



Doi: 10.53790/ajmss.v5i3.107

ISSN: 2811-1613

Submitted: August 2024; Revised: September 2024; Accepted: October, 2024

ARTICLE

Effect of Foreign Capital Inflow on Economic Growth in Sub-Saharan Africa

Salihu L. Mairafi^{1†}; Mohammed Ibrahim^{2†}; Zakariyau T. Abdullahi^{1†*}

¹ Department of Banking & Finance, Nasarawa State University, Keffi.

² Department of Finance, Ahmadu Bello University, Zaria.

[†] Authors contributed equally

* Corresponding Author: ztabdullahi@gmail.com

Disclaimer: The contents of this paper are authors' sole responsibility. They do not represent the view of the institution

Abstract

Foreign capital inflows have been judged to play a critical role in economic growth providing the necessary capital to fuel economic development. However, the effect of these capital inflows on economic growth in Sub-Saharan Africa (SSA) has been a subject of debate, with varying results across different studies. This study investigates the effect of foreign capital inflows on economic growth across 26 selected Sub-Saharan African (SSA) countries from 1998 to 2022. The study uses Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI), and Official Development Assistance (ODA) as proxies for foreign capital inflow, while real Gross Domestic Product (RGDP) is used to measure economic growth. Data was sourced from the World Bank Development Indicators (WDI), and the System Generalized Method of Moments (GMM) was employed for data analysis. The findings reveal that both FDI and FPI have a significant positive effect on economic growth in SSA at the 5% significance level. While ODA also shows a positive effect on economic growth, it is not statistically significant at the 5% level. The study concludes that Foreign Direct Investment and Foreign Portfolio Investment inflows enhance economic growth in SSA. The study recommends emphasizing local content in FDI to stimulate sustained economic growth, enhancing SSA's capital market to attract more FPI through competitive international coupon rates, and reviewing SSA's institutional framework for foreign aid utilization to address loopholes that may hinder short-term growth.

Keywords: Economic growth, foreign direct investment, foreign portfolio investment, official development assistance, SSA.

JEL: C58, F43, R42

Cite as: Mairafi, S. L., Ibrahim, M., Abdullahi, Z. T. (2024). Effect of foreign capital inflow on economic growth in Sub-Saharan Africa. *Applied Journal of Economics, Management, and Social Sciences*, 5(3), 45-57

1. Introduction

Sub-Saharan Africa (SSA) has long been suffering significant macroeconomic challenges, which have hindered its ability to achieve sustainable economic growth, development and improve the living standards of its population. One of the most pressing issues in the region is the volatile and sluggish economic growth that many SSA countries have experienced over the decades.

This slow economic growth pattern is often characterized by short periods of expansion followed by sharp contractions, which make it difficult for countries in the region to build momentum and achieve long-term development goals.

Several factors contribute to this challenge. One key issue contributing to this volatile and sluggish economic growth

is the reduced inflow and volatility of foreign capital inflows, such as Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI), and Official Development Assistance (ODA) (Lasbrey et al., 2018). Foreign capital inflow which is all the foreign capital flowing from abroad to a home country is necessary to finance capital project, investment and infrastructure necessary for economic growth (Koepke & Paetzold, 2024). While these inflows are crucial for financing development projects and supporting economic growth, their slow and unpredictable nature can increase economic instability in SSA. For instance, FDI and FPI are often driven by global economic conditions and investor sentiment, which can change rapidly, leading to sudden inflows or outflows of capital. When foreign investors withdraw their capital from SSA markets due to changes in investor confidence in the region, it can result in financial crises, depreciating currencies, and a tightening of credit conditions, all of which can severely impact economic growth (Kaczmarczyk & Flassbeck, 2023).

Furthermore, the dependence on ODA, which is often tied to the political and economic interests of donor countries, can lead to uncertainty and a lack of autonomy in domestic economic planning (Abdul et al., 2018). The volatility of these inflows makes it challenging for SSA countries to engage in long-term planning, as they cannot reliably predict the availability of foreign capital needed to support their development agendas (Blanchard et al., 2017). While several studies have examined the effect of foreign capital inflows on economic growth in Sub-Saharan Africa (SSA), the majority have focused narrowly on a single type of capital inflow, often overlooking the combined effects of different forms of foreign capital (Chaudhury et al., 2020; Jena & Sethi, 2021; Koepke & Paetzold, 2024; Pagliari & Hannan, 2024). This singular focus has been identified as a significant limitation in literature. For instance, Igan et al. (2020) argue that most existing studies on foreign capital inflows tend to emphasize Foreign Direct Investment (FDI) while neglecting the heterogeneous nature of foreign capital inflows. This point is further supported by Ustarz (2023), who suggests that focusing exclusively on one component of foreign capital creates a subsumed effect that can distort the true impact of foreign capital on SSA's economic growth.

Moreover, there is a significant divergence in the empirical findings regarding the effects of foreign capital inflows, both individually and in aggregate, with studies producing conflicting results. For instance, some studies, such as Nguyen et al. (2022), found that foreign capital inflows, particularly FDI, Official Development Assistance (ODA), and Foreign Portfolio Investment (FPI), have a significant positive impact on domestic economic growth. They

argue that these inflows enhance productivity, facilitate technology transfer, and foster innovation within host countries. Chorn and Siek (2017) similarly observed that FDI and ODA positively influence economic growth by increasing competitive pressures on domestic firms, prompting them to adopt more efficient practices and thus driving overall economic development. Adusah-Poku (2016) also supports this view, providing evidence that FDI, when coupled with ODA, can lead to improvements in infrastructure and human capital, thereby contributing positively to long-term economic growth in SSA.

Conversely, other studies have reported either negative or negligible effects of foreign capital inflows on economic growth. For example, Okoro et al. (2019), Chigbu et al. (2015), and Ustarz (2023), found that in certain contexts, particularly in economies with weak institutions and governance structures, FDI and ODA might exacerbate economic distortions. Ustarz (2023) specifically noted that such inflows could lead to increased inequality, corruption, and dependency on foreign aid. Similarly, Abdul et al. (2018) argued that the negative impacts of foreign capital inflows are often the result of resource misallocation, where these inflows are diverted into non-productive sectors rather than being used to stimulate sustainable growth.

The few studies that have attempted to analyze multiple forms of capital inflows often suffer from methodological inadequacies. These studies frequently fail to address critical issues such as endogeneity and heterogeneity (Jena & Sethi, 2021; Aziz, 2022; Gelos et al., 2022). This divergence in empirical findings underscores a critical gap in the existing literature, pointing to the need for a more comprehensive analysis of the effects of foreign capital inflows on economic growth in SSA. To this end, the present study examined the effect of foreign capital focusing FDI, FPI, and ODA on economic growth in SSA. The population of the study in this instance consists of all SSA countries while 26 SSA countries with complete data set were sampled in a panel framework.

The main objective of this study is to examine the effect of foreign capital inflows on economic growth in SSA countries. The specific objectives are to examine the effect of FDI, FPI and ODA on economic growth in Sub Saharan African countries.

2. Literature Review

2.1 Conceptual Review

Foreign capital inflow can be described as the inflow of foreign money into the home country for the purpose of

investment, economic development, and business operations (Ustarz (2023)).

When the issue of foreign capital is being discussed, there is always a kind of misconception as FDI is often misunderstood as encompassing all investments originating from foreign countries. Generally, foreign capital inflows depend on a variety of features of the host economy which include among others; its market size, level of education, institutional environment, tax laws, and overall macroeconomic and political environment (Aurangzeb & UI Haq, 2012).

United Nations Conference on Trade and Development [UNCTAD], (2007) defines Foreign Direct Investment (FDI) as a long-term relationship and reflects a lasting interest and control by a resident entity in one economy (the foreign direct investor or parent enterprise) in an enterprise resident in another economy (the FDI enterprise or affiliate enterprise). Key to this definition is the concept of significant influence and control by the foreign direct investor over the FDI enterprise, typically demonstrated by ownership of at least 10% of the equity or voting power.

This definition emphasizes several important aspects of FDI. Firstly, it underscores the notion of a long-term commitment, suggesting that FDI involves more than just financial investment but also entails strategic decision-making and operational control. Secondly, it highlights the role of foreign direct investors as a resident entity in one economy, indicating that FDI involves cross-border investments between countries. Lastly, it emphasizes the ownership stake of the foreign direct investor in the FDI enterprise as a distinguishing factor from portfolio investments. In general, FDI can be referred to as a cross-border investment by which a resident in one economy acquires a lasting interest and a significant influence in the management of an enterprise in another economy. Smith also brings attention to the international nature of such investments and their role in linking economies through direct business involvement, rather than mere financial contributions.

Foreign Portfolio investment (FPI) is another major foreign capital source driving economic growth as identified in literature (Yasin & Sari, 2022). International Monetary Fund [IMF] (2015) defines FPI as "purchase of financial assets such as stocks, bonds, and other securities in a foreign country, typically without the intention of controlling the entities in which the investment is made." This definition highlights the non-controlling intent of FPI, emphasizing that the investment does not seek to exert control over the entities where these assets are held. This type of investment is typically made for

diversification or yield enhancement rather than for operational influence.

Similarly, UNCTAD (2024) views FPI as "investments in financial assets, such as stocks and bonds, in a foreign country where the investor does not have a significant degree of control or influence over the management of the company." This definition adds that FPI is characterized by the investor's lack of significant control or influence over company management. This clarification serves to distinguish FPI from FDI, where such control or influence is a defining feature. The mention of both stocks and bonds indicates that FPI can involve a variety of security types, each typically aimed at financial gains rather than strategic business control. FPI in general, is the investments made by foreign investors in the equity and debt securities of a country, which allows them to gain exposure to the financial performance of that country without a controlling stake.

Official Development Assistance (ODA) refers to financial aid and assistance provided by governments or international organizations to developing countries to promote economic development and reduce poverty (Igan et al., 2020). Organization for Economic Co-operation and Development [OECD] (2023) defined Official Development Assistance (ODA) as "government aid that promotes and specifically targets the economic development and welfare of developing countries". This definition specifically notes that this assistance is not just any aid, but it's purposefully directed towards stimulating economic growth and improving welfare, which suggests a strategic alignment of aid with developmental objectives. This definition implicitly includes both the qualitative (welfare improvements, sustainable development) and quantitative (economic growth) targets of such aid, highlighting the role of government agencies in structuring and delivering this assistance.

2.2 Empirical Review

Oyegoke and Aras (2021) explore the impact of Foreign Direct Investment (FDI) on Nigeria's economic growth from 1970 to 2019, using secondary data and the Vector Error Correction Model (VECM) to estimate both short-run and long-run effects. Their findings reveal that FDI has a significant positive impact on Nigeria's economic growth in both the short and long term. This suggests that FDI serves as a critical factor in promoting economic development in Nigeria, helping to boost capital formation and infrastructure, and stimulating industrial expansion. Despite the positive results, the study failed to conduct key preliminary tests such as unit root tests or cointegration tests, which are essential for ensuring the

validity of the VECM approach. Without these tests, the stationarity of the time series data cannot be confirmed, raising concerns about the robustness of the results. Furthermore, the study could have been extended to include more countries for comparative analysis, and additional foreign capital variables such as foreign aid and remittances could have been included to separate the subsumed effects of other capital flows, thus offering a more comprehensive understanding of the influence of foreign capital on economic growth.

Baiashvili and Gattini (2020) examine the impact of FDI on economic growth across 111 countries from 1980 to 2015, using a panel Generalized Method of Moments (GMM) approach. Their findings reveal an inverted-U shaped relationship between income levels and the impact of FDI on economic growth. Specifically, FDI is found to have a more significant positive effect on growth in lower-income countries, but the marginal benefit decreases as countries become wealthier. Moreover, the study suggests that institutional quality plays a crucial role in determining how much benefit countries derive from FDI. While the study's use of GMM is suitable for addressing potential endogeneity issues, it focuses exclusively on FDI without incorporating other foreign capital inflows, such as portfolio investments or remittances. This omission weakens the findings, as the positive effects attributed to FDI could partially reflect the impact of other types of foreign capital. Furthermore, the study reports first-order autocorrelation, which may indicate issues with the model specification and could potentially lead to biased or inefficient estimates if not properly addressed.

Majumder and Rahman (2020) investigate the impact of FDI on China's economic growth post-economic reform, covering the period from 1982 to 2019. Using the Vector Error Correction Model (VECM), they find a positive relationship between FDI and China's GDP growth rate, both in the short and long run. The study also highlights that trade openness plays a complementary role in boosting the positive effects of FDI on China's economic growth. The cointegration analysis indicates that FDI and trade are strongly linked with long-term economic performance in China. Although the study presents robust findings, it limits its analysis by using only FDI as a measure of foreign capital inflows, potentially subsuming other foreign capital effects, such as those from foreign aid or remittances. Moreover, the authors fail to report the results of a serial autocorrelation test, which is critical in time-series analysis to ensure the reliability of the estimates. The omission of this diagnostic raises questions about the accuracy of the VECM model's results.

Opeyemi (2020) examines the relationship between FDI, inflation, and economic growth across five randomly selected African countries using panel data from 1996 to 2018, obtained from the IMF. The study employs a Panel OLS regression and finds that FDI has a positive correlation with economic growth in four out of the five countries, with Egypt being the exception. The findings suggest that FDI can boost growth by enhancing capital accumulation, promoting technological transfer, and improving productivity in African economies. However, the impact of inflation is found to vary across the selected countries. The use of Panel OLS without adequate preliminary testing is a significant limitation. The author does not conduct unit root tests to check for the stationarity of the data or Hausman tests to determine whether fixed or random effects models would be more appropriate. This omission may lead to model misspecification, reducing the reliability of the results. Furthermore, the study would have benefited from exploring alternative methods like dynamic panel models (e.g., GMM) that are better suited to dealing with potential endogeneity issues in the data.

Ehiedu et al. (2023) examine the relationship between foreign portfolio investment inflows (FPIs) and economic growth in Nigeria from 1981 to 2021 using an Auto-Regressive Distributed Lag (ARDL) model. The study considers different forms of FPI—Equity Foreign Portfolio Investment (EFPI), Bond Foreign Portfolio Investment (BFPI), and Money Market Instrument Foreign Portfolio Investment (MMIFPI)—alongside macroeconomic variables like exchange rate (EXCHR), trade openness (TROP), and interest rate (INTR). The results indicate that EFPI, BFPI, MMIFPI, EXCHR, and TROP have insignificant effects on Nigeria's Real Gross Domestic Product (RGDP) in both the short and long run. However, INTR significantly impacts RGDP in the short run but not in the long run, highlighting the importance of short-term interest rate movements in Nigeria's economic performance. The study fails to address multicollinearity concerns, which could distort the relationships among the independent variables and affect the accuracy of the results. Additionally, the study's use of a single-country analysis raises concerns about the generalizability of its conclusions, as conditions unique to Nigeria may not apply to other countries with different economic structures. Expanding the study to include other countries or regions would provide more robust, generalizable conclusions.

Ezirim et al. (2022) investigate the determinants of foreign portfolio investments (FPI) in Nigeria from 1986 to 2019, utilizing an ARDL model to examine the long-run and short-run relationships between FPI and various

macroeconomic variables such as exchange rate (EXR), inflation (INF), interest rate (INT), real GDP growth, and tax rate (TXR). The results show that exchange rate has a negative effect on FPI in both the short and long run, while inflation and tax rates have positive effects on FPI inflows. The study concludes that macroeconomic stability and favorable tax policies are essential for sustaining foreign portfolio investments in Nigeria. The insignificant effects observed across multiple variables suggest potential issues with model specification or insufficient data variability, as the relationships between key economic indicators and FPI may not have been adequately captured. Moreover, the study suffers from subsumed effects, as the impact of other forms of foreign capital flows (such as foreign direct investment) are not disentangled from FPI, leading to generalization bias.

Adofu and Adegioriola (2020) analyze the relationship between foreign portfolio investment (FPI) and economic growth in Nigeria from 1986 to 2018 using the ARDL model. The study finds that both current and lagged values of FPI have negative and insignificant impacts on Nigeria's GDP. Furthermore, the study identifies a unidirectional causality running from GDP to FPI, implying that economic growth influences FPI inflows rather than the other way around. The use of the ARDL model effectively distinguishes between short-term shocks and long-term equilibrium relationships, providing valuable insights into the dynamics of FPI and growth. The study is limited by data measurement errors and model specification bias, as evidenced by the conflicting results at different lag levels for short-term and long-term relationships. The authors could improve the robustness of their findings by incorporating more foreign capital variables, such as foreign direct investment or remittances, which would provide a more comprehensive view of foreign capital inflows. Additionally, addressing potential issues with data accuracy would enhance the reliability of the results.

Adewunmi (2019) explores the relationship between Foreign Portfolio Investment (FPI) and economic growth in Nigeria from 1988 to 2017 using Ordinary Least Squares (OLS) regression. The study finds that FPI and inflation rates do not have a significant impact on Nigeria's economic growth, while the exchange rate positively and significantly influences GDP growth. The findings highlight the importance of a stable exchange rate in attracting foreign portfolio investments and promoting economic growth in Nigeria. The study emphasizes that favorable trade policies and investment conditions are critical for maintaining steady FPI inflows. The reliance on OLS regression without addressing potential issues such as endogeneity and autocorrelation may limit the

robustness of the findings. OLS is not well-suited for time-series data, where variables may be non-stationary or exhibit long-term relationships that require more sophisticated econometric techniques such as cointegration or error correction models. The study's conclusions would be more credible if these issues were accounted for, ensuring that the results accurately reflect the dynamics between FPI and economic growth.

Rao et al. (2023) investigates the relationships among foreign aid, foreign direct investment (FDI), and economic growth in South-East Asia (SEA) and South Asia (SA) over the period from 1980 to 2016. Utilizing a panel fixed-effect model, the study finds that foreign aid negatively impacts both FDI and economic growth in the region. However, the analysis also shows that GDP growth is a significant determinant of FDI, but this relationship is only robust when the entire SEA and SA region is considered. The results underscore the importance of trade integration in these regions for attracting capital flows and benefiting from FDI, suggesting that stronger trade policies and regional economic integration are necessary to enhance growth. The study might suffer from omitted variable bias, as it does not include other potentially influential macroeconomic factors such as institutional quality, governance, or political stability, which could interact with foreign aid and FDI to affect economic growth. By not considering these additional variables, the study may have oversimplified the causal relationships between foreign aid and growth, potentially leading to incomplete or inaccurate conclusions.

Martorano et al. (2020) analyze the impact of Chinese development assistance on household welfare outcomes in Sub-Saharan Africa, particularly focusing on education, child health, and nutrition. Using a combination of Chinese development project data and Demographic and Health Surveys, the study employs difference-in-differences estimations and matching techniques to assess the effects. The findings reveal that Chinese aid projects lead to improvements in education and a reduction in child mortality in the targeted areas. However, no significant effect is observed on child nutrition, indicating that the benefits of aid may vary across different social development outcomes. Although the study uses difference-in-differences and matching techniques, these methods may not fully account for unobserved heterogeneity, which could influence the observed outcomes. For instance, differences in regional infrastructure, access to healthcare, or local governance could bias the results, potentially overstating the positive impact of Chinese aid on education and health outcomes while underestimating its limitations in addressing child nutrition.

Jena and Sethi (2020) empirically assess the effectiveness of foreign aid on economic growth in Sub-Saharan Africa (SSA) from 1993 to 2017. Using a sample of 45 countries, they employ advanced econometric tools such as Pedroni and Kao's cointegration tests, Johansen-Fisher panel cointegration tests, FMOLS, and PDOLS to examine both short-run and long-run dynamics between foreign aid, economic growth, investment, financial deepening, price stability, and trade openness. The findings indicate that foreign aid has a positive impact on economic growth in the long run, particularly when supported by factors such as financial development and stable macroeconomic conditions. The study could be improved by incorporating additional foreign capital variables, such as remittances or foreign direct investment, to capture the broader spectrum of external financial flows. The exclusion of these variables potentially leads to estimation bias, as the positive effects of foreign aid could be confounded by the influence of other types of foreign capital, which are not accounted for in the model.

Adebayo and Kalmaz (2020) explore the relationship between economic growth, foreign aid, trade openness, gross fixed capital formation (GFCF), and inflation in Nigeria from 1980 to 2018. Using wavelet analysis on time series data, the study confirms the existence of a long-run relationship among these variables. The results suggest that while foreign aid negatively impacts economic growth, GFCF has a positive effect. Interestingly, trade openness and inflation do not have significant impacts on economic growth, contrary to what is generally expected. The study suggests that foreign aid is not a reliable driver of growth, while capital formation remains a key positive factor. The study's analysis of sectoral aid and economic growth, while insightful, oversimplifies the complex interactions between different types of foreign aid and growth. By focusing on broad categories of aid, the study may have ignored sector-specific dynamics, such as how health-related aid might affect different aspects of the economy compared to infrastructure aid. Additionally, the use of wavelet analysis, while novel, may not fully capture the nuanced, long-term structural relationships between these variables.

2.3 Theoretical Framework

Solow-Swan Exogenous Growth theory

The Solow-Swan exogenous growth model, introduced in 1956 by Robert Solow and Trevor Swan, provides a fundamental framework for analyzing the effect of foreign capital inflows on economic growth.

The model argued that long-term economic growth is driven by capital accumulation, labor growth, and technological progress, with technology considered exogenous. Foreign capital inflows can affect economic growth by increasing the capital stock, thereby enhancing output in the short run. However, due to diminishing returns to capital, the long-term impact of capital inflows on growth is limited unless accompanied by technological progress (**Solow, 1956**).

This model underscores the importance of sustained technological innovation to maintain growth momentum, suggesting that while foreign capital can boost economic activity, its effect may plateau without improvements in productivity. As such, in the context of developing countries, the Solow-Swan model suggests that foreign capital must be complemented with efforts to enhance technology and human capital to achieve sustainable economic growth.

Joseph and Obikaonu (2021), argued that the exogenous growth theory suggests that foreign capital inflows, particularly through (FDI) and (FPI), can complement domestic capital, thereby driving innovation and infrastructural development essential for sustainable growth. **Mlambo (2022)** further emphasizes that foreign capital inflows via FDI are crucial for building the necessary technology through spillover effects, aligning with the Solow-Swan theory, which identifies technological progress as the primary driver of long-term economic growth.

3. Methodology

This study adopts *ex post facto* research design. The independent variables are foreign direct investment, foreign portfolio investment and foreign aid, while the dependent variable is economic growth proxied with GDP. It employs annual secondary data which was sourced from the World Bank Development Indicator database between 1998 and 2023 for 26 countries. The General Method of Moment was employed to estimate the relationship given that it addresses potential endogeneity and heterogeneity issues in the model. The basic model is as stated in equation (1):

$$RGDP_{it} = \alpha + \phi RGDP_{it-1} + \beta_1 FDI_{it} + \beta_2 FPI_{it} + \beta_3 ODA_{it} + \lambda_i + \mu_{it} \dots \dots \dots (1)$$

where; y_{it} = Real GDP and α is the interception, ϕ = the coefficient of the lagged Real GDP. $[X]_{i,t}$ = the vector of exogenous variables (FDI, FPI, and ODA).

Equation (1) can be remodeled to capture more efficient moment conditions as given in equation (2 & 3).

$$E[RGDP_{i,t-j}(\mu_{i,t} - \mu_{i,t-1})] = 0; \text{ if } t = 4, \dots, T, j \geq 3 \dots \dots \dots (2)$$

$$E[FDI, FPI, ODA_{i,t-j}(\mu_{i,t} - \mu_{i,t-1})] = 0; \text{ if } t = 4, \dots, T, j \geq 3, \dots \dots (3)$$

Where

RGDP = Real Gross Domestic Product

FDI = Foreign Direct Investment

FPI = Foreign Portfolio Investment

ODA = Official Development Assistance

t = Periods covered by the study

α = Intercept of the regression,

μ_{it} = Residuals

λ_i = individual country-specific effects in the panel,

β_{1-3} , = coefficients of the independent variables.

4. Results and Discussion

This section will present and discuss the result from the findings. The section starts with presentation and discussion of the results focusing first on the preliminary test and gradually moving to the actual estimated result.

Table 1: Descriptive Statistics

Variables	Mean	Std. Dev	Min	Max	Skewness	Kurtosis	Prob.
rgdp	47800000.0	90800000	697000.0	551000000.0	0.271	3.618	0.180
fdi	920000.0	2290000.0	-7400000	40700000.0	-0.823	4.078	0.420
fpi	-250000.0	3550000.0	-19600000	54700000.0	-0.173	2.996	0.200
oda	658000.0	717000.0	-17200.0	11000000.0	-0.720	3.328	0.085

Source: Stata output

Table 1 presents the descriptive statistics result. The result revealed a significant variation across all variables, particularly in FDI and FPI, both of which show high volatility and periods of disinvestment. The relatively normal distributions of RGDP and FPI are suggested by their skewness and kurtosis values, though FDI and ODA exhibit heavier tails, indicating the presence of extreme values. While ODA and RGDP have moderate variability, the data overall shows reasonable consistency with normality, as reflected in the probability values. Specifically, the mean RGDP is \$47.8 million, indicating the average output during the observed period. A standard deviation of \$90.8 million reveals significant variability in RGDP, highlighting fluctuations in SSA economic size. The minimum value is \$697,000, while the maximum value reaches \$551 million, showing the wide range between the smallest and largest economic outputs recorded. The skewness of 0.271 suggests the data distribution is nearly symmetrical, while the kurtosis of 3.618 indicates slightly heavier tails than a normal distribution.

Similarly, the mean FDI inflow is \$920,000, indicating modest foreign direct investments on average. The standard deviation of \$2.29 million shows substantial volatility in FDI inflows, with periods of significant variation. The minimum value is -\$7.4 million, signaling that some periods saw net disinvestment or capital outflows, while the maximum inflow recorded was \$40.7 million. The mean FPI value is -\$250,000, indicating an average net outflow of portfolio investments over the period. The standard deviation of \$3.55 million reflects high volatility in FPI, with notable fluctuations in inflows

and outflows. The minimum FPI is -\$19.6 million, and the maximum is \$54.7 million, showing the wide variability in portfolio investment movements. The mean ODA is \$658,000, reflecting moderate levels of official development assistance during the period. A standard deviation of \$717,000 suggests a moderate level of fluctuation in the amount of aid received. The minimum value is -\$17,200, indicating potential periods of net repayments, while the maximum inflow is \$11 million. The negative skewness of -0.720 suggests the distribution is skewed towards lower values of ODA, with more frequent smaller aid inflows.

Multicollinearity Test

Table 2: Multicollinearity test using the Variance Inflation (VIF)

Variables	VIF	1/VIF
Lfdi	1.83	0.446
Lfpi	1.23	0.815
Loda	1.67	0.599
Mean VIF	1.62	

Source: Stata output

The multicollinearity test results, as indicated by the Variance Inflation Factor (VIF), suggest that multicollinearity is not a significant issue in this model. All the VIF values are well below the common threshold of 10, with the highest VIF being 1.83 for Lfdi. The mean VIF of 1.62 further confirms that multicollinearity is low, indicating that the independent variables (Lfdi, Lfpi, and Loda) are not highly correlated with each other and can be reliably used in the regression analysis.

The correlation matrix in Table 3 further validates the absence of multicollinearity in the model. The highest correlation between the independent variables is 0.362 (between Lfdi and Loda), which is moderate and does not

suggest a high degree of multicollinearity. Additionally, the negative and near-zero correlation between Lfpi and Loda (-0.031) indicates little to no linear relationship between these two variables.

Table 3: Correlation Matrix

	Lrgdp	Lfdi	Lfpi	Loda
Lrgdp	1			
Lfdi	0.611***	1		
Lfpi	0.400**	0.325***	1	
Loda	0.511**	0.362***	-0.031**	1

Note: Significance is indicated as follows: ***, ** and * for 1%, 5% and 10% respectively.

Source: Stata output 2024

Table 4: Panel Unit Root test Using IPS and Fisher Approach/ AIC Criteria

Variables	IPS @ Level	IPS @ 1 st Difference	Fisher @ Level	Fisher @ First Difference
	Statistics/P-value	Statistics/P-value	Statistic/P-value	Statistics/ P-value
LRGDP	-6.968(0.000)***	-9.252 (0.000)***	-5.452 (0.000)***	-8.833 (0.000)***
LFDI	-2.457 (0.062)*	-8.320 (0.000)***	-3.892 (0.042)**	-7.682 (0.000)***
LFPI	-1.211 (0.243)	-8.452 (0.000)***	-1.302 (0.189)	-8.131 (0.000)***
LODA	-2.467 (0.052)*	-10.282 (0.000)***	-0.342 (0.371)*	-9.623 (0.000)***

Notes: The P-value is enclosed in the parentheses. All variables are logged, and significance is indicated as follows: ***, ** and * for 1%, 5%, and 10%, respectively.

Source: Stata output 2024

Table 5: Kao and Pedroni Cointegration Test

Kao-cointegration	z-test (p-value)
Modified Dickey-Fuller t	-4.259 (0.000)
Dickey-Fuller t	-2.185 (0.041)
Augmented Dickey-Fuller	-1.780 (0.094)
Unadjusted Modified Dickey-Fuller t	-4.015 (0.000)
Unadjusted Dickey-Fuller t	-2.847 (0.006)
Pedroni Cointegration	
Modified Phillips-Perron t	7.284 (0.000)
Phillips-Perron t	-2.632 (0.018)
Augmented Dickey-Fuller t	-4.041 (0.012)

Source: Stata output 2024

The panel unit root test results, using both the IPS (Im, Pesaran, and Shin) and Fisher approaches, indicate that all variables exhibit stationarity after differencing. At the level, some variables, such as LRGDP, are already stationary, as indicated by the significant p-values (e.g., -6.968 with a p-value of 0.000 for LRGDP in the IPS test). However, other variables like LFPI and LODA are not

stationary at the level (e.g., LFPI has a p-value of 0.243 in the IPS test), suggesting the presence of unit roots.

After taking the first difference, all variables become stationary, as evidenced by highly significant p-values (e.g., -9.252 with a p-value of 0.000 for LRGDP in the IPS test and -8.833 with a p-value of 0.000 in the Fisher test). This result confirms that the variables are integrated of

order one, $I(1)$, meaning they become stationary only after differencing, which is a common prerequisite for further time-series analysis, such as cointegration tests or regression models.

The cointegration test results, using both the Kao and Pedroni approaches, provide strong evidence of a long-term equilibrium relationship among the variables. The

significant p-values across the various tests (e.g., Modified Dickey-Fuller t-test with a p-value of 0.000 in both Kao and Pedroni tests) indicate that the null hypothesis of no cointegration can be rejected. This suggests that despite being non-stationary at their levels, the variables are cointegrated, meaning they move together over time, maintaining a stable long-term relationship.

Table 6: Estimated models OLS, Fixed Effect, and System GMM

Variables	1 (OLS)	2 (Fixed Effect)	3 (Difference GMM)	4 (System GMM)
I_rgdp	0.677*** (0.000)	0.641*** (0.000)	0.622** (0.000)	0.609*** (0.000)
$lfdi$	0.180*** (0.000)	0.068*** (0.000)	0.241** (0.031)	0.091*** (0.001)
$lfpi$	0.049*** (0.007)	0.056*** (0.000)	0.083** (0.032)	0.143** (0.014)
$loda$	0.257*** (0.000)	0.052** (0.014)	0.203** (0.025)	0.012** (0.036)
$_cons$	13.81*** (0.000)	20.06* (0.000)	13.01*** (0.000)	-0.124.7* (0.061)
Observation	228	228	228	228
F* (P-value)	(0.000)***	(0.000)	(0.000)	(0.000)
AR (1)			0.611	0.138
AR (2)			0.298	0.556
Sargan test			0.283	0.224
Hansen test			0.188	0.427

P-value in parentheses, $p < 0.10 = *$, $p < 0.05 = **$, $p < 0.01 = ***$

Source: Stata output 2024

Table 6 presents the results of an analysis of the effect of foreign capital inflows on economic growth in Sub-Saharan Africa (SSA), with real GDP (RGDP) as the dependent variable. The independent variables include foreign direct investment (FDI), foreign portfolio investment (FPI), and official development assistance (ODA). The results are reported across four different models: Ordinary Least Squares (OLS), Fixed Effects, Difference GMM, and System GMM. While the OLS (column 1), Fixed Effects (column 2), and Difference GMM (column 3), models provide useful benchmarks, the focus of the discussion is on the System GMM results (Column 4), which are particularly important due to their ability to address endogeneity and control for unobserved heterogeneity.

The coefficient of the lagged dependent variable (I_rgdp) is 60.9% and is statistically significant at the 5% level (p-value = 0.000). This positive and significant coefficient suggests that past economic performance (real GDP) has a strong and persistent influence on current economic growth in SSA. This finding is consistent with the economic theory that past growth can generate momentum for future growth, indicating a strong path

dependency in the economic performance of SSA countries.

The coefficient of FDI ($lfdi$) is 0.091 and statistically significant at the 5% level (p-value = 0.001). Since the variable is logged, this implies that a 1 percent increase in FDI leads to a 9.1% increase in economic growth in Sub-Saharan Africa (SSA). This positive relationship reflects the role of FDI in fostering economic growth through mechanisms such as technology transfer, job creation, and infrastructure development. The significance of FDI in the System GMM model indicates that it is a key driver of growth, though the effect size is modest compared to other models such as OLS and Fixed Effects. This result highlights the importance of addressing potential endogeneity when analyzing the impact of FDI.

The coefficient for FPI ($lfpi$) is 0.143 and statistically significant at the 5% level (p-value = 0.014). This means that a 1 percent increase in FPI leads to a 14.3% increase in economic growth. The result shows that FPI has a stronger immediate impact on economic growth compared to FDI, possibly due to the liquidity and

flexibility associated with financial investments in stocks and bonds. However, while FPI can drive growth in the short term, its volatility introduces risks that policymakers must carefully manage to ensure sustainable economic development.

The coefficient for ODA (loda) is 0.012 and statistically significant at the 5% level (p -value = 0.036). This suggests that a 1 percent increase in ODA leads to a 1.2 percent increase in economic growth in Sub-Saharan Africa (SSA). Although this effect is positive and statistically significant, the elasticity is relatively small, indicating that ODA has a weaker impact on economic growth compared to FDI and FPI. This modest elasticity may reflect the common challenges associated with official development assistance, such as dependency, inefficiencies, and governance issues, which can limit its effectiveness as a tool for driving sustainable growth. Despite its significance, ODA's smaller impact suggests that while it can support economic development, it may not be as effective as private capital inflows like FDI and FPI in fostering long-term economic growth.

Benchmark Results – sensitivity analysis (Columns 1, 2, 3)

OLS (Column 1): The OLS model shows significant positive coefficients for all variables, with FDI, FPI, and ODA all contributing to economic growth. However, OLS does not control endogeneity, which could bias these estimates. Fixed Effects (Column 2): The Fixed Effects model controls time-invariant unobserved heterogeneity across countries. The results show that FDI and FPI remain positive and significant, but the coefficient for ODA is smaller and less significant, indicating that controlling for country-specific effects reduces the perceived impact of ODA. Difference GMM (Column 3): The Difference GMM results also show positive and significant impacts of FDI, FPI, and ODA on economic growth, though the coefficients are slightly different from the System GMM model. The significance of the AR(1) and AR(2) tests, along with the Sargan and Hansen tests, provides some assurance of the validity of the instruments used in the GMM models.

Diagnostic Tests:

Autocorrelation (AR(1) and AR(2)): The AR(1) test for the System GMM model is significant (p -value = 0.038), indicating first-order autocorrelation, which is expected in dynamic panels. The AR(2) test is not significant (p -value = 0.556), suggesting that there is no second-order autocorrelation, which supports the model's validity.

Sargan and Hansen Tests: The Sargan and Hansen tests of overidentifying restrictions have p -values of 0.224 and 0.427, respectively, in the System GMM model.

The findings of this study align with existing empirical literature on the positive impact of foreign capital inflows on economic growth in Sub-Saharan Africa (SSA). Like the results of [Chaudhury, et al., \(2020\)](#), [Nguyen \(2022\)](#), and [Baiaashvili and Gattini \(2020\)](#) who identified a significant positive relationship between FDI and economic growth in South Asia.

5. Conclusion and Recommendations

The study concludes that foreign capital inflows, specifically Foreign Direct Investment (FDI) and Foreign Portfolio Investment (FPI), play major roles in driving economic growth in Sub-Saharan Africa (SSA). FDI has a significant positive effect on economic growth, largely through its capacity to facilitate technology transfer, improve infrastructure, and create jobs. This inflow of capital enhances productivity, making FDI a cornerstone of sustainable economic development in the region. FDI's long-term benefits are especially critical in sectors that require substantial capital and technological advancements, and its impact underscores the need for policies that foster an attractive investment climate, particularly through transparency and institutional stability.

Similarly, FPI contributes significantly to economic growth in SSA, with its flexibility and liquidity providing a boost to short-term economic performance. The ease of trading in financial assets such as stocks and bonds mean that FPI can respond rapidly to market conditions, driving immediate growth. However, the reliance on FPI also introduces volatility, as the quick withdrawal of investments can destabilize markets. This makes it imperative for policymakers to balance the inflow of FPI with measures that mitigate its potential risks.

While Official Development Assistance (ODA) positively contributes to economic growth in SSA, its effect is notably weaker than that of FDI and FPI. ODA's smaller impact can be attributed to several factors, including dependency on aid, inefficiencies in allocation, and governance issues that impede its effectiveness. Although ODA provides critical support for development projects, its long-term influence on economic growth is limited, suggesting that reforms are needed to ensure aid is utilized more efficiently. Improving governance and reducing reliance on aid are necessary steps for SSA

countries to maximize the potential benefits of ODA in driving growth.

Considering these findings, the study recommends that SSA countries prioritize creating an enabling environment that attracts and retains foreign capital. This includes implementing policies that enhance transparency, regulatory stability, and investor confidence, which are essential for fostering long-term FDI. For FDI to have a deeper and more sustainable impact, local content policies should be emphasized to ensure that foreign investments generate tangible benefits for the local economy, such as skills development and job creation. Regarding FPI, it is crucial to implement safeguards that

address its inherent volatility, ensuring that the financial benefits of portfolio investments do not lead to economic instability.

Additionally, the study calls for a thorough review of the institutional frameworks that govern the allocation and use of ODA. This review should focus on identifying inefficiencies and governance challenges that hinder the effective utilization of aid. By addressing these issues, SSA countries can enhance the effectiveness of ODA in promoting economic development, ensuring that it complements other sources of foreign capital in driving sustainable growth.

Reference

- Abdul, Z.H., Adamu, A., & Ogwuche, I.P. (2018). Effect of Foreign Aid on Economic Development in Nigeria. *AE-Funai Journal of Accounting Business and Finance (FJABAF)* 3(1) 15 – 29., Available at SSRN: <https://ssrn.com/abstract=3596145>
- Adebayo, T. S., & Beton Kalmaz, D. (2020). Ongoing debate between foreign aid and economic growth in Nigeria: a wavelet analysis. *Social Science Quarterly*, 101(5), 2032-2051. DOI: <https://doi.org/10.1111/ssqu.12859>
- Adewunmi, K. (2019). Foreign portfolio investment and Nigerian economic growth. *Journal of Management Technology (Journatech), Federal Polytechnic Ilaro. School of Management Studies*, 5(1), 141-156. <http://doi.org/eprints.federalpolyilaro.edu.ng/id/eprint/1143>
- Adofu, I., & Adegioriola, A. E. (2020). Foreign portfolio investment and economic growth in Nigeria (1986-2018). *Nigerian Defence Academy Journal of Economics and Finance*, 4(1), 195-202. <https://doi:d1wqtxts1xzle7.cloudfront.net/65299978>
- Adusah-Poku, F. (2016). The impact of foreign capital inflows on economic growth in Sub-Saharan Africa: Evidence from panel data analysis. *African Development Review*, 28(3), 223-237. DOI: <https://doi.org/10.1111/1467-8268.12201>
- Anvarovich, N. E. (2023). Economic Growth and Increasing Investment Attractiveness of the Region. *Central Asian Journal of Innovations on Tourism Management and Finance*, 4(11), 1-7.
- Aurangzeb, & Ul-Haq, A. (2012). Impact of foreign capital inflows on economic growth in Pakistan. *European Journal of Economics, Finance and Administrative Sciences*, 46
- Aziz, O. G. (2022). FDI inflows and economic growth in Arab region: The institutional quality channel. *International Journal of Finance & Economics*, 27(1), 1009-1024. DOI: <https://doi.org/10.1002/ijfe.2163>
- Baiashvili, T., & Gattini, L. (2020). *EIB Working Papers 2020/02-Impact of FDI on economic growth: The role of country income levels and institutional strength (Volume 2020/2)*. European Investment Bank. DOI: <https://doi.org/10.2867/674654>
- Banco, S. (2003) Definitions of Foreign Direct Investment (FDI): A methodological note. <https://www.bis.org/publ/cqfs22bde3.pdf>
- Blanchard, O., Ostry, J. D., Ghosh, A. R., & Chamon, M. (2017). Are capital inflows expansionary or contractionary? Theory, policy implications, and some evidence. *IMF Economic Review*, 65, 563-585.
- Boateng, E., Agbola, F. W., & Mahmood, A. (2021). Foreign aid volatility and economic growth in Sub-Saharan Africa: Does institutional quality matter? *Economic modelling*, 96, 111-127. <https://doi.org/10.1016/j.econmod.2020.12.004>
- Chaudhury, S., Nanda, N., & Tyagi, B. (2020). Impact of FDI on economic growth in South Asia: does nature of FDI matters?. *Review of Market Integration*, 12(1-2), 51-69. <https://doi.org/10.1177/0974929219878248>
- Chigbu, E. E., Ezeji, F. N., & Promise, U. (2015). Capital inflows and economic growth in Nigeria, Ghana, and India: A comparative analysis. *Journal of Economics and Sustainable Development*, 6(17), 76-88.
- Chorn, H., & Siek, M. (2017). The impact of foreign capital inflows on economic growth: Evidence from 77 developing countries (1997-2012). *Journal of*

- Development Economics, 124, 111-129. <https://doi.org/10.1016/j.jdeveco.2016.09.002>
- Ehiedu, V. C., Onuorah, A. C. C., & Owonye, B. (2023). Foreign portfolio investment inflows (fpiis) and Nigerian economic growth. *Journal of University of Shanghai for Science and Technology*, 25(03), 14-35.
- Ezirim, C. B., Ezirim, U. I., Ogungbure, A., & Chekwa, C. (2022). Autoregressive Distributed Lag (ARDL) Analysis of Foreign Portfolio Investments Determination in Nigeria. *Journal of Applied Business and Economics*, 24(4). Retrieved from <https://articlearchives.co/index.php/JABE/article/view/5243>
- Gelos, G., Gornicka, L., Koepke, R., Sahay, R., & Sgherri, S. (2022). Capital flows at risk: Taming the ebbs and flows. *Journal of International Economics*, 134, 103555. DOI: <https://doi.org/10.1016/j.jinteco.2022.103555>
- Igan, D., Kutan, A. M., & Mirzaei, A. (2020). The real effects of capital inflows in emerging markets. *Journal of Banking & Finance*, 119, 105933. DOI: <https://doi.org/10.1016/j.jbankfin.2020.105933>
- International Monetary Fund. (2015), Foreign direct investment. Retrieved from <https://www.imf.org/external/region/tlm/rr/pdf/Jan10.pdf>
- Jena, N. R., & Sethi, N. (2021). Foreign capital and growth nexus revisited: empirical evidence from South Asian countries. *Transnational Corporations Review*, 13(3), 269-292.
- Joseph, T., & Obikaonu, P. (2021). Economic growth and quality adjusted human capital equation: Moderating role of social capabilities in Africa. *Applied Journal of Economics, Management and Social Sciences*, 2(2), 1-9. DOI: <https://doi.org/10.53790/ajmss.v2i2.19>
- Kaczmarczyk, P., & Flassbeck, H. (2023). Foreign direct investments and the dynamics of trade and capital flows: Schumpeterian insights for sustained development. *Global Policy*, 14(3), 477-488. DOI: <https://doi.org/10.1111/1758-5899.13209>
- Koepke, R., & Paetzold, S. (2024). Capital flow data—A guide for empirical analysis and real-time tracking. *International Journal of Finance & Economics*, 29(1), 311-331.
- Kumar, S. (2022). Foreign Portfolio Investment and Its Impact on Emerging Markets. *Global Finance Journal*. <https://doi.org/10.1177/09721509221090341>
- Lasbrey, A., Enyoghasim, M., Tobechi, A., Uwajumogu, N., Chukwu, B., & Kennedy, O. (2018). Foreign direct investment and economic growth: Literature from 1980 to 2018. *International Journal of Economics and Financial Issues*, 8(5), 309-318.
- Leal Filho, W., Azul, A. M., Brandli, L., Lange Salvia, A., & Wall, T. (Eds.). (2021). *Decent work and economic growth*. Cham: Springer International Publishing.
- Majumder, S. C., & Rahman, M. H. (2020). Impact of foreign direct investment on economic growth of China after economic reform. *Journal of Entrepreneurship, Business and Economics*, 8(2), 120-153.
- Martorano, B., Metzger, L., & Sanfilippo, M. (2020). Chinese development assistance and household welfare in sub-Saharan Africa. *World Development*, 129, 104909. <https://doi.org/10.1016/j.worlddev.2020.104909>.
- Mlambo, C. (2022). The impact of international portfolio investment on economic growth: the case of selected African states. *Research in Business & Social Science*, 11(10), 151-159. <https://doi.org/10.20525/ijrbs.v11i10.2240>
- Nguyen, C. H. (2020). The impact of foreign direct investment, aid and exports on economic growth in Vietnam. *The Journal of Asian Finance, Economics and Business*, 7(10), 581-589.
- Nguyen, L. T. H. (2022). Impacts of foreign direct investment on economic growth in Vietnam. *Journal of Economic and Banking Studies*, 4, 01-15. DOI: <https://doi.org/10.13106/jafeb.2020.vol7.no10.581>
- Organization for Economic Co-operation and Development, (2023). The impact of official development assistance on foreign direct investment. *Frontiers in Political Science*. <https://www.frontiersin.org/journals/political-science/articles/10.3389/fpos.2024.1351285/full>
- Okoro, A. S., Nzotta, S. M., & Alajekwu, U. B. (2019). The effect of international capital inflows on Nigeria's economic growth: Evidence from 1986 to 2016. *Journal of Economics and International Finance*, 11(3), 45-56. DOI: 10.51386/25815946/ijms-v2i1p102
- Oyegoke, E. O., & Aras, O. N. (2021). Impact of foreign direct investment on economic growth in Nigeria. *Journal of Management, Economics, and Industrial Organization*, 5(1), 31-38. <https://doi.org/10.31039/jomeino.2021.5.1.2>
- Pagliari, M. S., & Hannan, S. A. (2024). The volatility of capital flows in emerging markets: Measures and determinants. *Journal of International*

- Money and Finance*, 103095. DOI: <https://doi.org/10.1016/j.jimonfin.2024.103095>
- Rao, D. T., Sethi, N., Dash, D. P., & Bhujabal, P. (2023). Foreign aid, FDI and economic growth in South-East Asia and South Asia. *Global Business Review*, 24(1), 31-47. DOI: <https://doi.org/10.1177/0972150920948605>
- Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. *Quarterly Journal of Economics*, 70(1), 65-94.
- Timilsina, G. R., Hochman, G., & Song, Z. (2020). Infrastructure, economic growth, and poverty: A review. *World Bank Policy Research Working Paper*, (9258). <https://hdl.handle.net/10986/33821>
- United Nations Conference on Trade and Development, (2007). Definitions and Sources. http://unctad.org/en/Docs/wir2007p4_en.pdf
- United Nations Conference on Trade and Development, (2024). The Catalytic Impact of IMF Lending on Official Development Assistance. IMF Working Paper. <https://www.imf.org/-/media/Files/Publications/WP/2024/English/wpi-ea2024134-print-pdf.ashx>
- Ustarz, Y. (2023). On the nexus of foreign capital inflow, volatility, financial development and economic growth in Sub-Saharan Africa: A sectoral approach. *Ghana Journal of Development Studies*, 20(1), 20. DOI:10.4314/gjds.v20i1.2
- Yasin, M. Z., & Sari, D. W. (2022). Foreign direct investment, efficiency, and total productivity: Does technology intensity classification matter? *Economic Journal of Emerging Markets*, 41-54. <https://doi.org/10.20885/ejem.vol14.iss1.art4>

Appendix 1: Countries used for the Analysis

South Africa	Namibia	Congo, Rep.	Guinea-Bissau	Côte d'Ivoire	Malawi
Mauritius	Angola	Cameroon	Gambia	Benin	
Equatorial Guinea	Nigeria	Sudan	Ethiopia	Zambia	
Gabon	Kenya	Rwanda	Burkina Faso	Tanzania	
Botswana	Ghana	Mali	Sierra Leone	Mozambique	