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Impact of Exchange Rate Volatility on Economic Growth and Macroeconomic Stability in High-Income African Countries

Ibraheem Sanusi[1], Ridwan Adebisi Sanusi[2], Victor Olutoye Ogunniyi[3], Nasimot Ajoke Sanusi[4], Latifat Abisola Tijani[6] & John Sogo Adeniji[6]

[1]Department of Statistics, University of Ibadan, Nigeria.
[2]Institute of Governance and Development Studies (IGDS), Nasarawa State University, Keffi. Nigeria.
[3]Department of Statistics, University of Ibadan, Nigeria.
[4]Department of Accounting, University of Abuja, Nigeria.
[5]Department of Statistics, University of Ibadan, Nigeria.
[6]Department of Statistics, University of Ibadan, Nigeria.

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***Correspondence**
Ibraheem Sanusi

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Abstract

This study examines the impact of Exchange Rate Volatility on Economic Growth and Macroeconomic Stability in High-Income African Countries, focusing on Seychelles, Mauritius, Gabon, Botswana, Libya, Equatorial Guinea, South Africa, Egypt, Algeria, Namibia, and Cabo Verde. The research adopts a quantitative approach, utilizing annual panel data from 1991 to 2024 obtained from world bank database. The key variables include GDP per capita (proxy for economic growth), exchange rate, FDI inflows, export volumes, and inflation rates. The study employs various econometric techniques including Panel Least Squares (Fixed Effects), Fully Modified Ordinary Least Squares (FMOLS), and diagnostic tests such as the Augmented Dickey-Fuller (ADF) unit root test, Hausman test, and collinearity diagnostics, all conducted using EViews 13 statistical software. The findings reveal that export volumes and FDI exert significant positive effects on GDP per capita, while exchange rate volatility and inflation show statistically insignificant effects. The study concludes that policies should focus on boosting export capacity and attracting sustainable FDI. It recommends governments maintain macroeconomic stability, improve investment environments, and enhance export diversification strategies to foster long-term economic growth across high-income African nations.

Keywords

Exchange Rate Volatility, Economic Growth, Foreign Direct Investment, Export Volume, Inflation Rate, GDP per Capita.

1.0 Introduction

Exchange rate volatility is a key concern for policymakers, investors, and researchers, especially in economies deeply connected to global trade and capital flows. In high-income African countries such as Seychelles, Mauritius, Gabon, Botswana, Libya, Equatorial Guinea, South Africa, Egypt, Algeria, Namibia, and Cabo Verde, exchange rate fluctuations have complex effects on economic performance. Volatility can increase uncertainty for investors, raise business costs, and undermine trade contracts, all of which may slow economic

growth (Amoah & Korankye, 2023). Unpredictable currency values complicate import cost forecasting, particularly for capital goods essential to expanding production capacity (Alagidede & Ibrahim, 2022). Understanding these impacts is vital for designing policies that foster sustainable growth. Exchange rate instability also affects macroeconomic indicators and foreign direct investment (FDI) in African markets (Kiptui & Mutai, 2021). Investors prefer predictable exchange rates to safeguard returns; significant fluctuations have led to delayed investments and portfolio shifts in South Africa and Mauritius (Taderera & Mlambo, 2020). Moreover, volatility often necessitates costly hedging strategies, diverting resources from productive activities—an issue exacerbated in countries with underdeveloped financial markets and limited risk management options. To mitigate volatility's adverse effects, many high-income African nations employ policies like inflation targeting and managed exchange rate regimes, though their effectiveness remains debated, warranting further context-specific research (Raza et al., 2022).

Exchange rate changes also influence export volumes, affecting competitiveness and revenue predictability, especially in export-driven economies such as Namibia, Gabon, and Botswana (Phiri & Makoni, 2023). Currency instability hampers business planning and operational costs, potentially reducing output and employment (Asongu & Nwachukwu, 2022). Inflationary pressures linked to volatility increase import costs and squeeze profit margins, highlighting the need for integrated macroeconomic management that addresses the interplay among growth, inflation, and exchange rate fluctuations. While numerous studies investigate exchange rate impacts on growth, few focus on the collective group of high-income African countries with diverse exposure levels, governance models, and economic structures. For instance, oil-rich nations like Equatorial Guinea and Libya exhibit different volatility and growth patterns than tourism-dependent countries such as Seychelles and Cabo Verde (Ismaila, 2021). Adeleye et al. (2023) emphasize the need for comprehensive analyses of exchange rate volatility's effects on FDI, exports, and inflation. Addressing this gap will enhance academic understanding and inform policymaking tailored to the diverse contexts of Africa's high-income economies.

1.1 Research Gap

Although several studies have examined the relationship between exchange rate dynamics and economic growth in various contexts, important gaps remain in the literature, particularly concerning high-income African countries. Existing research has predominantly focused on low- and middle-income African nations, where macroeconomic instability and external shocks are more pronounced. Consequently, the unique structural and economic dynamics of high-income African countries—such as Seychelles, Mauritius, Gabon, Botswana, Libya, Equatorial Guinea, South Africa, Egypt, Algeria, Namibia, and Cabo Verde—remain underexplored. Additionally, empirical investigations in Africa have largely neglected the interactive roles of foreign direct investment (FDI) and export performance alongside exchange rate volatility, despite these being crucial factors in the growth trajectories of high-income African economies. Prior studies have either focused solely on bilateral exchange rates or have examined growth determinants in isolation, ignoring the broader macroeconomic environment that includes trade performance, capital inflows, and inflation control mechanisms.

2.0 Literature Review

Adeleye et al. (2023) examined the impact of exchange rate fluctuations on output in the three largest economies in Africa: South Africa, Egypt, and Nigeria. Data collected every three months from 1990 to 2020 were subjected to the Autoregressive Distributed Lag (ARDL) bounds testing method. Their findings demonstrated that exchange rate fluctuations have a negative short- and long-term impact on agricultural and industrial output. Conversely, the service industry remained comparatively robust. According to the study, businesses that depend significantly on imports or are accessible to foreign markets are more vulnerable to fluctuations in exchange rates. The authors recommended employing sector-specific hedging techniques and clarifying monetary policy in order to reduce market uncertainty and promote long-term growth in particular industries. Alagidede and Ibrahim (2022) examined 34 countries in Sub-Saharan Africa to examine the impact of exchange rate fluctuations on economic growth from 1995 to 2019 using a Panel Smooth Transition Regression (PSTR) model, their empirical findings demonstrated that the relationship is nonlinear and contingent on the level of financial system development. High volatility specifically hampered growth in nations with fragile financial markets, whereas nations with more robust financial systems fared better during shocks. According to the study, strengthening the financial sector can aid in reducing the adverse effects of exchange rate swings. The authors proposed strengthening financial institutions, expanding access to hedging tools, and stabilising inflation expectations as ways to lessen the volatility of growth brought on by exchange rate fluctuations.

Amoah and Korankye (2023) examined the impact of exchange rate fluctuations on economic growth in twelve African nations, including Botswana and Mauritius. The study demonstrated that the manufacturing and tourism industries are significantly impacted negatively by fluctuations in the exchange rate using panel data and fixed-effects regression models. Due to their reliance on foreign consumers and goods, these industries are particularly vulnerable. According to the study, people are less inclined to invest and export-driven industries become less competitive when there is macroeconomic instability brought on by currency volatility. To lessen reliance on external factors, the authors recommended that governments diversify production and employ managed float exchange rate systems with strategic interventions. With a particular focus on South Africa and Namibia, Phiri and Makoni (2023) investigated the impact of exchange rate fluctuations on the volume of exports from Southern African nations. The authors demonstrated how positive and negative volatility shocks impact trade differently using asymmetric GARCH models. The findings demonstrated that exports are more negatively impacted by negative shocks—which are associated with significant value declines—than by positive shocks. According to the study, exporters are particularly susceptible to the uncertainty brought on by depreciation episodes, which have the potential to sever long-term trade ties. Supporting export insurance programs to assist small and medium-sized exporters and stabilising capital markets to give exporters better risk management tools were among the recommendations.

Raza et al. (2022) studied how changes in exchange rates affect the economies of 17 African countries, including Egypt and Equatorial Guinea. The study used impulse response analysis and panel Vector Autoregression (VAR) models to see how volatility affected GDP growth over time. The authors saw that changes in the exchange rate caused GDP growth to slow for a long time, especially in countries with weak institutions and a tendency to inflation. The study stressed how important it is to keep macroeconomic frameworks that people can trust and to not let currencies get too far out of line with each other. It said that stabilising mechanisms should include giving central banks more freedom, making fiscal discipline better, and building up foreign exchange reserves. Taderera and Mlambo (2020) looked at how changes in exchange rates affect the flow of foreign direct investment (FDI) in Southern Africa using a panel ARDL framework from 1996 to 2018, focusing on Botswana, South Africa, and Namibia. The results showed that changes in exchange rates hurt foreign direct investment (FDI) a lot, especially in countries that didn't have good ways to deal with currency risk. The authors decided that currency instability made it hard to guess returns, which made it less likely that people would invest in foreign countries for a long time. The study said that policies should be consistent, that foreign investors should have better rules, and that sovereign wealth funds should be set up to protect the economy from big shocks.

Kiptui and Mutai (2021) did a panel study of 14 Sub-Saharan African countries, including high-income countries like Mauritius and South Africa. They looked at the link between exchange rate volatility and foreign direct investment inflows. The Generalized Method of Moments (GMM) estimator was used in the study for dynamic panel data from 1995 to 2019. Their research showed that higher exchange rate volatility made FDI inflows much less likely, especially in economies with weak macroeconomic fundamentals and underdeveloped financial markets. The study found that FDI inflows are affected by currency instability because investors want to make money in stable environments. To attract and keep long-term investment capital, the authors suggested using exchange rate smoothing mechanisms, macroeconomic stabilisation policies, and regional hedging frameworks. Mohammed and Kimani (2023) looked at how changes in the exchange rate affect exports in five African countries. They used autoregressive distributed lag (ARDL) bounds testing and monthly export data from 2000 to 2021 to show that changes in the exchange rate had a big negative effect on export volumes in the short and long term. During times of rapid depreciation, exporters were especially vulnerable because it made inputs more expensive and messed up trade contracts. The authors came to the conclusion that currency depreciation might make companies more competitive for a short time, but volatility creates risk premiums that make companies less likely to trade internationally. They suggested improving export credit facilities, promoting currency risk insurance, and expanding the number of markets for exports.

Ezeaku et al. (2022) investigated the relationships between inflation, economic growth, and exchange rate fluctuations in a few African oil-producing nations, including Equatorial Guinea, Algeria, and Libya. Granger causality tests, vector error correction models (VECM), and annual data from 1990 to 2020 were employed by the researchers. The findings demonstrated a robust reciprocal relationship between exchange rate volatility and inflation. The latter increased the price of imported goods, which led to spikes in inflation. According to the study, when exchange rates are not maintained at a stable level, inflation damages the economy and reduces investor confidence. It recommended focussing on inflation, coordinating fiscal and monetary policies, and strengthening exchange rate management frameworks in order to stabilise prices and increase output. Asiedu and Osei-Assibey (2021) conducted a panel econometric study of 20 African economies, concentrating on those categorised as high- and upper-middle-income, to

examine the effects of macroeconomic volatility, such as inflation and exchange rates, on real GDP growth. They discovered that both inflation and exchange rate volatility significantly impede GDP growth using fixed-effects and system GMM estimators. In economies with few industries and weak fiscal buffers, the effect was more pronounced. According to the study, volatility breeds uncertainty, which impacts investment, consumption, and employment. The authors recommended strengthening monetary institutions, increasing the consistency of policies, and investing in economic diversification to ensure that growth remains steady. Mensah and Ofori-Abebrese (2020) created a Volatility Index (VIX) for African exchange rates using monthly exchange rate data from 2000 to 2018. Libya, Nigeria, and Egypt were the most unstable nations in the index, which revealed both acute shocks and persistent instability in many others. The study determined each country's level of volatility using the GARCH (1,1) and EGARCH models, then examined the relationship between GDP volatility and volatility. The authors found that nations with highly volatile exchange rates also had unstable GDP growth rates. They recommended that nations cooperate to increase their foreign exchange reserves, establish inflation goals, and create currency stabilization funds to handle abrupt fluctuations in value.The PPP theory, as developed by Gustav Cassel, suggests that exchange rates should adjust in the long run to equalize the price levels of two countries. Deviations from PPP often result in currency misalignments, which can cause inflationary or deflationary pressures and influence a country's competitive edge in international markets (Khan, 2021). For high-income African countries, exchange rate misalignments—often caused by volatile capital flows or fluctuating commodity prices—can distort trade competitiveness and have spillover effects on GDP per capita. The endogenous growth theory, championed by Romer (1990) and Lucas (1988), posits that economic growth is largely driven by internal factors such as technological innovation, human capital accumulation, and investment in research and development. From this perspective, foreign direct investment and exports are critical conduits for technology transfer, productivity improvements, and skills development. Exchange rate volatility, however, can deter FDI inflows by increasing investment risks and reducing the predictability of returns, thereby constraining domestic capital formation and long-term growth prospects (Adewale et al., 2024). The PPP Theory frame the role of exchange rate dynamics and Endogenous Growth explain how FDI and exports stimulate growth and explain the potential adverse impacts of inflation and exchange rate volatility on investment and output. These theories collectively provide a robust theoretical framework that guides this study's empirical investigation into the macroeconomic determinants of economic growth in high-income African countries.

3.0 Methodology

3.1 Variable Measurement

This study investigates the impact of exchange rate volatility on economic growth in high-income African countries. The panel data includes eleven countries (Seychelles, Mauritius, Gabon, Botswana, Libya, Equatorial Guinea, South Africa, Algeria, Namibia, and Cabo Verde) spanning from 1991 to 2024. Below is a table summarizing the variables and their measurement as well as the data source.

Variable	Description	Measurement	Source
GDP per Capita (GDPPC)	Measures average income per person and serves as a proxy for economic growth	Real GDP per capita in constant US dollars	World Bank
Exchange Rate	Unpredictable changes in the value of national currency relative to major foreign currencies	Annual fluctuations in nominal exchange rate (USD-based).	World Bank
Foreign Direct Investment (FDI)	Long-term capital inflows from foreign sources	Net FDI inflows as a percentage of GDP	World Bank
Export Volume (EXPORT)	Total volume/value of goods and services exported	Total exports of goods and services in constant USD	World Bank
Inflation Rate	General increase in price level of goods and services over time	Annual percentage change in Consumer Price Index (CPI)	World Bank

Source: Author's computation

3.2 Panel Unit Root Test

Before estimating any econometric model, it is crucial to assess the stationarity of the time series data to avoid spurious regression results. The study uses the following panel unit root tests:

i. Levin, Lin & Chu (LLC)

ii. Im, Pesaran and Shin (IPS)

iii. ADF-Fisher

iv. PP-Fisher

Stationarity implies that the statistical properties of a series—mean, variance, and autocorrelation—are constant over time, which is a prerequisite for most time-series and panel estimations. Mathematically, a typical panel unit root test is structured as:

$$\Delta Y_{it} = \alpha_i + \gamma_i Y_{it-1} + \sum_{i=1}^{p} \delta_{ij} \Delta Y_{it-j} + \varepsilon_{it}$$

ΔY_{it} is the difference of the variable being tested

α_i is a constant (drift term)

βt is the time trend component

γ_i is the parameter of interest

δ_{ij} are the lagged difference terms

$\varepsilon_t$is the white noise error term

The null hypothesis H_0 of the test is that the series has a unit root (i.e., non-stationary), while the alternative hypothesis H_1 is that the series is stationary.

The decision rule is:

i. If the ADF test statistic is less than the critical value (more negative), we reject the null hypothesis of unit root and conclude the series is stationary.

ii. If not, we accept the null hypothesis of non-stationarity.

3.3 Panel Least Square

Panel Least Squares (PLS) estimation accounts for both time-series and cross-sectional variations. It is useful in identifying the baseline relationship between exchange rate volatility and economic growth. The general model is:

$$GDPPC_{it} = \beta_0 + \beta_1 (Exchange\_Rate)_{it} + \beta_2 (FDI)_{it} + \beta_3 (Export)_{it} + \beta_4 (Inflation)_{it} + \varepsilon_{it}$$

i denotes countries

t denotes time

ε_{it} is the idiosyncratic error term

Fixed Effects (FE) and Random Effects (RE) models was tested and compared using the Hausman test to determine the appropriate estimator.

3.4 Fully Modified Ordinary Least Squares (FMOLS)

The FMOLS estimator modifies the conventional OLS approach by adjusting for serial correlation effects and endogeneity through a non-parametric correction procedure. This technique is particularly appropriate for panel data because it allows for heterogeneity across cross-sectional units and provides asymptotically unbiased estimates of long-run relationships.

The FMOLS regression model used in this study is specified as:

$$GDPPC_{it} = \alpha_i + \beta_1(Exchange\_Rate)_{it} + \beta_2(FDI)_{it} + \beta_3(Export)_{it} + \beta_4(Inflation)_{it} + \varepsilon_{it}$$

Where:

α_i captures country-specific fixed effects,

ε_{it} is the error term

4.0 Result

Table 1:Summary Statistics

	GDP	Exchange Rate	Export	FDI	Inflation
Mean	708606.259	130.899	9.64589E+11	5.225	5.335
Median	153594.451	17.798	1.0419E+11	2.363	4.492
Standard Deviation	1321389.765	210.412	1.41076E+12	12.289	5.937
Sample Variance	1746070911046.060	44273.363	1.99024E+24	151.028	35.251
Kurtosis	5.094	0.827	2.076939613	88.490	9.223
Skewness	2.356	1.580	1.682543673	8.255	2.285
Range	6594953.424	732.117	6.20485E+12	168.721	48.651
Sum	240926127.918	44505.572	3.2796E+14	1776.615	1813.956

(Source: Author's computation)

Table 1 presents the summary statistics for the variables in the study, providing an overview of their distribution across the panel dataset. The average GDP per capita is approximately 708,606 USD, with a high standard deviation (1,321,389 USD), indicating significant variation in income levels among the high-income African countries studied. Exchange rates show a mean value of 130.89 with substantial dispersion (standard deviation of 210.41), reflecting wide differences in currency values across countries. Export volumes exhibit a large mean of approximately 9.65×10^{11} USD, accompanied by high variability (standard deviation of 1.41×10^{12} USD), suggesting export performance varies greatly among the countries. FDI inflows average 5.23% of GDP but show high variability (standard deviation of 12.29), with a notable positive skewness (8.25), indicating the presence of extreme positive FDI inflows in some countries. Inflation averages 5.33%, with moderate variation (standard deviation of 5.93) and positive skewness (2.29), pointing to periods of high inflation in certain countries. The kurtosis values for GDP (5.09), FDI (88.49), and Inflation (9.22) exceed the normal distribution threshold of 3, indicating leptokurtic distributions with heavy tails, especially for FDI.

Figure 1 shows exchange rate fluctuations with two major volatility episodes in the late 1990s and mid-2010s, likely due to external shocks or policy changes, interspersed with periods of relative stability. Figure 2 depicts export value fluctuations, with stability interrupted by sharp peaks and drops around the mid-2000s and early 2010s, reflecting commodity price shifts, trade policy changes, or global demand variations, followed by moderated volatility. Figure 3 illustrates FDI trends, mostly stable at low positive levels, except for a sharp mid-2000s spike possibly linked to policy reforms or resource-driven booms, after which inflows stabilized with minor fluctuations

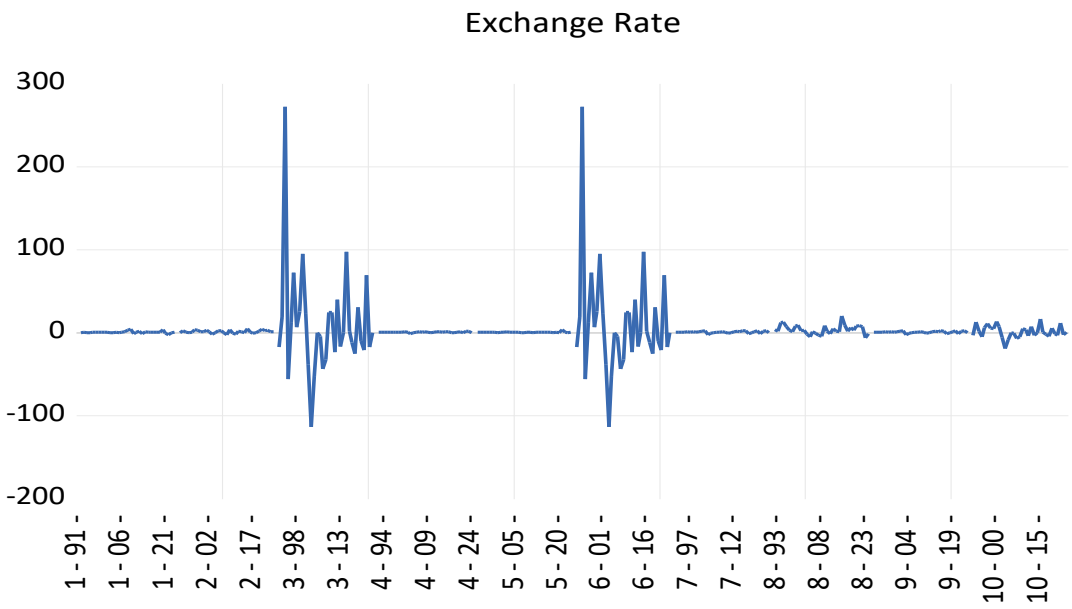

Figure 1: Exchange Rate Time Plot

(Source: Author's computation)

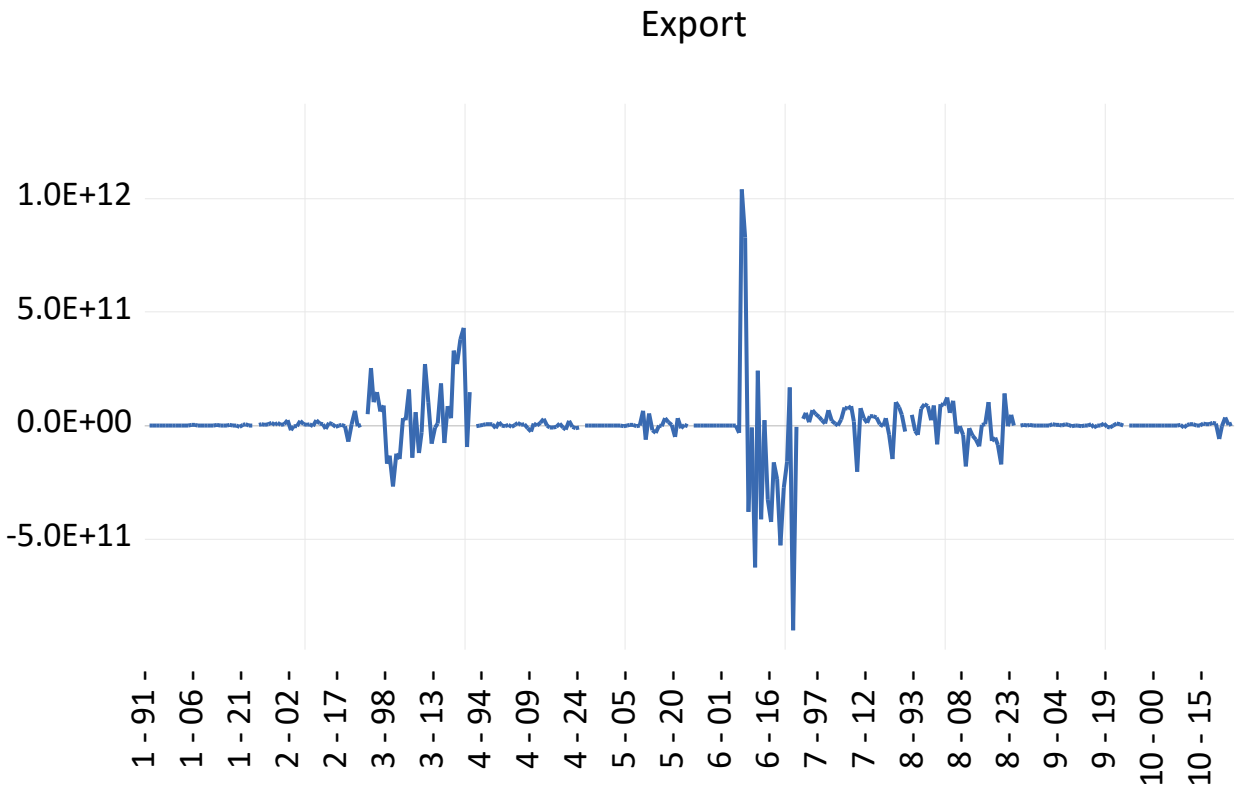

Figure 2: Export Time Plot

(Source: Author's computation)

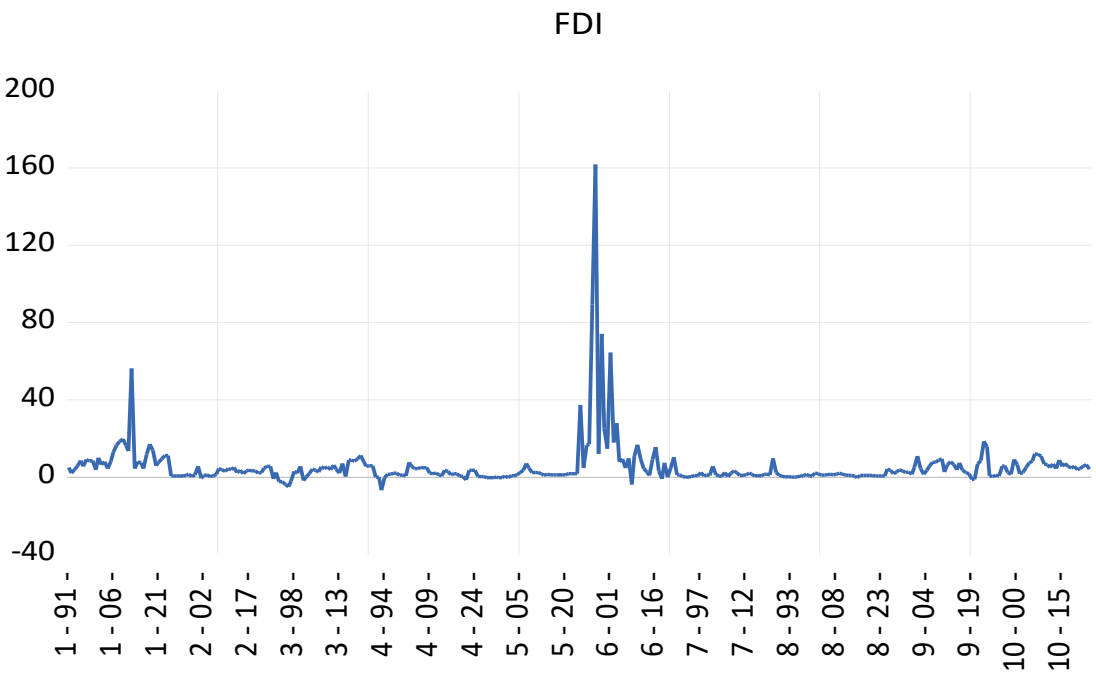

Figure 3: FDI Time Plot

(Source: Author's computation)

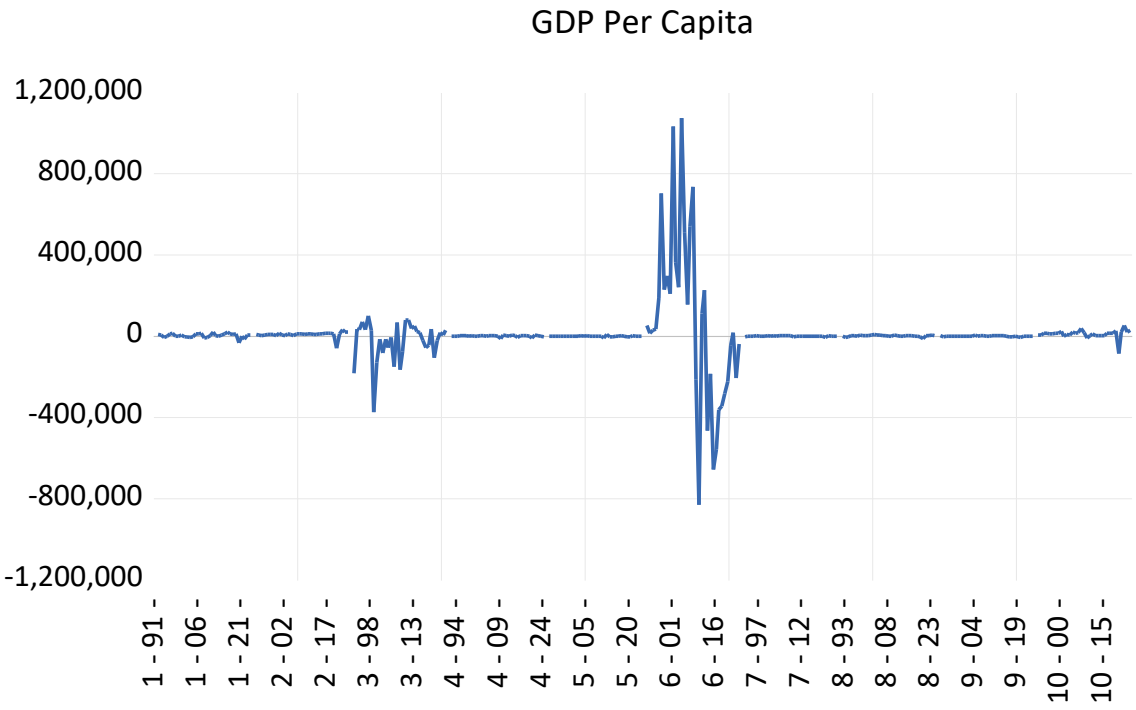

Figure 4: GDP per Capita Time Plot

(Source: Author's computation)

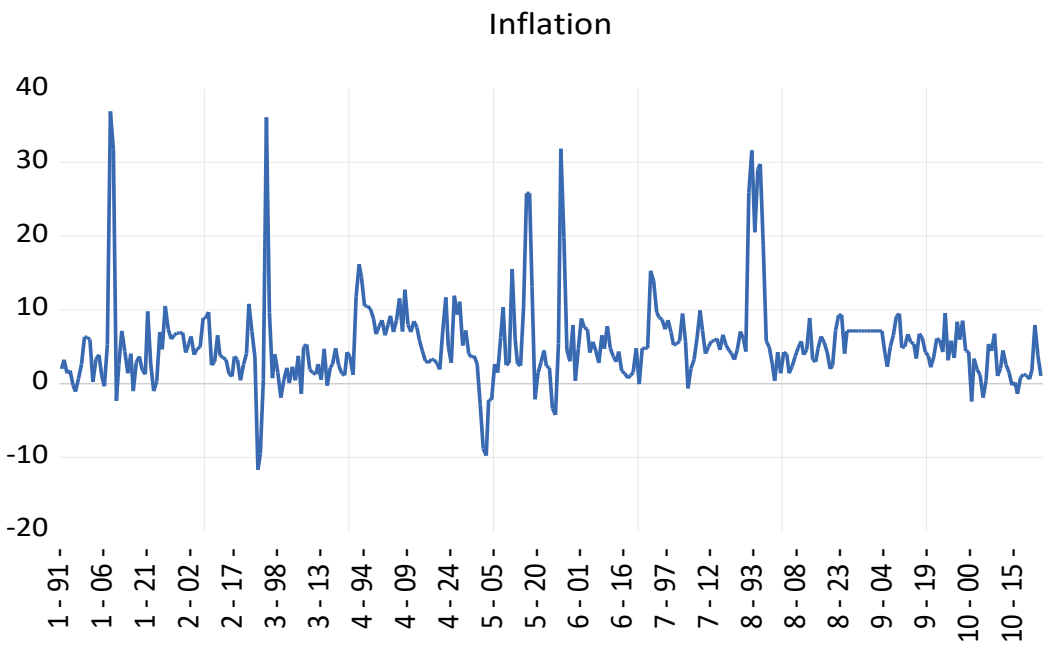

Figure 5: Inflation Time Plot

(Source: Author's computation)

Figure 4 displays GDP per capita over time, showing mostly mild fluctuations indicating stable growth, except for a volatile period between the late 2000s and mid-2010s with sharp rises and falls likely due to economic shocks like commodity price changes or financial crises. After this, stability resumes with minor oscillations. Figure 5 illustrates inflation trends marked by frequent sharp spikes and drops, with peaks above 30% and troughs below -10%, reflecting episodes of economic instability from policy shifts, external shocks, or structural weaknesses.

Table 2:Panel Unit root Test

Variable	Statistic	Statistic Value	P-value	Order
Exchange Rate	Levin, Lin & Chu t*	-11.0096	0.0000	I (1)
	Im, Pesaran and Shin W-stat	-10.2976	0.0000	
	ADF - Fisher Chi-square	134.377	0.0000	
	PP - Fisher Chi-square	166.393	0.0000	
Export	Levin, Lin & Chu t*	-11.1331	0.0000	I (1)
	Im, Pesaran and Shin W-stat	-10.7402	0.0000	
	ADF - Fisher Chi-square	144.655	0.0000	
	PP - Fisher Chi-square	225.566	0.0000	
FDI	Levin, Lin & Chu t*	-2.88716	0.0019	I (0)
	Im, Pesaran and Shin W-stat	-3.46297	0.0003	
	ADF - Fisher Chi-square	45.4001	0.001	
	PP - Fisher Chi-square	76.5083	0.0000	
GDPPC	Levin, Lin & Chu t*	-7.63989	0.0000	I (1)
	Im, Pesaran and Shin W-stat	-8.6831	0.0000	
	ADF - Fisher Chi-square	113.174	0.0000	
	PP - Fisher Chi-square	176.7	0.0000	
Inflation	Levin, Lin & Chu t*	-8.08783	0.0000	I (0)
	Im, Pesaran and Shin W-stat	-7.63806	0.0000	
	ADF - Fisher Chi-square	97.8835	0.0000	
	PP - Fisher Chi-square	84.0203	0.0000	

(Source: Author's computation)

Table 2 reports the results of the panel unit root tests conducted using four testing techniques: Levin, Lin & Chu (LLC), Im, Pesaran, and Shin (IPS), ADF-Fisher Chi-square, and PP-Fisher Chi-square, to determine the stationarity of the study

variables. The results reveal that Exchange Rate, Export, and GDP per capita (GDPPC) are non-stationary at levels but become stationary after first differencing, as indicated by their highly significant test statistics (p-values = 0.0000) at the first difference, confirming they are integrated of order one, I(1). In contrast, FDI and Inflation are stationary at levels, I(0), since all four test statistics report significant p-values less than 0.05 at level, suggesting no unit root exists.

Table 3:Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.893506	4	0.0032

(Source: Author's computation)

Table 3 presents the results of the Hausman Test, which is used to determine the appropriate model between Fixed Effects and Random Effects estimators for the panel regression analysis. The test yields a Chi-square statistic of 15.89 with 4 degrees of freedom and a p-value of 0.0032, which is statistically significant at the 1% level. This implies that the null hypothesis of the Random Effects model being consistent and efficient is rejected in favor of the alternative hypothesis that the Fixed Effects model is more appropriate. Therefore, based on the Hausman test result, the study proceeds with the Fixed Effects estimation method, as it provides more reliable and unbiased coefficients by controlling for unobserved heterogeneity across countries.

Table 4:Panel Least Square

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Exchange Rate	-390.5091	253.4451	-1.540804	0.1243
Exports	4.76E-07	5.40E-08	8.8158	0.0000
FDI	2465.68	567.4825	4.3449	0.0000
Inflation	1174.772	1261.089	0.9316	0.3523
C	-11859.74	9835.97	-1.205752	0.2288
R-squared	0.235318			
Adjusted R-squared	0.225906			
F-statistic	25.00327			
Prob(F-statistic)	0.0000			

(Source: Author's computation)

Table 4 presents the results of the Panel Least Squares (Fixed Effects) regression, examining the relationship between exchange rate volatility, exports, FDI, inflation, and GDP per capita. The model explains approximately 23.5% of the variation in GDP per capita as indicated by the R-squared value of 0.235, with the Adjusted R-squared of 0.226 confirming the model's modest explanatory power after accounting for degrees of freedom. The F-statistic (25.00) and its p-value (0.0000) show the overall model is statistically significant, meaning there is linear relationship between the dependent variable and the independent variables. Analyzing individual coefficients, exports have a highly significant positive effect on GDP per capita (coefficient = 4.76E-07, p = 0.0000), indicating that increases in export volumes contribute positively to economic growth. Similarly, FDI shows a strong and significant positive impact (coefficient = 2465.68, p = 0.0000), suggesting foreign investments are beneficial to income levels. In contrast, exchange rate volatility has a negative coefficient (-390.51) but is statistically insignificant (p = 0.1243), implying no robust evidence that exchange rate volatility directly affects GDP per capita in this sample. Inflation also shows an insignificant relationship (coefficient = 1174.77, p = 0.3523), indicating that inflationary trends do not have a clear direct impact on growth among the high-income African countries.

Table 5:Fully Modified Least Square

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Exchange Rate	-357.894	327.9293	-1.09138	0.276
Exports	6.59E-07	7.02E-08	9.3911	0.0000
FDI	3246.221	815.0856	3.9827	0.0001
Inflation	1335.717	1775.316	0.7524	0.4524
R-squared	0.241745			
Adjusted R-squared	0.209531			

(Source: Author's computation)

Table 5 displays the results of the Fully Modified Ordinary Least Squares (FMOLS) estimation, which accounts for both endogeneity and serial correlation in the long-run relationship between the independent variables and GDP per capita. The R-squared value of 0.2417 suggests that approximately 24.2% of the variability in GDP per capita is explained by exchange rate volatility, exports, FDI, and inflation, while the adjusted R-squared (0.2095) reflects a moderate explanatory strength after adjusting for degrees of freedom.

Focusing on the individual coefficients, exports maintain a positive and highly significant effect on GDP per capita (coefficient = 6.59E-07, p = 0.0000), reaffirming the critical role of export performance in enhancing economic growth in high-income African countries. FDI also shows a positive and statistically significant impact (coefficient = 3246.22, p = 0.0001), indicating that foreign investment continues to drive economic development. In contrast, exchange rate volatility retains a negative coefficient (-357.89) but remains statistically insignificant (p = 0.276), suggesting no significant long-run adverse effect on GDP per capita in this context. Similarly, inflation shows an insignificant relationship (p = 0.4524), implying inflation does not exert a measurable influence on growth in the long run.

Table 6:Collinearity Statistic

Variable	Coefficient Variance	Uncentered VIF
Exchange Rate	107537.6	1.1045
Exports	4.92E-15	1.0089
FDI	664364.6	1.0224
Inflation	3151747	1.1204

(Source: Author's computation)

Table 6 presents the results of the collinearity diagnostic test using the Variance Inflation Factor (VIF) to examine the presence of multicollinearity among the independent variables in the model. The Uncentered VIF values for all variables—Exchange Rate (1.10), Exports (1.01), FDI (1.02), and Inflation (1.12)—are all close to 1 and significantly below the commonly accepted threshold of 10. This indicates that multicollinearity is not a concern in the model, meaning there is no significant linear relationship among the explanatory variables that could distort the least square estimates.

4.1 Discussion of Findings

This study examined the impact of exchange rate volatility on economic growth, proxied by GDP per capita, in high-income African countries, including Seychelles, Mauritius, Gabon, Botswana, Libya, Equatorial Guinea, South Africa, Egypt, Algeria, Namibia, and Cabo Verde, using panel data analysis with EViews 13. The findings provide insightful evidence on the relationships between exchange rate volatility, exports, foreign direct investment (FDI), inflation, and economic growth within the high-income African countries. The results from the descriptive statistics revealed significant variations in GDP per capita, exchange rates, export performance, FDI inflows, and inflation across the countries studied. Particularly, GDP per capita and FDI exhibited high variability and positive skewness, highlighting the uneven distribution of income and investment flows within the region, which is consistent with the structural disparities observed in high-income African economies. The panel unit root tests indicated a mixed order of integration among the variables. Specifically, exchange rate volatility, export volume, and GDP per capita were integrated of order one [I(1)], while FDI and inflation were stationary at level [I(0)]. This mix of integration orders justified the application of cointegration-based estimators like FMOLS and panel regression techniques that are robust to such dynamics. The Hausman test result confirmed the appropriateness of the fixed effects model by rejecting the random effects alternative, implying that country-specific factors significantly influence economic performance and must be controlled for in the estimation. The Panel Least Squares regression indicated that exports and FDI have statistically significant and positive effects on GDP per capita. Export volume showed a highly significant influence ($p < 0.01$), underscoring the centrality of trade performance in driving growth among these economies. FDI also showed a strong positive relationship, affirming the long-established view that foreign capital inflows facilitate job creation, technological transfer, and infrastructure development, especially in resource-rich African states. However, exchange rate volatility, though negatively signed, was statistically insignificant ($p > 0.05$), suggesting that while currency fluctuations may introduce uncertainty, they do not exert a consistent or substantial impact on economic growth in these high-income

African countries within the period under study. Inflation was also found to be statistically insignificant, indicating that moderate inflationary pressures have not directly hindered per capita income levels in the long run. The Fully Modified Ordinary Least Squares (FMOLS) regression, which corrects for endogeneity and serial correlation, reaffirmed these findings. Both exports and FDI remained statistically significant and positively associated with economic growth, whereas exchange rate volatility and inflation continued to show insignificant relationships. This consistency across models strengthens the conclusion that trade and investment are primary long-term contributors to economic expansion in high-income African nations, while the direct effects of exchange rate instability appear less pronounced. The collinearity diagnostic test using Variance Inflation Factors (VIF) confirmed the absence of multicollinearity, as all VIF values were well below the threshold of 10. This reinforces the reliability of the model estimates, indicating that the explanatory variables independently contribute to the model without distorting each other's effects. The findings from this study align with previous research (such as Taderera and Mlambo, 2020; Yimer, 2023) emphasizing the importance of exports and FDI as catalysts for growth in developing and emerging economies. However, the insignificance of exchange rate volatility contradicts some earlier studies (e.g., Mohammed & Kimani, 2023), possibly reflecting the resilience or policy responses within high-income African countries that mitigate the adverse effects of currency fluctuations. Moreover, the non-significant influence of inflation may be attributed to relatively managed inflationary environments in the high-income African countries.

5.0 Conclusion

The findings consistently revealed that export volumes and FDI inflows are key positive determinants of economic growth in these countries, with statistically significant coefficients across all model specifications. This outcome aligns with theoretical expectations that foreign direct investments bring capital, technology, and employment opportunities, while strong export performance enhances foreign exchange earnings and supports industrial expansion. On the other hand, exchange rate volatility, though negatively signed, was not statistically significant, suggesting that while currency fluctuations are present, their direct influence on GDP per capita growth is limited in the context of these high-income African countries. Inflation similarly exhibited an insignificant relationship, implying that moderate price fluctuations have not significantly constrained growth performance over the period under study. However, while macroeconomic stability remains important, structural economic factors such as export competitiveness and foreign capital inflow are more decisive drivers of sustained economic growth in high-income African countries. Furthermore, the results emphasize the importance of policies that enhance productive capacity, trade expansion, and investment-friendly environments. Policymakers should implement strategies to diversify export products beyond primary commodities, invest in value-added production, and improve trade infrastructure. This would help reduce vulnerability to global commodity shocks and increase foreign exchange earnings.

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5.2 Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

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