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DOES CURRENT ACCOUNT BALANCE AFFECT ECONOMIC GROWTH? EVIDENCE FROM SUB-SAHARAN AFRICA

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ABSTRACT: *This study aimed to provide an econometric analysis of the impact of current account balances on economic growth in various subregions of Africa. It utilized the cross-sectional autoregressive distributive lags (CS-ARDL) technique and analyzed data from 1994 to 2022. The result showed that inflation has had an adverse effect on the Gross Domestic Product (GDP) in three specific regions. While the short-run influence of inflation on GDP may not be statistically significant, its long-term impact is notably negative. Foreign Direct Investment (FDI) has a negative effect on GDP in the short run; however, this effect is not statistically significant across the different economies. Over time, Foreign Direct Investment (FDI) has a negligible effect on the GDP in North Africa, but it has a negative and statistically significant influence in Central Africa. These findings emphasize the different regional dynamics in Africa and illustrate the intricate interplay between current account balances and economic growth. In conclusion this study affirmed the necessity for targeted economic strategies to combat inflation and utilize FDI for long-term growth.*

KEYWORDS: Current account balance, Inflation, Foreign direct investment, Economic growth.

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INTRODUCTION

Recently, much attention of the academic scholars and policymakers in sub-Saharan Africa countries and other part of the world have been on the effect of current account on economic growth which has been aggravated by some factors like the rising worldwide imbalances and the incidence of COVID-19 pandemic and there is consensus among them (Monamodi, Nkosinathi & Emmanuel, 2024).

Obviously, due to several cross-border financial transfers and excessive imports relative to exports, up to about 95% of all consumable products are exported, sub-Saharan African nations have been running a chronic current account deficit (Nwanosike, Uzoechina, Ebenyi & Ishiwu, 2017). To the developing countries, in particular, sub-Saharan Africa, the current account is at the center for a sustainable long-term economic growth. As a result, trade is crucial as it serves as a source of foreign exchange earnings and balance of payment and because of the increase in trade openness, improvement in ICT, global archetype change to trade and the increasing role of sub-Saharan Africa in the global economy, the participation of sub-Saharan Africa have increased rapidly in international trade (Moussa, 2016).

The sustainability of current account balance or imbalance is an indicator, which provides information on the state of the economy, the level of productivity, and the extent of the susceptibility of the economy or otherwise to external shocks that could trigger an economic crisis. The Policymakers should be worried about the current account position of sub-Saharan African countries because most of sub-Saharan Africa economies are external sector dependent. Thus, the capacity of the sub-Saharan African governments to provide the consumer and industrial goods as well as good infrastructural facilities have significant causality with the performance of the external sector of their economies.

Scholars have researched the effect of current account balance on economic growth in Sub-Saharan African countries and concluded that there is a significant effect of current account balance on economic growth though with different directions. Some reported a significant positive effect (Musisinyani et al., 2017; Sanni et al., 2019; Mugo et al., 2021), while some revealed negative effect (Ogunniyi et al., 2018; Monamodi, et al., 2024). This infers that for healthy economies in sub-Saharan Africa, the decision makers should be interested in understanding the real effect of current account balance on economic growth.

This paper empirically examined the short-run effect of current account balance on economic growth in sub-Saharan Africa and suggested policy issues to improve the current account balance in sub-Saharan African regions. This study contributes to the literature by investigating the effect of current account balance on economic growth in sub-Saharan African countries on a regional-specific basis across sub-Saharan African countries, as most literature focused on country-specific, continent and global studies. At the end, a comparison analysis is carried out to give more insights into the actual effect on a regional basis.

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The study is divided into five sections. The first section focuses on an overview of the topic, and the second section observes relevant literature. The third aspect looks at the methodology, data analysis, and interpretation of the findings presented in section four. This study's conclusion and policy recommendations are provided in Section five.

LITERATURE REVIEW

Conceptual Review

The current account balance tracks the influx and outflow of goods and services, primary and secondary investment income, unrequited transfers, and employee compensation, all of which are often expressed in local currency. Within the balance of payments account, it is one of the two main accounts. The current account balance, which can be in surplus or deficit, reflects how well a nation does in its international commerce in products and services. A surplus position signifies that a nation is exporting more goods and services than it is importing, whereas a deficit position indicates that a nation imports more products and services from other countries than it sells. The savings-investment gap, which is the difference between national savings and investment, is another way to represent current account balance. Stated differently, it is the distinction between economic absorption and income.

When a nation's consumption exceeds its production, it is said to have a current account deficit. This means that a larger percentage of the nation's local investment is funded externally. Low national savings are a symptom of depleting foreign reserves, which are needed to finance economic activity. However, in the event that a nation produces more than it consumes, this is referred to as a current account surplus. Comparing national savings to national investments, this shows that savings levels are high. The balance of the current account is a crucial measure of productivity. International creditors use the balance to assess a certain economy's sustainability. It influences non-residents' investment decisions by assisting in the assessment of the economy's competitiveness and aiding policymakers in evaluating the effectiveness of macroeconomic policies, particularly those that encourage export growth. It also rapidly indicates which economic sector is worthy of focus.

To determine sustainability, however, an assessment based solely on the current account position's robustness is required but insufficient due to the unique features of many economies. One economy's sustainability might not translate to another's sustainability. Other sustainability metrics, like solvency and current account excess, have been studied (Aysu & Fazil, 2012). From one timeframe to the other, the rise in the amount of products and services generated by a country's economy over a specified or quantifiable period of time is known as economic growth. It is the cumulative amount of products and services generated in an economy during a specific time period growing positively and steadily. When the GDP is adjusted for inflation, it becomes the real GDP, which represents the value of all final goods and services produced in a nation. The GDP is used as a stand-in for economic growth.

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Theoretical Framework

Absolute and Comparative Advantage Theory

Comparative advantage, which is centered on the justifications and advantages of commerce among economies, was added to the theory of absolute advantage by David Ricardo in 1819, following the publication of Adam Smith's *The Wealth of Nations* (1776) (Jones, 1961). According to the principle of absolute advantage, a nation that has a higher production efficiency in a particular good or service has a distinct advantage over another. Machado and Trigg (2021) outline the following as the theory's suppositions:

a. The elements that affect production are immobile. The Production Potential Frontier in all participating nations is assumed to remain unchanged under Adam Smith's premise, which holds that production factors stay stable across national boundaries.

b. Trade barriers: Commercial obstructions do not prevent people from purchasing and selling items; trade barriers are put in place by governments to restrict or discourage the import or export of a certain good.

c. Trade balance: In accordance with Adam Smith's premise, imports and exports must be equal to avoid trade surpluses, deficits, or imbalances when imports exceed exports.

d. It all comes down to scale: Regardless of the quantity produced, the same benefits are expected to be given.

Bilateral trade was first criticized for being limited to two commodities by critics. But as the volume of commerce and the demands of each particular country grew, the idea came under criticism for failing to take advantage of global trade possibilities. The idea assumed unlimited commercial activity between nations, but it ignored technology hurdles, public policy initiatives, and limits imposed by governments on a global scale.

Conversely, the Comparative Advantage Theory which was also developed by Adam Smith postulates that nations that have a comparative advantage in the production of products or services are often more capable than others (Ukirandu, 2015). The idea goes on to say that because of the opportunity costs involved in various industries, nations with limited resources and technology tend to specialize in manufacturing products and services (Myint, 1977). The comparative advantage theory is predicated on the idea that labor is the sole variable in production and that markets are completely competitive (Buchanan & Yoon, 2002). Additionally, they contended that labor costs are similar in industrialized and developing nations and that labor remains immobile across borders in the absence of taxes or trade restrictions. However, the comparative advantage theory is flawed because it fails to take into account the fact that international commerce and production include several nations and commodities (Ukirandu, 2015). In international trade, transportation costs are also quite important as they can affect selling prices and cancel out the opportunity cost difference. Moreover, resources like capital, which allows for quicker output than manual labor, entrepreneurship, and natural resources are all essential to production. Because of the intricacy of global commerce, the theory's presumptions are thus inaccurate.

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The labor market's internal worker movement is restricted by lengthy job search procedures and international migration. Thus, employees in specialized nations are frequently left stationary and unable to migrate between industries. This process of migration and lack of skills might result in permanent and structural unemployment, especially in the agriculture industry where mechanization has caused layoffs. The main hypothesis of this study is that countries that have a comparative advantage in producing goods and services also generate foreign revenue, which helps to maintain a healthy current account balance of payments and spur economic growth. Developing nations lacking these advantages, however, frequently import products and services, which have a negative effect on trade balance and current account deficit, both of which hinder economic performance.

Moreover, a number of circumstances compel economies, particularly emerging ones, to import products and services against creating them locally from nations with comparative advantage. The expenses of manufacturing finished goods or services, the impact of home technology, increased opportunity costs, and the scarcity of certain labor and resources are a few of these variables. Consequently, there will be a tendency for the nations that import those effective products and services to operate on a trade deficit, which will have a detrimental impact on economic growth and the current account. One of the primary methods for comprehending the connection between the current account and economic growth is the absorption approach to balance of payments. With a focus on changes in domestic expenditure in relation to domestic absorptive capacity, the technique examines the Balance of Payment (BOP) from a standpoint of national income and how they impact a nation's trade balance. Thus, the difference between the amount of products and services produced and used in the country's economy is said to represent the trade balance. The following formulas express the link between total revenue, demand, and the external current account balance:

Gross domestic product: $GDP = C + I + (X - M) = A + (X - M)$ ……. (1)

Gross national income: $GNI = GDP + Yf$

$$C + I + (X - M + Yf) = A + (X - M + Yf) \text{ …… (2)}$$

Gross national disposable income: $GNDI = GNI + TRf$

$$C + I + (X - M + Yf + TRf)$$

$$A + (X - M + Yf + TRf) \text{ …… (3)}$$

Hence: $GNDI - A = X - M + Yf + TRf + CAB$ …… (4)

Since: $GNDI - A = S$ by definition,

And $GNDI - C = I + X - M + Yf + TRf$ from (3)

It follows that: $S - I = X - M + Yf + TRf + CAB$ …… (5)

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Where:

A= Domestic absorption $A = C + I$or domestic demand

X= Exports of goods and nonfactor services

M= Imports of goods and nonfactor services

Yf= Net primary income from abroad

TRf= Net secondary income from abroad

C= Final consumption

I= Gross investment (including changes in inventories)

S= Gross national saving

CAB= Current account balance

Equation (5) illustrates that the disparity between national revenue and domestic absorption is the trade balance, often known as the current account balance. The trade balance is predicted to be in a positive position if national revenue surpasses domestic absorption since there will be an excess of export over import. When national income falls short of domestic absorption, imports will outpace exports, creating a trade imbalance.

Additional insight was shed on the relationship between international commerce and economic growth by Finch and Michalopoulos (1988). They contend that there is more to the relationship between trade and economic growth than just demand-driven factors at play. While increased exports boost output and income for the rest of the economy, active trade also promotes more productive resource use and higher rates of productivity growth across the board. Furthermore, free trade agreements allow for more agility in addressing global economic trends and speedier adoption of new technology.

Keynesian Open Economy Model

According to the Keynesian macroeconomic model, an expansionary fiscal policy in a sizable open economy would cause national investment to decline and global interest rates to rise (Bajor-Rubio & Diaz-Roldan, 2013). Net exports and real exchange rates rise in a small, open economy such as South Africa, while current account surpluses and capital account deficits transpire. Because disposable income has a positive impact on consumption, rising stock prices result in more expenditure. As a result, households have more alternatives for spending and saving, which raises consumption levels.

Positive Effect

Adeleka (2015) utilized the VAR approach to analyze the determinants of current account balance in Nigeria, Ghana, and Cote d'Ivoire; they discovered that real income has a major impact on it

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and that there is a long-term link between real income and current account balance in all three nations. Panel ARDL was used by Oshota and Badejo (2015) to assess the long-term connection between the current account balance and its main determinants in the nations of West Africa. Their findings demonstrated that, over time, GDP has a favorable effect on the current account balance.

Utilizing the Ordinary Least Squares (OLS) technique, Musisinyani et al. (2017) investigated how Zimbabwe's current account deficit affected economic development between 1980 and 2013. The findings revealed that the deficit and economic growth were strongly correlated, and that foreign aid, foreign direct investment, and external debt were all favorably correlated.

To examine the link, annual data from 1970 to 2016 were used by Sanni, Musa, and Sani (2019), while the Auto Regressive Distributed Lag (ARDL) Bounds Testing approach was utilized for the study. The study found a long-term correlation among the real GDP growth, the bilateral real exchange rate, and the current account balance. A rise in real GDP growth would be expected to result in an improvement in the current account balance, given the positive correlation between the two variables. Nonetheless, the analysis discovered a negative correlation between current account balance and real exchange rate. The current account balance will decline as a result of exchange rate depreciation.In a similar study conducted on Nigeria, Sanni et al. (2019) employed the ARDL approach to investigate the relationship between Nigeria's current account balance and economic growth. It demonstrated a long-term link between real GDP, the bilateral real exchange rate, and current account balance; a positive correlation suggests that growth promotes a rise in current account balance. Also, Mugo et al. (2021) employed the cointegration analysis, dynamic vector error correction, and Granger-Causality to examine the effects of Kenya's current account deficit on economic development between 1980 and 2016. The findings demonstrated a positive association over the long run between deficits and economic growth, with a bidirectional causal link indicating a positive relationship between the two variables.

Negative Effect

Granger causality and the VAR method were employed by Yurdakul and Ucar (2015) to investigate the connection between Turkey's current account deficit and economic expansion. The economic growth and the balance of payments were shown to be negatively correlated, with growth leading to an increase in the current account deficit. The study also discovered that the current account deficit and economic growth rate were unidirectionally correlated, and that the current account responded negatively to a shock of one standard deviation.

Oshota and Badejo (2015) utilized the panel ARDL approach to investigate the determinants impacting the current account balance in West African nations. The real effective exchange rate had a negative influence on the current account, but GDP per capita, domestic investment, financial deepening, and dependence ratio had favorable effects. In a cross country study, Ogunniyi et al. (2018) utilized the Panel Auto Regressive Distributed Lags and Fully Modified Ordinary Least Squares to examine the effects of current account balance on economic development in South Africa, Algeria, Nigeria, and Egypt. The findings indicated that while current account balance was positive and statistically significant in South Africa, it had a negative influence on economic development in Algeria, Egypt, and Nigeria. Focusing on diversifying export bases is advised by the study. Also, the link between Montenegro's current account deficit and economic growth from

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2011q1 to 2016q4 was examined by Ozer et al. (2018) using the ARDL approach. A negative bidirectional causal link was established among study variables both in the short and long run.

The macroeconomic, institutional, and financial elements influencing current accounts in 97 developed and developing nations between 1986 and 2013 were investigated in the research by Altayligil and Cetrez (2020). The study revealed an inverse relationship between growth and current account balances. Higher deficits were caused by growth rate, fiscal deficit, trade openness, financial market development, institutional quality, and development stage. Reddy and Ramaiah (2020) used the ARDL approach to examine how India's current account balance affected economic development between 1976 and 2019. According to the findings, imports drive India's economic development while foreign debt reduces the country's current deficit. The current account deficit is independent of currency rates. The study conducted by Monamodi et al. (2024) employed the Auto Regressive Distributed Lags (ARDL) approach to examine the influence of South Africa's current account balance on its economic development from Q1 2015 to Q4 2022. In order to comprehend the impact of COVID-19 on the current account and economic growth rate of South Africa, this analysis takes into consideration qualitative factors. Overall, the findings indicate that the current account deficit in South Africa had an effect on economic growth over the long and short terms.

METHODOLOGY

Variables

In line with the literature, our empirical analysis employs panel data sourced from World Bank (2023) World Development Indicators (WDI), Financial Account and Structure Database of the World Bank, and Standardized World Economic Growth Database for countries[1] located in Africa from 1994 to 2022. Availability of sufficient data on the variables of interest(economic growth, current account balance, foreign direct investment, trade, import and export), whereas the control variable is inflation- justify the inclusion of a country in the sample and to explore the heterogeneity of the Africa sub-region. The dependent variable is economic growth measured with real gross domestic products. The key explanatory variables are current account balance, foreign direct investment, trade, import and export.

[1]Angola, Benin, Botswana, Burkina Faso, Burundi Cabo Verde, Cameroon, Eswatini, Ethiopia, Gambia The, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Uganda, Zambia, Zimbabwe.

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Table 1: Variables Description and Expectations

Variables	Descriptions	Source(s)	Expected sign
Economic growth (GDP)	Real GDP per capita (constant 2015 US$)	WDI	
Current Account Balance (CAB)	Current Account Balance as a percentage of GDP	WDI	+/-
Foreign Direct Investment (FDI)	Foreign direct investment as percentage of GDP	WDI	+/-
Trade (TRD)	Total volume of Trade as percentage of GDP	WDI	+/-
Import (IMP)	Total volume of imports as a percentage of GDP	WDI	+/-
Export (EXP)	Total exports as percentage of GDP	WDI	+/-
Inflation (INF)	Consumer Price Index	WDI	+/-

The Model

Our model is a prototype of Moore (2012), Bui (2020) and Nguyen and Su (2022) developed to investigate the regional effects of current account balance on economic growth in Africa. It expresses economic growth as a function of current account balance, foreign direct investment, trade, import and export and a control variable:

$$GDP_{ijt} = \beta_{1i} + \beta_1 X_{ijt} + \beta_2 Y_{ijt} + \mu_{ijt} \dots (1)$$

Where GDP_{ijt} is the economic growth; i denote individual country under Africa for i = 1, 2…..n; j denotes individual region under Africa for j = 1, 2, 3, 4, 5; t is the time series indices,$\beta_{1i}$is the constant that is, $Xijt$is the vector of the exogenous variable for country iof region 'j' at time t;$Yijt$denotes the control variable for country 'i' of region 'j' at time t; and μ_{ijt} is the error term.

Thus, equation (1) can be transformed to:

$$GDP_{ijt} = \beta_0 + \beta_1 CAB_{ijt} + \beta_2 FDI_{ijt} + \beta_3 TRD_{ijt} + \beta_4 IMP_{ijt} + \beta_5 EXP_{ijt} + \beta_6 INF_{ijt} + \mu_{ijt} \dots (2)$$

where GDP_{ijt} denotes economic growth of country 'i' of region 'j' in time 't';CAB_{it} represents current account balance of country 'i' of region 'j' in time 't'; FDI_{it} denotes foreign direct investment of country 'i' of region 'j' in time 't'; TRD_{it} denotes the level of trade of country 'i' of region 'j' in time 't'; IMP_{it} represents the import of country 'i' of region 'j' in time 't';EXP_{it} represents the export of country 'i' of region 'j' in time 't'; INF_{it} represents the inflation which is the control variable of country 'i' of region 'j' in time 't'; ω_i denotes parameters to be estimated; and μ_{ijt}represents the general error term of country 'i' of region 'j' in time 't'.

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Estimation Techniques and Strategy

To examine the short-run and long-run effects of current account balance on economic growth in all the sub-regions of Africa, the study employed the cross-sectional autoregressive distributive lags (CS-ARDL) technique. Due to the problems with cross-section dependence and slope heterogeneity, panel estimations might produce incorrect findings. In this work, cross-sectional autoregressive distributive lags (CS-ARDL) will be used to address concerns with cross-section dependence and heterogeneity by using dynamic common correlated effect predictors (Yao, Ivanovski & Inekwe, 2019). Another crucial reason for adopting CS-ARDL lies in its compliance with both small and large sample sizes (Magweva & Sibanda, 2020).

Employing the panel CS-ARDL (a, *n*1, *n*2, *n*3, ...*nx*) specification (a *is* the lag order for the dependent variable (*GDP*) and *n*1, *n*2, *n*3, ... *nx*is lag orders for independent and control variables:

The model is specified as:

$$GDP_{ijt} = \alpha_{1i} + \sum_{k=0}^{n1} \beta_{12ij} X_{ijt-1} + \sum_{k=0}^{n2} \beta_{13ij} Y_{ijt-1} + \mu_{1it} \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where GDP_{ijt} is the economic growth proxy with real gross domestic product; i denote individual country under Africa for i = 1, 2…..n; j denotes individual region under Africa for j = 1, 2, 3, 4, 5; t is the time series indices,$\alpha_{1i}$is the constant that is, the value of the dependent variable when independent variables are zero,$Xijt$is the vector of the independent variables (current account balance, foreign direct investment, trade, import and export) for country iof region 'j' at time t;$Yijt$ denotes the control variable for country iof region 'j' at time t; and μ_{ijt} is the error term.

By rewriting equation (2) to capture the dynamic relationship among the variables in the short and long-run,

$$DGDP_{ijt} = \alpha_{2i} + \lambda_{2ij} TREND_t + \sum_{k=0}^{a} \beta_{21ij} GDP_{ijt-1} + \sum_{k=0}^{n1} \beta_{22ij} DCAB_{ijt-1} + \sum_{k=0}^{n2} \propto_{23ij} DFDI_{ijt-1}$$

$$+ \sum_{k=0}^{n3} \propto_{24ij} DTRD_{ijt-1} + \sum_{k=0}^{n4} \propto_{25ij} DIMP_{ijt-1} + \sum_{k=0}^{n5} \propto_{26ij} DEXP_{ijt-1} + \sum_{k=0}^{n6} \propto_{27ij} DINF_{ijt-1}$$

$$+ \lambda_{21i} GDP_{ijt-1} + \lambda_{22i} CAB_{ijt-1} + \lambda_{23i} FDI_{ijt-1} + \lambda_{24i} TRD_{ijt-1} + \lambda_{25i} IMP_{ijt-1} + \lambda_{26i} EXP_{ijt-1}$$

$$+ \lambda_{27i} INF_{ijt-1} + \mu_{2ijt} \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where GDP_{ijt} denotes economic growth of country 'i' of region 'j' in time 't';CAB_{it} represents current account balance of country 'i' of region 'j' in time 't'; FDI_{it} denotes foreign direct investment of country 'i' of region 'j' in time 't'; TRD_{it} denotes the level of trade of country 'i' of region 'j' in time 't'; IMP_{it} represents the import of country 'i' of region 'j' in time 't'

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RESULTS AND DISCUSSION

Table 2: Descriptive Statistics

Statistics	GDP	FDI	TRD	INF	IMP	EXP01	CAB
Mean	71.321766	85.107511	68.57752	113.6091	73.87409	84.42509	-15.76073
Median	4.194615	1.792488	58.62814	6.072719	49.57989	38.46805	-5.208702
Maximum	198.8422	161.8238	531.7374	71039.74	1.32E+11	1.50E+11	44.19015
Minimum	-325.7105	-82.89210	-19.91352	-82.13726	-30.18276	-93.24989	-734.1183
Std. Dev.	3.75851	9.620032	4.74370	5.37464	1.51E+10	1.83E+10	3.03690
Skewness	0.595802	5.896012	2.899071	26.31859	5.996936	5.387390	-7.516268
Kurtosis	40.74062	76.43253	20.50458	737.0789	42.10159	32.01129	68.40425
Jarque-Bera	89526.76	347325.1	21350.97	34010634	105037.1	60138.76	282794.4
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	1507	1507	1507	1507	1507	1507	1507

EXP_{it} represents the export of country 'i' of region 'j' in time 't'; INF_{it} represents the inflation which is the control variable of country 'i' of region 'j' in time 't'; ω_i denotes parameters to be estimated; and μ_{ijt}represents the general error term of country 'i' of region 'j' in time 't'.

The outcomes of the descriptive statistical analysis demonstrated that all the variables' means tend toward maximum values, indicating that their average values are high. The mean values of all the variables resulted in a considerable degree of divergence from the actual data, as seen by the relatively high standard deviation of all the variables. All the variable means are more closely related to their maximum values than their minimum values. The standard deviation, which deviates greatly from the mean, provides strong support for the assertion. These findings demonstrated that all independent variables, including the flow of GDP, are unstable in sub-Saharan Africa.

Table 3: Unit Roots Test

Variables	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF	PP	Hadri	Order of Integration
GDP	-3.84879*	-12.6251*	441.831*	490.255*	16.1383*	*I*(0)
FDI	-7.74595*	-8.35804*	289.809*	334.513*	19.2868*	*I*(0)
TRD	-3.20167*	-3.20365*	381.606*	380.015*	36.7490*	*I*(0)
INF	-23.6095*	-23.4304*	826.978*	597.833*	18.6288*	*I*(0)
CAB	-13.0123*	-11.4836*	515.120*	546.550*	76.6134*	*I*(0)
IMP	-29.7432**	-29.3255**	872.516**	872.516**	35.2659**	*I*(1)

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EXP	-28.9390**	-29.1950**	837.022**	880.293**	38.4712**	*I*(1)

Notes: An intercept and trend are included in the test equation. The lag length was selected using the Schwarz Information Criterion. **(*), (**), (***)** denote probability statistical significance at the 1%, 5% and 10% levels respectively.

The outcomes of the panel unit root test are presented in Table 3. Levin, Lin, Im, Pesaran, and Shin wstat, ADF- Fisher Chi-Square, PP- Fisher Chi-Square, and Hadri LM second generation unit root test were utilized at the 1%, 5%, and 10% significant levels. Except for IMP and EXP, which have 1% significance at first difference, all the variables have 1% significance at levels. It demonstrates that every variable is integrated with order zero except for IMP and EXP, which are integrated with order one.Thus, the combinations of I(0) and I(1) orders of integration of the variables validate the use of bounds cointegration test to examine the existence of a linear combination among the variables as proposed by Pesaran et al. (2001)

Table 4: Kao Residual Cointegration Test

Residual variance	HAC variance	t-Statistic	Prob
0.529147	1.4156418	1.184394	0.0001

As shown in Table 4, the null hypothesis of no cointegration is rejected and we accept the alternate one.

Table 5: Results obtained for cross-section dependence (CD) analysis.

Test	North Africa	West Africa	Central Africa	East Africa	Southern Africa
Breusch-Pagan LM	71.79732***	201.4102***	61.73270***	263.7025***	57.34342**
Pesaran scaled LM	10.36972***	5.255008***	6.285192***	12.80156***	5.515346**
Pesaran CD	4.862077***	5.320697***	5.307508***	11.574184***	4.356918**

Note: ***, ** signifies significance at 1% and 5% respectively

It is imperative to be sure of the cross-dependence for panel data before using CD-ARDL technique. Table 5 reveals the results that reject the null hypothesis of no cross-sectional dependence among the selected variables, i.e., GDP, FDI, TRD, INF, IMP, EXP, and CAB, which confirms that the entire data (North Africa, West Africa, Central Africa, East Africa and Southern Africa) have a cross-sectional dependence at a 1% significance level. Thus, the results imply that a shock in one country will spill over to the other countries as well.

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Table 6: Heterogeneity test

Test	North Africa	West Africa	Central Africa	East Africa	Southern Africa
Delta-tilde	29.1432***	15.12 ***	09.4612 ***	21.7231 ***	24.3151 ***
Delta-tilde Adjusted	31.2834***	18.12 ***	11.7532 ***	20.0131 ***	26.1152 ***

Note: ***, ** signifies significance at 1% and 5% respectively

Table 6 shows the result of the heterogeneity test to examine the slope of heterogeneity among the study variables. This is done to determine the study's heterogeneous and homogeneous slope coefficients (Hashem Pesaran& Yamagata, 2008). At the 1% significance level, there is presence of heterogeneity in North Africa, West Africa, Central Africa, East Africa and Southern Africa respectively.

Table 7: Kao Residual Cointegration Test

Region	Residual variance	HAC variance	t-Statistic
North Africa	0.324121	1.1321523	1.132484**
West Africa	0.231142	1.1159211	1.121332***
Central Africa	0.221731	1.1241821	1.124734**
East Africa	0.141146	1.1183191	1.112415**
Southern Africa	0.152724	1.1272621	1.122618**

Note: ***, ** signifies significance at 1% and 5% respectively

Table 7 showed the null hypothesis of no cointegration among the variables in the presence of cross-section dependence (CD), and heterogeneity. The outcome rejects the null hypothesis of no cointegration which confirms the presence of a co-integrating relationship among the variables at a 1% significance level.

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Table 8: Cross-Section Autoregressive Distributed Lags (CS-ARDL)

Short run	North Africa	West Africa	Central Africa	East Africa	Southern Africa
ΔGDP	-1.266613 (0.000)	-1.065063 (0.000)	-1.000843 (0.000)	-1.024837 (0.000)	-1.1369 (0.000)
ΔFDI	-0.59951 (0.170)	0.3874169 (0.564)	-0.7567904 (0.285)	0.5202071 (0.298)	0.1360301 (0.534)
ΔTRD	0.575157 (0.171)	0.0750597 (0.137)	0.1273609 (0.028)	0.0564127 (0.738)	-0.7979539 (0.292)
ΔINF	-0.0742092 (0.704)	-0.0204489 (0.807)	0.0446273 (0.701)	-0.283872 (0.123)	0.0873437 (0.159)
ΔIMP	-1.626057 (0.287)	0.04279 (0.715)	0.3483641 (0.296)	0.0921616 (0.526)	-0.0357056 (0.917)
ΔEXP	-3.036602 (0.176)	0.0072746 (0.930)	0.1444399 (0.258)	0.1488351 (0.073)	0.0326802 (0.493)
ΔCAB	0.4752599 (0.371)	-0.0645916 (0.468)	0.3508972 (0.493)	-0.1247211 (0.454)	0.0182286 (0.817)
Long run					
FDI	-0.9288943 (0.008)	0.0357782 (0.024)	-0.0261794 (0.001)	0.2590778 (0.004)	0.0480657 (0.006)
TRD	0.461752 (0.017)	0.0450495 (0.011)	0.0660831 (0.047)	0.0433619 (0.001)	-0.084601 (0.024)
INF	-0.010947 (0.023)	-0.02171 (0.001)	0.0323672 (0.616)	-0.0703613 (0.022)	0.0438641 (0.143)
IMP	-0.895342 (0.041)	0.0298169 (0.615)	0.1980991 (0.298)	0.0426551 (0.536)	-0.0234939 (0.871)
EXP	-1.805298 (0.198)	-0.0092573 (0.019)	0.0704827 (0.003)	0.0848114 (0.003)	0.0178437 (0.011)
CAB	0.098878 (0.004)	0.029814 (0.014)	0.1512509 (0.043)	-0.0683853 (0.430)	0.009118 (0.015)
ECT	-2.266613 (0.000)	-2.065063 (0.000)	-2.000843 (0.000)	-2.024837 (0.000)	-2.1369 (0.000)
R^2	0.85	0.74	0.88	0.87	0.82
F-stat	(132, 80) = 3.15	(240, 208) = 3.28	(240,208) = 2.58	(308, 69) = 2.09	(198, 44) = 2.60
Prob (F)	0.000	0.000	0.000	0.000	0.003

Result in Table 8 presents the result of estimation of the Cross-Section Autoregressive Distributed Lags (CS-ARDL) for the given sample period. The estimated short-run equation shows that FDI, INF, IMP, EXP exert negative and insignificant impacts on GDP (economic growth) in the short-run while TRD and CAB exert a positive and insignificant relationship with economic growth in North Africa. Similarly, FDI, TRD, IMP and EXP had a positive but insignificant effect on

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economic growth while INF and CAB have a negative and insignificant relationship with GDP in the short-run within the study period. The result in Central Africa showed that INF, EXP and CAB exert a positive and insignificant relationship with GDP while FDI has a negative and insignificant effect on GDP, However, TRD exert a positive and significant relationship with GDP within the study period in the short-run.

The result in East Africa is indifferent as FDI, TRD and IMP have an insignificant positive effect on GDP; while INF and CAB have an insignificant negative effect but EXP exert a positive and significant relationship with GDP in the short-run within the study period. Also, for Southern Africa, FDI, INF, EXP and CAB have a positive but insignificant relationship with economic growth (GDP) while TRD and IMP have a negative and insignificant relationship with GDP in the short run.

The long-run estimation result showed that in North Africa, TRD and CAB have a positive and significant impact on GDP while FDI, INF, IMP and EXP have a significant negative relationship with GDP. In similitude, FDI, TRD, IMP and CAB have a significant positive impact on GDP while INF and EXP exert a significant negative relationship with GDP in West Africa. However, in Central Africa, INF and IMP exert a positive but insignificant relationship with GDP; TRD, EXP and CAB have a significant positive effect on GDP while FDI has a significant negative effect on GDP within the period of study. Similarly in East African countries, FDI, TRD and EXP positively and significantly impacted GDP; IMP has a positive but insignificant relationship with GDP; CAB has a negative but insignificant relationship with GDP, while INF exerts a negative and significant relationship with GDP. Lastly, for Southern Africa, FDI, EXP and CAB positively and significantly affects GDP; INF has a positive but insignificant effect on GDP; IMP has a negative but insignificant relationship with GDP while TRD exerts a negative and significant relationship with GDP within the period of study. Also, the probability value of the F-statistic was statistically significant at 1% level indicating that the overall model was significant.

CONCLUSION

This study's econometric analysis reveals significant regional disparities in how various economic factors influence GDP across Africa's sub-regions from 1994 to 2022. In North Africa, trade and current account balances positively impact GDP, while FDI, inflation, imports, and exports have a significant negative effect, indicating challenges in investment quality and inflation management. Conversely, West Africa benefits from positive impacts of FDI, trade, imports, and current account balances, despite inflation and exports negatively affecting GDP. Central Africa's results show that while trade, exports, and current account balances boost GDP, FDI has a negative effect, highlighting the need for improved investment environments. East Africa demonstrates positive impacts from FDI, trade, and exports, yet suffers from adverse effects of inflation and current account balances. Southern Africa's positive GDP drivers include FDI, exports, and current account balances, though trade negatively impacts growth.

In conclusion, the study underscores the need for tailored regional policies to address specific economic challenges and leverage opportunities. Inflation control remains a critical priority across

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all regions to stabilize prices and support economic growth. Enhancing the quality and effectiveness of FDI, improving trade policies, and maintaining balanced current accounts are essential for sustainable growth. Additionally, regional cooperation and integration can help address common economic issues and promote a more cohesive approach to economic development in Africa. By implementing these targeted strategies, sub-Saharan African nations can improve their economic resilience and achieve more robust and sustained growth.

POLICY RECOMMENDATIONS

In order to improve the current account balance of sub-Saharan African countries, it is imperative for authorities to prioritize the enhancement of export competitiveness. This can be achieved by allocating resources towards the development of infrastructure, technology, and education, which will in turn foster productivity and innovation. Expanding the range of goods and the number of countries to which they are exported can reduce reliance on a small number of products and help manage the risks associated with fluctuating prices. Promoting value-added industries and local processing of raw materials can enhance the value of exports. In addition, improving the business environment through regulatory reforms and providing incentives for foreign direct investment in export-oriented sectors can attract capital and advanced technology. Enhancing regional trade agreements and integration can promote intra-African commerce, diminish trade barriers, and create broader markets for African exports. By implementing these strategies, along with effective macroeconomic policies aimed at decreasing inflation and budget deficits, it is possible to enhance the current account balance equilibrium.

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