of price increases, household vulnerability and the capacity of

national health and social-protection systems. Accordingly, aggregate annual inflation may not fully capture the price pressures that directly influence longevity and child survival.

RECOMMENDATIONS

Sub-Saharan African governments and central banks should continue pursuing macroeconomic stability while ensuring that inflation-management measures are coordinated with health and social policies. Particular attention should be given to food, medicine, energy and transport prices because changes in these components can directly affect nutrition and access to healthcare even when general consumer-price inflation appears moderate. Regular monitoring of sector-specific inflation would support earlier identification of price pressures with potential health consequences.

Governments should strengthen measures that protect vulnerable households during periods of rising prices. These measures may include targeted food and healthcare subsidies, expanded health-insurance coverage, fee exemptions for maternal and child healthcare and inflation-responsive social assistance. Health budgets should also be periodically adjusted to reflect changes in pharmaceutical, medical equipment and service-delivery costs so that inflation does not reduce the real volume or quality of essential healthcare services.

Future studies should distinguish general inflation from food-price and medical-care inflation and examine inflation persistence, volatility, threshold and lagged effects. Research should also use household-level or subnational data to determine whether inflation has stronger effects among low-income households, children and populations that depend heavily on out-of-pocket healthcare financing. Such analyses would help identify transmission pathways that may be concealed by national aggregate data.

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Conflict of Interest

The authors declare that there is no conflict of interest concerning the research, authorship or publication of this manuscript.

Data Availability Statement

The data used in this study are publicly available from the World Bank's World Development Indicators and Worldwide Governance Indicators databases. The dataset compiled and analysed for this study may also be made available by the corresponding author upon reasonable request.

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