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# Macroeconomic Variables and Economic Growth in Sub-Saharan African Countries

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## ABSTRACT

This study investigated the relationship between macroeconomic variables and economic growth in Sub-Saharan Africa countries from 1993 to 2022. The study specifically examined the influence of exchange, interest, and unemployment rates on gross domestic product. The study utilized data obtained from the annual reports of the Central Bank of Nigeria, World Bank Development Indicators, and Index Mundi. The study employed descriptive statistics, panel unit root test, Hausman test, and Panel Ordinary Least Square (POLS) techniquesat the 5% significance level. The unit root analysis indicated that all variables are stationary at the level, necessitating the use of the Hausman test which demonstrated that the random effect Pools approach is the most appropriate. The result showed that interest and exchange rates are negative and significant to gross domestic product; whereas, unemployment rate is positive and significant to gross domestic product. The study concluded that exchange rate, interest rate, and unemployment significantly influence the economic growth of Sub-Saharan African countries. Amongst others, the study recommended for the expansion of exports to decrease reliance on a limited selection of goods. By establishing a more equitable trading framework and minimizing susceptibility to external disturbances, this measure may effectively stabilize the currency exchange rate.

## *Keywords:*

Economic growth, Currency, Gross Domestic Product, Monetary Policy.

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## 1.0 Introduction

Sub-Saharan Africa has undergone protracted economic stagnation over several decades, with economic crises manifesting through indices such as inflation, unemployment, elevated interest rates, exchange rate fluctuations, and export distortions (Ambam, et al., 2023). Inflation, characterized by a rise in the general price level of goods and services, signifies a decline in a currency's purchasing power, leading to an elevated cost of living (Chukwudi & Samuel, 2024). Inflation in Sub-Saharan Africa has recently increased, albeit this escalation is confined to specific countries within the region. The issue of unemployment is unique and intensifying in developing nations, arising from the economic challenges they face. Exchange rates have a crucial role in determining a nation's competitiveness regarding exports and imports, thereby affecting total economic growth (Bashir, 2022).

The loss of the real exchange rate is significant; but, due to the appreciation of the US dollar, competitive currency devaluation may not consistently translate into a substantial pricing advantage in export markets. This intricate economic environment exacerbates the persistent economic difficulties encountered by numerous Sub-Saharan African nations. Interest rates, a critical component of the Sub-Saharan African economic framework, significantly affect borrowing costs. Borrowing is a crucial source of capital for firms and investments, potentially resulting in economic growth. Moreover, interest rates influence the yield on savings. When the interest rate on savings is attractive, individuals are inclined to increase their savings, so facilitating the availability of loanable funds for investment and ultimately fostering economic growth.

Unemployment is a significant concern, especially for macroeconomists in Sub-Saharan African countries. It denotes circumstances in which competent persons, regardless of gender, are willing and able to work yet are unable to obtain job. Unemployment is seen as a major impediment to societal progress. In addition to constituting a significant misallocation of a nation's human resources, it causes a decline in welfare due to decreased output, which in turn leads to lower income and a poorer standard of living, adversely affecting overall economic growth (Utile et al., 2018). Exports refer to the sale of goods or services produced in one nation to another via international trade (Uchechi & Iheukwumere, 2023). Although exports provide benefits to international trade and the country, there are worries over possible disadvantages and the fear that domestic industries may be adversely affected by foreign competition. Evaluating economic performance necessitates the consideration of a mix of the aforementioned discourse indicators and an awareness of their interrelationships (Tankia-Allou, 2021). Therefore, it is crucial to analyze the relationship between these macroeconomic variables and economic growth to gain a deeper understanding of the factors that affect or hinder economic growth in the region.

Numerous prior studies have examined the relationship between macroeconomic variables and economic success. The research conducted by Chukwudi and Samuel (2024), Okwuchukwu and Ikenna (2023), Ambam et al. (2023), Danladi (2022), Tankia-Allou (2021), Hjazeen, Seraj, and Huseyin (2021), Gyang, Anzaka, and Iyakwari (2018), and Utile

et al. (2018) identified a negative correlation between macroeconomic variables and economic growth. Conversely, the investigations by Uchechi and Iheukwumere (2023), Bashir (2022), Adenomon and Ojo (2020), Idris and Suleiman (2019), and Richard (2018) revealed a positive correlation between these variables and economic growth. The discrepancies in their findings may be ascribed to the methodology utilized, the duration of the study, and the selection of countries included. This study employs recent data to analyze the relationship between macroeconomic variables and economic growth in Sub-Saharan African nations from 1993 to 2022.

## 2.0 Literature Review

### 2.2.1 Monetarist Theory

Monetarist theory, introduced by Milton Friedman in 1960, posits that governments may promote economic stability by regulating the growth rate of the money supply. Monetarists assert that the money supply governs the economy. They assert that regulating the money supply directly affects inflation and that they may impact future interest rates by combating inflation through monetary supply management. Alterations in the money supply influence employment and output levels, with monetarist theory positing that these effects are transient, whereas the impact on inflation is more enduring and substantial. Consider the implications of increasing the money supply on company expectations and the output of goods. As the liquidity in the economy rises, the aggregate demand for goods and services escalates. An augmentation in aggregate demand fosters job creation, hence diminishing the unemployment rate and propelling economic growth; conversely, consider the implications of withdrawing capital from the economy. The idea posits that monetary policy is a significantly more effective instrument than fiscal policy for generating economic growth or curbing inflation rates.

Monetary policy, a mechanism employed in monetarism, is executed to modify interest rates, hence regulating the money supply. When interest rates rise, individuals are more motivated to save rather than spend, thereby diminishing the money supply. Conversely, when interest rates are reduced as a result of an expansionary monetary policy, the expense of borrowing diminishes, enabling individuals to borrow and spend more, so invigorating the economy.

### 2.2.2 The Keynesian Theory

This was proposed by English economist John Maynard Keynes in 1936. This idea is often referred to as the cyclical or deficit-demand unemployment rate. Cyclical or Keynesian economists assert that unemployment arises when aggregate demand in the economy is inadequate to provide employment for all those seeking work. According to these economists, as demand for most goods and services declines, production decreases, leading to a reduced need for labor. Wages remain inflexible and do not adjust to reach equilibrium, resulting in widespread unemployment. Keynesian economists assert that the quantity of unemployed laborers exceeds the availability of job opportunities, indicating that even if full employment were attained and all existing positions were occupied, some laborers would remain

unemployed due to economic mismatches. This idea is linked to variables of frictional unemployment. An unforeseen reduction in the money supply may disrupt rational economic agents and abruptly constrain aggregate demand. Consequently, Keynesian economists perceive the lack of job demand as potentially rectifiable through government intervention.

## 2.2 Empirical Review

Olabode and Kemi (2024) analysed the correlation between currency rate volatility, inflation, and economic growth in Nigeria from 1985 to 2022. The autoregressive distributed lag (ARDL) estimate method was utilized to accomplish the study's purpose. The findings demonstrated that exchange rate volatility and inflation negatively impacted the growth of the Nigerian economy. Subsequent analysis indicates a detrimental effect when examining the interplay between exchange rate volatility and inflation on economic growth. The findings indicated that gross capital formation fosters the expansion of the Nigerian economy.

Ogujiuba, Maponya, and Stiegler (2024) examine the factors influencing the human development index in South Africa. The research employs an annual average methodology. The study underscores the necessity of sustaining a long-term commitment to successful and inclusive human development initiatives. Comprehending the intricate interplay of factors affecting South Africa's HDI would enable policymakers to make more informed decisions, fostering a more affluent and equitable society for all South Africans.

Olabisi and Akeju (2024) analysed the effects of currency rate volatility and inflation on the Nigerian economy from 1985 to 2022. The autoregressive distributed lag (ARDL) estimate method was utilized to accomplish the study's purpose. Findings demonstrated that exchange rate volatility and inflation negatively impacted the growth of the Nigerian economy. Subsequent analysis indicates a detrimental effect when examining the interplay between exchange rate volatility and inflation on economic growth. The findings indicated that gross capital formation fosters the expansion of the Nigerian economy. This outcome corroborates the affirmative evidence established in the literature about the investment growth relationship. Consequently, it is advised that policies aimed at enhancing local currency should be the government's foremost goal.

Eylül and Meltem (2024) studied macroeconomic parameters that could influence economic growth in Sub-Saharan Africa from 1990 to 2019. The study using the ARDL approach and determined that the export-import coverage ratio, natural resource income, labor force participation rate, and foreign direct investment exerted either a positive or negative influence on economic growth across 34 Sub-Saharan African nations, utilizing data from 1990 to 2019.

Irifaar (2024) examines the impact of relative prices on macroeconomic stability in sub-Saharan African nations by analysing inflation, the real effective exchange rate, government deficit, and a composite index of macroeconomic stability, employing a methodology that integrates panel VAR and GMM for 30 countries from 1991 to 2017. The findings indicate that the terms of trade (external relative prices) positively influence the real exchange rate, the decrease of the public deficit, and overall macroeconomic stability.

Okwuchukwu and Ikenna (2023) evaluated the influence of macroeconomic aggregates on gross domestic product growth in Sub-Saharan African economies from 1981 to 2020, offering insights to economic managers regarding the co-movement of these indices with GDP growth rate. The econometric tools employed for estimating the variables are trend analysis, unit root tests, co-integration tests, and the Autoregressive Distributed Lag model. The findings indicated that the currencies of Sub-Saharan Africa were weak and volatile; adversely affecting the economic output of the nations, although showed little differentiation in the impact of the Naira-Dollar, Cedi-Dollar, and Rand-Dollar exchange rates on GDP growth in the three countries. Inflation adversely affected GDP in all three nations, but its impact was only substantial in Nigeria and South Africa. The discount rate in the chosen countries was negative.

Ambam et al. (2023) assessed the impact of exchange rates on economic growth across thirty-eight African nations from 1999 to 2021. The generalized technique of moments dynamic panel model estimator was utilized to determine the effect of exchange rates on economic growth in African economies. The study's findings indicated that the real effective exchange rate had a statistically insignificant effect on the growth of selected Sub-Saharan economies. The monetary mass exerted a statistically insignificant influence on the growth of selected Sub-Saharan economies. The volatility of exchange rates exerted a negative and statistically insignificant impact on the growth of the Selected Sub-Saharan region.

Taha and Fairouz (2023) conducted a comparative analysis examining the influence of several macroeconomic variables on economic stability indicators across multiple nations from 1991 to 2021. The Panel vector autoregressive model was estimated utilizing the Generalized Method of Moments for the economic growth indicator, while the PARDL model was estimated employing the pooled mean group and mean group methodologies for the other indicators. The study demonstrated that foreign direct investment, population census, and government expenditures exert a positive and significant influence on gross domestic product. In model two, these factors negatively affect the unemployment rate. In model three, foreign direct investment, population census, and government expenditures negatively impact inflation and are statistically insignificant at the 0.05 level.

Nnachi and Ugochukwu (2023) assess the impact of unemployment and inflation on Nigeria's economic growth from 1981 to 2021. The research employed conventional econometric tools, specifically the autoregressive distributed lag model (ARDL), to assess the impact of inflation and unemployment on economic growth. The results indicated that inflation and unemployment possess a long-term link with economic growth. It additionally disclosed that unemployment is adversely correlated with economic growth, while inflation is positively associated with economic growth.

Olaniyan, Awoleye, and Olabiyi (2023) examined the relationship between currency rates, interest rates, and economic development in Nigeria from 1980 to 2020. The study demonstrated a long-term association among currency rate, interest rate, and economic development in Nigeria. Several findings were derived: regarding HDI, economic development exhibits a negative correlation with exchange rate; interest rate demonstrated a significant relationship with economic development in Nigeria; and the interactive dynamics

of exchange rate and interest rate revealed a significant positive correlation with economic development.

Koroma, Jalloh, and Squire (2023) examine the effects of exchange rate volatility on Sierra Leone's economic growth from 1980 to 2018. The investigation revealed a significant positive association between economic growth in Sierra Leone and variations in exchange rates, especially the depreciation of the Leones. Results demonstrated that fluctuations in exchange rates could either favourably or negatively influence a nation's economic growth.

## 3.0 Methodology

Cross sectional research design was employed. The researcher cannot change the data acquired for the study, as it is derived from pre-existing databases; thus, it is secondary in nature. The population consists of forty-eight (48) Sub-Saharan African countries (World Bank, 2023). For this study, the researcher picked five (5) Sub-Saharan African countries with the greatest gross domestic product as the sample size for the study period, which comprises the following: Nigeria, South Africa, Ethiopia, Kenya, and Angola. The data utilized in this analysis were obtained from the World Bank Development Indicators, United Nations Development Program statistical bulletins, and Index Mundi for the period 1993-2022. The research utilized descriptive statistics, panel unit root tests, Hausman tests, and panel OLS methods at a 5% significance level.

This study used a methodology akin to that of Okwuchukwu and Ikenna (2023) and Taha and Fairouz (2023) to investigate the impact of macroeconomic variables and economic growth in Sub-Saharan African Countries. Macroeconomic variables are represented by interest rates, exchange rates, and unemployment rates, while economic growth is represented by gross domestic product. The study thus utilizes the subsequent multiple equation model:

$$GDPit = f(INTit, EXRit, UNPit) \quad 3.1$$

$$GDP_{it} = \alpha_0 + \alpha_1 INT_{it} + \alpha_2 EXR_{it} + \alpha_3 UNP_{it} + \mu_{it} \quad 3.2$$

$\alpha_1 < 0$, $\alpha_2 > 0$, and $\alpha_3 < 0$

Where: GDP = Gross domestic product of each country, INF = Inflation rate of each country, INT = Interest rate of each country, EXR = Exchange rate of each country, UNP = Unemployment rate of each country, i = Sub-Saharan African Economies, t = Time period, $\alpha_1$, $\alpha_2$, and $\alpha_3$ = Estimate parameters, $\alpha_0$ = Intercept

## 4.0 Results and Discussion

### 4.1 Results

**Table 1 Descriptive Statistic Result**

| | GDP | HDI | INF | EXR | INT | UNP |
|---|---|---|---|---|---|---|
| Mean | 2.219175 | 0.498740 | 82.36546 | 79.74629 | 20.08528 | 14.76989 |
| Median | 0.185938 | 0.488500 | 12.38849 | 50.75492 | 12.53264 | 16.52050 |
| Maximum | 23.10790 | 0.740000 | 4145.106 | 631.4420 | 217.8750 | 37.50000 |
| Minimum | -6.000000 | 0.321000 | -8.480000 | 2.66E-06 | 0.500000 | 2.650000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Std. Dev. | 4.074203 | 0.110700 | 420.8843 | 110.7727 | 32.18125 | 7.623411 |
| Skewness | 1.975444 | 0.312911 | 7.868455 | 2.666507 | 4.035008 | -0.185832 |
| Kurtosis | 7.652465 | 2.310382 | 68.99219 | 10.96332 | 21.04372 | 2.408122 |
| | | | | | | |
| Jarque-Bera | 232.8434 | 5.420159 | 28766.37 | 574.0972 | 2441.881 | 2.375486 |
| Probability | 0.000000 | 0.066532 | 0.000000 | 0.000000 | 0.000000 | 0.304909 |
| | | | | | | |
| Sum | 332.8763 | 74.81100 | 12354.82 | 11961.94 | 3012.792 | 2215.484 |
| Sum Sq. Dev. | 2473.270 | 1.825905 | 26394391 | 1828318. | 154309.3 | 8659.343 |
| | | | | | | |
| Observations | 150 | 150 | 150 | 150 | 150 | 150 |

**Source: Eviews 10 Output**

Table 1 presents the spectrum of the yearly GDP, with a mean value of 2.219175. The measured values ranged from -6.0 to 23.10790. This demonstrates that the economy of Sub-Saharan Africa is plagued by a substantial level of volatility in its potential for growth in order to achieve sustainable economic growth. The mean annual numbers for exchange rate, interest rate, and unemployment rate are 79.74629, 20.08528, and 14.76989, respectively. The lowest and highest values, listed in the same order, are as follows: -8.480 and 4145.11, 2.66E-06 and 631.4420, 0.50 and 217.8750, and 2.650 and 37.50. This demonstrates that the economies of these nations are plagued by a substantial amount of unemployment, exchange rate fluctuations, and interest rate fluctuations, which may have a considerable impact on the rate at which intended economic growth is achieved. In the same order, these indicators vary from their mean by 4.074203%, 110.7727%, 32.18125%, and 7.623411%, respectively. The GDP, exchange rate, interest rate, and unemployment rate all have positive skew coefficients (4.074203, 110.7727, 32.18125, and 7.623411, respectively). This indicates that their distributions are skewed to the right.

The unemployment rate has a platykurtic character of below 3 (2.408122). The coefficients of gross domestic product, exchange rate, and interest rate are all over 3 (7.652465, 10.96332, and 21.04372, respectively), indicating their leptokurtic character. Unemployment rate is normally distributed as its p-values of 0.304909 is above 5%. However, GDP, exchange rate and interest rate have their p-values (0.000000, 0.000000, 0.000000, and 0.000000) below 5% signifying that they are not normally distributed.

**Table 2: LLC Stationarity Test**

| Variables | LLC Test Statistics | P-value | Conclusion |
|---|---|---|---|
| GDP | -3.85595 | 0.0001 | I(0) |
| EXR | -8.60509 | 0.0001 | I(0) |
| UNP | -7.30896 | 0.0000 | I(0) |
| INT | -2.27986 | 0.0000 | I(0) |

**Source: E-views 10 Output**

Table 2 indicates that all four variables examined in the study are stationary at level I(0). This is because the p-values at each level are below the 5% significance threshold established for this investigation. Thus, the study used panel ordinary least squares regression analysis to ascertain the correlation between macroeconomic factors and gross domestic product in Sub-Saharan African nations.

**Table 3: Hausman Test Result**

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

| Test Summary | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
|---|---|---|---|
| Period random | 3.183561 | 3 | 0.3642 |

Period random effects test comparisons:

| Variable | Fixed | Random | Var(Diff.) | Prob. |
|---|---|---|---|---|
| EXR | -0.014832 | -0.012425 | 0.000004 | 0.2286 |
| INT | -0.029478 | -0.028609 | 0.000019 | 0.8434 |
| UNP | 0.135379 | 0.154412 | 0.000220 | 0.1996 |

**Source: E-views 10**

Table 3 presents the outcomes of the Hausman test for optimal model selection between random and fixed effects models. Table 3 indicates that the Hausman Test results support the random effects model in preference to the fixed effects model. The cross-section random effect of the Hausman test, at 0.3642, above the 5% significance threshold. Consequently, the random effects ordinary least squares method was employed in this study to conduct the research, derive results, and offer recommendations for model one - gross domestic product.

**Table 4 Regression Analysis**

| | **(1)** | **(2)** | **(3)** |
|---|---|---|---|
| **Model** | **Pooled** | **Random** | **Fixed** |
| **VARIABLES** | **GDP** | **GDP** | **GDP** |
| EXR | -0.012425 | -0.012425 | -0.014832 |
| | (-4.635131) | (-4.409015) | (-4.292709) |
| | 0.0000*** | 0.0000*** | 0.0000*** |
| INT | -4.635131 | -0.028609 | -0.029478 |
| | (-3.100808) | (-2.949541) | (-2.767522) |
| | 0.0023*** | 0.0037*** | 0.0066*** |
| UNP | 0.154412 | -0.154412 | 0.135379 |
| | (3.963142) | (-3.769808) | (3.107520) |

| | | | |
|---|---|---|---|
| | 0.0001*** | 0.0002*** | 0.0024*** |
| Constant | 1.504020 | 1.504020 | 1.994550 |
| | (2.126019) | (2.022305) | (2.455635) |
| | 0.0352** | 0.0450** | 0.0155** |
| Observations | 150 | 150 | 150 |
| Adjusted R-squared | 0.216699 | 0.712435 | 0.134296 |
| F-Stat. | 14.74 (0.0000) | 14.74(0.0000) | 1.72(0.0193) |
| Durbin-Wat. Stat. | 0.728438 | 1.688234 | 0.653247 |
| Number of panelid | 5 | 5 | 5 |

**Source: E-views Output**

t-Statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The pooled ordinary least square, fixed effects ordinary least square, and random effects, ordinary least square models are all estimated in the study. As a result, the results for each model are explained in turn.

**Pooled Ordinary Least Square**

Exchange rate is negative (-0.012425) and significant (0.0000) to gross domestic product. This suggests that every one unit rise in exchange rate, gross domestic product will result to 0.012425 unit decline. Interest rate is negative (-4.635131) and significant (0.0023) to gross domestic product, at the defined substantial levels. This implies that increase in interest rate by one unit will cause the gross domestic product to decrease by 4.635131 units. Unemployment rate is positive (0.154412) and significant (0.0001) to gross domestic product. This means that for every 1% increase in unemployment rate, the Sub-Sahara African countries' gross domestic product will increase by 0.154412%. The adjusted R-square of 0.216699 shows that the independent variables (exchange rate, interest rate, and unemployment rate) only account for 21.7% variations in gross domestic product while the remaining 78.3% are attributed to other factors not included in this study. The F-statistic p-value of 0.0000 shows that the model is well fitted at all the levels of significance. The Durbin-Watson value of 0.728438 shows that the model is not free from the first order serial correlation.

**Random Effect Ordinary Least Square**

Exchange rate has a negative value of -0.012425 and a significant value of 0.0000 in relation to the gross domestic product. This implies that for every one unit increase in the exchange rate, there will be a corresponding decrease of 0.012425 units in the gross domestic product.

Interest rate has a negative value of -0.028609 and demonstrates statistical significance (p-value of 0.0037) in its impact on gross domestic product, above the predefined threshold of significance. This indicates that a one-unit rise in the interest rate will result in a drop of 0.028609 units in the gross domestic product. Unemployment rate has a positive value of 0.154412 and is statistically significant at a level of 0.0002 in relation to the gross domestic product. For each 1% rise in the unemployment rate, the gross domestic product of Sub-Saharan African nations will grow by 0.154412%. The adjusted R-square value of 0.712435 indicates that the independent variables (exchange rate, interest rate, and unemployment rate) explain only 71.2% of the fluctuations in gross domestic product. The remaining 28.8% of the variations are influenced by factors not included in this research. The F-statistic p-value of 0.0000 indicates that the model is well fitted at all levels of significance. The Durbin-Watson score of 1.688234 indicates that the model does not exhibit first-order serial correlation.

**Fixed Effect Ordinary Least Square**

Exchange rate has a negative value of -0.014832 and a significant value of 0.0000 in relation to the gross domestic product. This implies that for every one unit increase in the exchange rate, there will be a corresponding decrease of 0.014832 units in the gross domestic product. Interest rate has a negative value of -0.029478 and holds statistical significance (p-value of 0.0066) in relation to the gross domestic product. This indicates that a one-unit rise in the interest rate will result in a drop of 0.029478 units in the gross domestic product. Unemployment rate has a positive value of 0.135379 and is statistically significant at a level of 0.0024 in relation to gross domestic product. For every 1% rise in the unemployment rate, the gross domestic product of Sub-Saharan African nations will grow by 0.135379%. The adjusted R-square value of 0.134296 indicates that the independent variables (exchange rate, interest rate, and unemployment rate) explain only 13.4% of the fluctuations in gross domestic product. The remaining 86.6% of the variations are influenced by factors that were not included in this research. The F-statistic p-value of 0.0193 indicates that the model is well fitted across all levels of significance. The Durbin-Watson score of 0.653247 indicates that the model does not exhibit first-order serial correlation.

## 4.2 Discussion of Findings

There is a negative and significant relationship between the exchange rate and gross domestic product. Depreciation of the currency rate in Sub-Saharan African nations will result in a rise in their gross domestic product. This is due to the fact that a devaluing currency rate often results in increased import costs, particularly in nations that largely depend on imported products and services. Imported inflation may diminish buying power, curtail consumer spending, and eventually impede economic development, resulting in an adverse effect on gross domestic product. In addition, a depreciated currency raises the expenses of imported supplies for enterprises, resulting in elevated production costs. These factors may lead to a decrease in profit margins, discourage investment, and result in a reduction in total economic production, which has a negative impact on gross domestic product. Likewise, a decrease in

the value of a country's currency may lead to capital flight, which occurs when both local and international investors transfer their assets out of the country to prevent financial losses. The outflow of capital may result in decreased investment in the economy, which can impede growth and have a detrimental effect on gross domestic product. Another possible explanation is that a devaluing currency might discourage foreign investors who are worried about the danger of exchange rate fluctuations, resulting in reduced levels of foreign direct investment. The decrease in foreign direct investment might constrain economic development and diminish GDP growth. These findings align with the research conducted by Aninwike et al. (2024), Olabode and Kemi (2024), and Irifaar (2024), which indicate a negative relationship between exchange rates and gross domestic product. Contrary to the findings of Chukwudi and Samuel (2024), it is seen that the exchange rate has a positive relationship with gross domestic product.

The negative interest rate has a significant effect on the gross domestic product of Sub-Saharan African nations. Consequently, an escalation in interest rates will lead to a significant decline in the gross domestic product of Sub-Saharan African nations. The reason for this is because elevated interest rates raise the expenses associated with borrowing for companies, resulting in a greater cost to fund new initiatives, expand operations, or invest in capital goods. This decrease in investment might impede economic development and have a detrimental effect on gross domestic product. In addition, elevated interest rates can amplify the expense of consumer credit, such as loans and mortgages. When the cost of borrowing increases, it usually leads to a decrease in consumer expenditure, which in turn reduces the total demand in the economy and contributes to slower development in the gross domestic product. Furthermore, high-interest rates have the potential to put further pressure on enterprises and people who are already burdened with substantial levels of debt. As a greater portion of income is allocated towards debt repayment, there is a decrease in the amount of money available for spending and investment. This leads to a slowdown in economic activity and a reduction in gross domestic product. This aligns with the research conducted by Chukwudi and Samuel (2024), Aninwike et al. (2024), Olabode and Kemi (2024), and Irifaar (2024), which demonstrates that interest rates have a negative impact on the economic development of countries.

The unemployment rate has a negative significant impact on the gross domestic product in Sub-Saharan African nations. High unemployment signifies that a substantial proportion of the workforce is not being used, resulting in reduced total production and output. The inadequate utilisation of human resources immediately diminishes the economy's ability to generate products and services, leading to a decrease in gross domestic product. Additionally, the extended period of unemployment in Sub-Saharan African nations has resulted in the depletion of skills and human capital, hence increasing the difficulty for jobless individuals to reintegrate into the labour market. The decrease in human capital leads to a decline in the economy's growth potential, which has a negative influence on the gross domestic product. Likewise, elevated unemployment results in decreased family earnings, hence diminishing consumer purchasing. Decreased demand for goods and services might result in slower

economic development, since consumer spending plays a crucial role in gross domestic product. This aligns with the research conducted by Aninwike et al. (2024) and Ugoh et al. (2023), which demonstrates that the unemployment rate hampers the rate of economic growth.

## 5.0 Conclusion and Recommendations

### 5.1 Conclusion

The study investigated the relationship between macroeconomic variables and economic growth in Sub-Saharan African countries. It specifically explored how various dimensions of macroeconomic variables – interest rate, exchange rate, and unemployment rate affect gross domestic product, human development index, and inflation rate. The study concluded that exchange rate, interest rate, and unemployment significantly influence the economic stability of Sub-Saharan African countries.

### 5.2 Recommendations

Based on the study's findings, the following recommendations are put forth;

i. In order to enhance gross domestic product growth in Sub-Saharan Africa, it is imperative to tackle the obstacles presented by the adverse effects of exchange rates, interest rates, and unemployment.
ii. Encourage the expansion of exports to decrease reliance on a limited selection of goods. By establishing a more equitable trading framework and minimising susceptibility to external disturbances, this measure may effectively stabilise the currency exchange rate.
iii. Establish and oversee foreign currency reserves to mitigate the impact of external disruptions. Having a more robust reserve position may contribute to the stabilisation of the currency in times of instability, hence mitigating the adverse effects on the gross domestic product.
iv. Ensure that central banks implement policies that facilitate the maintenance of low and stable interest rates, in line with the economic requirements for growth. This encompasses the efficient targeting of inflation and the use of data-driven and forward-looking interest rate choices.
v. Develop financial systems that provide accessible financing options to both enterprises and individuals. One way to do this is by promoting competition in the banking industry, providing assistance to microfinance institutions, and extending loan guarantee programs for small and medium-sized enterprises.
vi. Promote the growth of labour-intensive sectors such as agriculture, construction, and manufacturing. These industries have the capacity to employ a substantial number of persons and effectively decrease unemployment rates, resulting in increased economic growth as measured by gross domestic product.
vii. Invest in educational and vocational training programs to provide the workforce with the necessary skills for expanding industries. An enhanced workforce with more

expertise may enhance productivity and stimulate economic expansion, therefore mitigating the adverse effects of unemployment on gross domestic product.

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