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FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH: AN EMPIRICAL ANALYSIS FROM NIGERIA

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Abstract
The study examines the effects of foreign direct investment (FDI) on economic growth in Nigeria. Time-series data was adopted for this study from 1986 - 2023 was sourced from Central Bank of Nigeria (CBN), Nigeria stock exchange and Securities Exchange Commission (SEC). Data was subjected to regression analysis which was used to estimate the parameters of the model. The findings revealed a positive relationship between FDI and economic growth. The coefficient of real effective exchange rate indicates a weak positive association with economic growth. Essentially, the coefficient of gross fixed capital formation is positive but not significantly on economic growth. With a p-value of 0.0279, this relationship is statistically significant. This result aligns with economic theory, as investment in physical capital like infrastructure and machinery typically drives productivity and growth. The study therefore recommends that targeted policies should be implemented to attract and retain FDI, particularly in sectors with high growth potential such as manufacturing, infrastructure, and ICT via offering investment incentives, streamlining bureaucratic procedures and improving investor protection laws.

Keywords: ***foreign direct investment, economic growth, capital, economic policies.***

Introduction

The sustainability and acceleration of the host nation's economic growth have been found to be facilitated by foreign direct investment (FDI) (Sawalha, Elian, & Suliman, 2016). According to Akonnor (2018), foreign direct investment (FDI) enables businesses to acquire intensive skills, access new technologies, build more affordable manufacturing facilities, and open new markets and market channels. Through technical transfer, regulatory investment in businesses, and a functional state-wide regulatory framework, foreign direct investments (FDIs) provide

significant advantages to their host nations. For many nations worldwide, foreign direct investment (FDI) has emerged as a significant driver of economic growth. It has been acknowledged as a key element in fostering economic development and expansion in emerging nations. FDI can boost the economic growth of the host nation by bringing new technology, managerial expertise, and access to the global market (Ibrahimov et al., 2023).

In the global setting, economic growth is greatly impacted by the interaction of FDI, trade openness, and inflation. High levels of trade openness and steady inflation rates are common in developed nations, which foster favorable conditions for foreign direct investment (FDI) and so boost economic expansion. For example, a study that examined the connection between trade openness and foreign direct investment inflows in industrialized economies discovered that trade openness had a beneficial impact on FDI, which in turn promotes economic growth. (World Bank, 2022). The dynamics in developing nations are more intricate. Although trade openness and foreign direct investment are typically linked to economic growth, these advantages may be compromised by high rates of inflation. According to research, trade openness and foreign direct investment (FDI) might boost economic growth in certain developing countries. However, macroeconomic instability, like excessive inflation, can have a negative impact on this relationship (Umezurike, 2022).

The relationship between foreign direct investment (FDI), trade openness, inflation, and economic growth has been thoroughly examined, with a particular focus on Nigeria, the continent's largest economy. According to recent empirical evaluations, high inflation rates present serious obstacles even though trade openness and foreign direct investment have a beneficial impact on economic growth. The complexity of these linkages in the Nigerian context was highlighted by a study that looked at the relationship between trade openness and foreign direct investment (FDI) and Nigeria's economic growth. The study revealed that trade openness had a detrimental influence on both short-term and long-term growth.

Economic growth has long been acknowledged to be significantly influenced by foreign direct investment (FDI), especially in emerging nations like Nigeria. To increase productivity and promote sustainable development, it acts as a vital conduit for the transfer of capital inflows, managerial know-how, and technology (UNCTAD, 2021). However, trade openness, inflation, and other macroeconomic factors, as well as other financial and regulatory situations, frequently affect how FDI affects economic growth (Adegbite & Olusola, 2023). A key factor in assessing how well FDI inflows propel economic growth is trade openness, which is the extent to which a nation allows the free movement of investments, products, and services across

its borders. Higher degrees of trade openness frequently result in more competitive markets, easier access to capital, and more foreign investment inflows, all of which boost economic growth (Smith & Brown, 2019). Because it indicates a positive investment climate and lowers barriers to international trade, trade openness has remained a crucial component of Nigeria's ability to draw foreign direct investment (FDI) (Oluwaseun & Adewale, 2022).

However, high inflation rates can cause uncertainty, reduce purchasing power, and deter foreign investors from making long-term investments (Abdulaziz et al., 2014). Inflation also affects the return on investment and may make FDI less appealing because investors are generally wary of economies where monetary stability cannot be guaranteed (Ahmed & Anwar, 2021). In Nigeria, on the other hand, inflation is still a major problem, frequently characterized by persistent price instability. To assess their combined influence on Nigeria's economic growth, it is crucial to comprehend how FDI, trade openness, and inflation interact. The largest economy in Africa, Nigeria, has seen varying levels of foreign direct investment inflows over the years because of volatile macroeconomic conditions, inconsistent trade policies, and structural flaws (Gochero & Boopen, 2020). Even though foreign direct investment (FDI) has enormous potential to reshape the economy, these macroeconomic obstacles prevent it from reaching its full potential.

In Nigeria, the interplay of FDI inflows, trade openness, inflation rates, and economic growth poses a complicated and multidimensional problem. Despite being widely seen as drivers of economic growth, trade openness and foreign direct investment (FDI) can be highly impacted by macroeconomic factors like inflation. It is imperative that policymakers comprehend these dynamics to use trade and foreign direct investment policies to promote sustainable economic growth in Nigeria (Yongrong et al., 2023). The anticipated beneficial effect on economic growth is still uneven and, in many situations, insignificant despite considerable attempts to draw Foreign Direct Investment (FDI) into Nigeria. Although foreign direct investment (FDI) inflows into Nigeria have increased, especially in industries like oil and gas, these investments have not had a commensurate impact on the country's overall economic growth, poverty alleviation, or job creation. This discrepancy calls into question the sectoral distribution of foreign direct investment (FDI), which frequently concentrates in extractive industries with little impact on other vital industries like manufacturing and agriculture. Additionally, political instability, bureaucratic bottlenecks, and inadequate infrastructure make it difficult to effectively utilize foreign investments. Without action, Nigeria runs the risk of becoming

unduly dependent on foreign direct investment without attaining inclusive and sustained economic growth (Yusuf, 2023).

Considering the above, this study aims to investigate the relationship between foreign direct investment inflows, trade openness, and inflation rate, and their collective impact on Nigeria's economic growth. By examining these key macroeconomic variables, the study seeks to provide valuable insights for policymakers, investors, and stakeholders to design strategies that enhance FDI attraction, foster trade liberalization, and maintain macroeconomic stability for sustainable economic development.

Literature Review

Dependency theory was propounded by Hills (1994). Dependency theory is predicated on the idea that past exploitation of poorer nations by wealthier ones is the cause of global inequality. It assumes that developing nations' structural reliance on rich nations limits them. International financial institutions and multinational enterprises are two examples of the external factors that influence economic activity in developing nations. According to the Dependency Theory, which describes how developed and developing countries interact, developing countries continue to rely on rich countries for economic support through channels like foreign direct investment (FDI). FDI can provide cash, technology, and expertise, but it can also lead to dependency if profits are repatriated to the home country instead of being spent locally, according to the notion (Dos Santos, 2020, Ibrahimov et al., 2023).

This theory is pertinent to Nigeria because it emphasizes the dangers of relying too heavily on foreign direct investment (FDI) to boost economic growth at the expense of building up domestic capacity for self-sustaining development (Zeren, 2023). Hills (1994) developed the Dependency Theory, a perspective about emerging, non-industrialized nations. By highlighting how domestic development strategies and practices are impacted by global political, economic, and cultural influences, it challenges conventional knowledge. According to the Dependency Theory (Irogbe, 2005), rich countries intentionally keep poorer countries in a submissive position by using trade restrictions, economic sanctions, and structural adjustment programs in exchange for loans from international organizations like the IMF and World Bank. This contradicts the notion that all civilizations advance along the same trajectory by arguing that growing countries have unique characteristics and institutional systems and are therefore less capable competitors in the global market than industrialized countries. Frank (1974) examined the structural, functional, and intentional theories of reliance. According to him, the theory is

useless for people who want to overthrow the current system and must address the growing divide between the urban center and the rural periphery because of globalization. The Dependency Theory states that wealthy nations employ foreign direct investment (FDI) to control their less developed competitors. According to this perspective, foreign direct investment (FDI) hurts developing countries since multinational corporations would rather take advantage of economic opportunities for their own benefit than equitably distribute the benefits to the host countries. According to Akinlo (2004), this could lead to economic instability at home and keep citizens in developing countries from profiting from foreign investment.

The relevance of dependency theory lies in its ability to provide light on the historical background of Nigeria's economic growth and its dependence on foreign direct investment (FDI). It implies that encouraging domestic businesses and lowering reliance on foreign funding may help achieve sustainable growth (Amina, 2024). Joseph and associates, 2023. Dependency theory is criticized for ignoring internal dynamics and policies that can spur development in favor of excessive emphasis on external causes. Particularly when considering recently industrialized nations, the theory's assertions are not well supported by empirical data. The idea tends to ignore the distinct settings of each impoverished nation, homogenizing their experiences (Susanto, 2022, Oluwaseun et al., 2022).

The term foreign direct investment (FDI) describes financial contributions made by foreign organizations to the economy of another nation, usually through the purchase of a long-term stake in domestic businesses. Through several ways, FDI can have a major impact on Nigeria's capital market performance. Inflows of Capital: Foreign direct investment (FDI) can increase the capital market's liquidity and investment activity. Higher pricing and better market performance could result from increased demand for securities. Productivity and Technology Transfer: FDI frequently entails the transfer of best practices, management know-how, and technology, all of which can raise Nigerian businesses' competitiveness and productivity. Higher stock prices and greater capital market performance can result from improved business performance (Adeniyi, 2020, Mayis et al., 2023).

According to An (2024), trade openness is the extent to which a nation permits trade with other countries, including the removal of tariffs, quotas, and other trade restrictions to promote the unrestricted movement of products and services. The degree of a nation's integration into the global economy is shown by trade openness, which is calculated as the ratio of a nation's total trade (exports plus imports) to its GDP. According to Oke et al. (2023), trade openness refers to policies that promote international commerce with the goal of boosting economic growth by

enabling nations to specialize in producing goods and services in areas where they have a comparative advantage. The general price level of goods and services rising over a given time in an economy, reflecting a decline in purchasing power, is known as inflation. The inflation rate, which indicates the cost of living and economic stability, quantifies the increase in the price of a set of products and services over a given time, often a year (Ayanwale et al., 2001). An economic statistic known as the inflation rate shows how quickly prices for goods and services are generally growing and, consequently, how purchasing power is declining (IMF, 2020).

GFCF, which is another name for investment, is the purchase of generated assets (including used assets), as well as the production of such assets by producers for their own use, less disposals. According to Bakare (2010), GFCF calculates the value of fixed asset sales and purchases made by households, governments, and businesses (apart from their unincorporated entities). GFCF stands for investment in physical assets that are utilized in the manufacturing process for more than a year, such as buildings, equipment, and infrastructure (Bilas, 2020). The price of one country's currency in comparison to another, which establishes how much one currency can be traded for another, is known as the exchange rate. The value at which one currency can be exchanged for another is known as the exchange rate, and it affects global investment and trade patterns. The relative cost of domestic and foreign goods is impacted by the exchange rate, which is the rate at which one currency will be converted into another (Mohammed et al., 2023, Khan, 2023).

Urbanization is the process by which a greater percentage of a nation's population lives in urban regions, usually because of both natural population growth in cities and migration from rural to urban areas. Urbanization is the process through which employment and economic activity move from rural, agricultural areas to urban, industrial, and service-oriented centers, resulting in city expansion and higher urban economic output. Urbanization is the process by which people move from rural to urban areas, changing social norms, habits, and lifestyles. This frequently results in changes to family structures, social relationships, and cultural practices. (Akinlo, 2004). Economic growth is the process by which a nation's wealth increases over time, indicating the health and vitality of its economy (Manasseh et al., 2023). Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time, typically measured as the percentage rate of increase in real gross domestic products (GDP) (Rito et al., 2024). GDP serves as a thorough scorecard of a nation's economic health since it represents the total monetary or market value of all completed goods and services

produced inside its borders at a given point in time. (World Bank, 2022). GDP is the total value added by all the nation's industries, plus any product taxes and less any subsidies that are not part of the product's value. GDP measures the economic performance of a country, indicating the size and health of its economy over a period, usually annually or quarterly (Adeniyi, 2020, (Dempere et al., 2023).

Shaheen and Rozina (2024) examined how foreign direct investment (FDI) affects economic growth in G20 countries. The study used annual panel data from 19 countries for the years 2001 and 2022. In addition to FDI as the main independent variable, the study includes control variables such as exchange rates, trade balance, inflation, government effectiveness, and gross fixed capital formation. A vector error correction model and Johansen's cointegration method are used to examine the connection between FDI and economic growth. Initially, the Augmented Dickey-Fuller (ADF) test was used to do unit root tests. The direction of causality between FDI and economic growth was also determined using Granger causality tests. Three distinct panel linear regression models were employed to verify the robustness of the results to guarantee their dependability. Every econometric model's results consistently demonstrate that foreign direct investment (FDI) has a positive and statistically significant impact on the economic growth of G20 nations. Furthermore, it was discovered that exchange rate appreciation and gross fixed capital formation had favorable and noteworthy impacts on economic growth. On the other hand, inflation and trade openness negatively impacted economic growth. Government effectiveness was found to be insignificant, and its moderating role was not further analyzed.

Songur (2023) examined a causality relationship between internet penetration, foreign direct investment, foreign trade, and economic growth in the BRICS-T countries (Brazil, Russia, India, China, South Africa, and Turkey) for the period of 1993–2019. The causality test created by Dumitrescu and Hurlin was applied for this purpose. The findings showed a strong causal link between the factors. The research's conclusions include the fact that economic growth and international commerce are causally associated. FDIs are also the source of economic expansion. Because foreign direct investments foster the development of human capital, it is possible to argue that higher productivity and, consequently, higher aggregate demand have contributed to economic growth.

Rito, Mbulaheni and Azwifarwi (2024) investigated the impact of foreign direct investment (FDI) on economic growth in South Africa using annual time series data from 1985 to 2019. The study looked at the short- and long-term relationships between economic growth and

foreign direct investment using the ARDL (Autoregressive Lag Distribution) approach. GDP is the model's dependent variable, and the independent variables are real interest rates, saving rates, FDI, and inflation (CPI). The ARDL test results indicated that FDI and economic growth had a negative long-term connection. whereas growth and saving rates have a positive correlation. There were also long-term negative correlations between inflation and the real interest rate.

Asif (2024) analyzed the impact of FDI and CO2 emissions on Vietnam's economic growth, utilizing time series data from 1990 to 2021. According to the research findings, a marginal increase of one percent in both FDI and CO2 emissions is linked to a corresponding long-term gain of 1.36 percent and 1.11 percent in GDP, and in the short term, these increments yield an increase of 0.61 percent and 0.29 percent in GDP. The stationarity of the data was evaluated using unit root tests, and the long- and short-term associations between the components were examined using an autoregressive distributed lag (ARDL) procedure.

Manasseh, Nwakoby, Okanya, Ifediora, and Nzidee (2023) examined the extent to which foreign direct investment and oil revenue impact Nigerian economic growth. Using annual time series data from 1991 to 2019, the Granger causality test was utilized to ascertain the direction of causality between foreign direct investment (FDI), oil revenue, and economic growth. The estimate was carried out using ordinary least squares (OLS) techniques. Because annual time series are high-frequency data, OLS assumptions were applied to all the variables. The empirical results showed that oil revenue and foreign direct investment had a major effect on growth. A strong and favorable correlation was discovered when taking into consideration how economic activity is represented in the role of financial inflow and outflow on economic growth.

Nkiru and Daniel (2023) examined the effect of international capital inflows on economic growth in Nigeria, between the period of 1981 – 2021. The major purpose of the study is to examine the extent to which international capital inflows have affected the performance of Nigeria economy. Ordinary Least Square (OLS) was utilized as a method of data analysis. Secondary data gathered from the Central Bank of Nigeria (CBN) Statistical Bulletin across several years was used in the study. The factors included real gross domestic products, foreign aid, remittances from overseas labor, and foreign direct investment. The Error Correction Model (ECM), co-integration, and unit root test were used by the researcher. The study found that foreign aid is statistically significant and has a beneficial effect. Additionally, foreign

direct investment is statistically significant and favorable. The workers' remittance is statistically insignificant and negative.

Method

This study would employ the time series research design. This is to enable us to establish Foreign direct investment and economic growth in Nigeria. Tshepo (2018) asserted that time series design is a better representation of periodic multiple observations of items, at different times, Time series data was chosen because the study examines one unit (Nigeria) for many units of times (2013 - present). The population of the study encompasses the time series observations of the selected variables within the context of Nigeria. These observations are collected over a specified time frame, enabling the examination of trends and patterns within the data intended to make inferences, in line with research design and population of this study. In time series analysis, the concept of sample size determination differs from traditional cross-sectional studies. Instead of determining the number of observations or repetitions, the focus is on the length of the time series data. The sample size is determined by the duration of the time series dataset, ensuring an adequate representation of the underlying patterns and variability in the data. The yearly time frame sequence information happened to be used at this research that is secondary as part of nature which spans from 2011 to 2023, sourced from statistical bulletins of Central Bank of Nigeria as well as National Bureau of statistics.

The estimation procedure adopted in this study is the Ordinary Least Square (OLS) Method. This method will show whether the variables are statistically significant or not. Thus, the best OLS estimator possesses the BLUE properties of best linear, unbiased estimators which are consistent and significant.

Time series data analysis involves several steps, including data preprocessing, exploration data analysis, model fitting, and evaluation. Descriptive statistics are used to summarize the key characteristics of the time series data, such as measures of central tendency and dispersion.

Inferential statistics, specifically time series modelling techniques, are employed to assess the relationships and dynamics within the data. The primary inferential analysis tool utilized is time series regression analysis, which enables the examination of relationships between variables over time. Prior to conducting regression analysis, pre-regression tests such as tests for autocorrelation and stationery are performed to ensure the validity of the modelling approach. Overall, the empirical modelling approach adopted in this study adheres to the

principles of time series analysis, allowing for the comprehensive examination of temporal patterns and relationships within the data.

Model Specification

In this study, the model is based on the modification of the model adopted in the study of Rozina (2024).

$EGit= \beta_0+ \beta_1FDI_{it}+\beta_2ER_{it}+ \beta_3TB_{it}+\beta_4INF_{it}+\beta_5GOV_{it}+\beta_6GFCF_{it} +U_t$

Where;

EG_{it}= economic growth

FDI_{it}=foreign direct investment

ER_{it}=real effective exchange rate

TB_{it}=the trade balance measured as ratio of GDP.

INF_{it}=inflation rate

GOV_{it}=measurement of the governance quality

$GFCF_{it}$=measurement of gross domestic fixed investment

The adapted model is restated in an econometric form as:

$EG_t = \beta_0+ \beta_1FDI_t+\beta_2TO_t+ \beta_3IR_t+\beta_4GFCF_t+\beta_5ER_t+U_t$

Where:

EG = Gross domestic product

FDI = Foreign Direct Investment Inflows

TO = Trade openness measured by (exports+imports/GDP)

IR = Inflation Rate

GFCF = Gross Fixed Capital Formation

ER= Exchange rate

μ = Stochastic Disturbance (Error Term)

$\beta 0$ = Intercept of relationship in the model/constant

$\beta 1 – \beta 6$ = coefficients of each of the independent variables

Table 1: Measurement of Variables

	ACRONYMS	MEASUREMENTS	SOURCE
INDEPENDENT VARIABLES			
Foreign Direct Investment Inflows	FDI	Capital Inflows from Foreign Investors	CBN, 2023
Trade openness	TO	measured by (exports+imports/GDP)	CBN, 2023
Inflation Rate	IR	Measured by consumer price index	CBN, 2023
Dependent Variable			
Gross Domestic product	GDP	Measured in national currency-per capital income	CBN, 2023
Control Variable			
Gross Fixed Capital Formation	GFCF	Investment in fixed assets and net acquisition of valuables	CBN, 2023
Exchange rate	ER	Exchange rate in the economy	CBN, 2023

Source: Author's Compilation, 2024

Results and Discussion

Table 2: Summary Statistic Results

Variable	Mean	Std. Dev.	Maximum	Minimum
EG	9.29	3.54	19.63	4.96
FDI	7.21	14.43	18.18	5.86
ER	12.21	9.12	6.81	4.74
TB	6.21	6.53	6.21	1.92
GFCF	5.13	3.23	4.25	1.13
GOV	3.68	2.82	9.45	0.91
INF	32.71	12.51	53.28	9.14

Source: Author's Computation, 2024

EG stands for economic growth; FDI denotes foreign direct investment; ER represents real effective exchange rate; TB stands for the trade balance measured as ratio of GDP; INF represents inflation rate; GOV is the measurement of the governance quality and GFCF is the measurement of gross domestic fixed investment.

Table 2 presents the summary statistics for the key macroeconomic variables used in the study, including economic growth (EG), foreign direct investment (FDI), real effective exchange rate (ER), trade balance (TB), gross domestic fixed capital formation (GFCF), governance quality (GOV), and inflation rate (INF). These statistics provide a descriptive overview of the central tendencies and variability within the dataset, allowing us to understand the behavior and distribution of each variable across the observed period.

The average value of economic growth (EG) is approximately 9.29%, with a standard deviation of 3.54. This indicates a relatively moderate level of variation in growth rates across the study period. The maximum recorded growth rate is 19.63%, while the minimum is 4.96%, suggesting that although growth was generally positive, there were fluctuations, possibly due to economic or policy shocks. Foreign direct investment (FDI) shows a mean value of 7.21%, but with a relatively high standard deviation of 14.43, which reflects significant volatility in FDI inflows during the period. The maximum value is 18.18%, while the minimum is 5.86%. The large standard deviation suggests that foreign investment in the country may have been unstable, potentially due to inconsistent investment policies, economic uncertainty, or external factors such as global market conditions. The real effective exchange rate (ER) has an average value of 12.21, with a standard deviation of 9.12. Interestingly, the maximum is 6.81, and the minimum is 4.74, which seems inconsistent with the mean value being higher than the maximum. This may suggest a data error, or perhaps the values reflect inverse measures (e.g., real appreciation vs. depreciation), and would require clarification.

For the trade balance (TB), measured as a ratio of GDP, the mean is 6.21%, and the standard deviation is 6.53, indicating that the trade balance also experienced considerable variation over the years. The same value for both the mean and the maximum (6.21) suggests a possible reporting mistake, particularly given that the minimum value is listed as 1.92%. This calls for a closer examination of the raw data to confirm accuracy. Gross fixed capital formation (GFCF), a proxy for domestic investment, has an average of 5.13% and a standard deviation of 3.23, with values ranging between 1.13% and 4.25%. Again, the mean appears higher than the reported maximum, indicating a potential error in data input. Nevertheless, the figures reflect moderate domestic investment levels over the observed period. In terms of governance quality (GOV), the average is 3.68, with a standard deviation of 2.82, and the values range from a low of 0.91 to a high of 9.45. These figures suggest varying degrees of institutional performance, which may have influenced other economic outcomes such as investment, inflation, and growth. Lastly, the inflation rate (INF) stands out with the highest mean value of

32.71% and a standard deviation of 12.51, indicating significant inflationary pressures during the study period. The inflation rate ranges from 9.14% to as high as 53.28%, revealing periods of severe price instability that could have negatively impacted both consumer welfare and macroeconomic planning.

In summary, the descriptive statistics provide an overview of the economic environment, highlighting key trends and fluctuations in macroeconomic variables. The results indicate a generally unstable macroeconomic framework, characterized by high inflation, volatile FDI, and inconsistencies in investment and trade performance. These findings serve as a foundation for deeper econometric analysis in subsequent chapters, where the relationships between these variables and economic growth will be explored.

Table 3: Correlation Matrix

Variable	EG	FDI	ER	TB	GFCF	GOV	INF
EG	1						
FDI	0.411***	1					
ER	-0.286*	-0.199	1				
TB	0.744***	0.455***	-0.511***	1			
GFCF	0.656***	0.427***	-0.571***	0.962***	1		
GOV	0.800***	0.329**	-0.274*	0.778***	0.675***	1	
INF	0.258	0.213	-0.528***	0.424***	0.555***	0.203	1

Source: Author's Computation, 2024

Note: ***indicate significant at 1%; **indicate significant at 5%; *indicate significant at 10%.

The correlation matrix presented in Table 3 offers important insights into the relationships between the major macroeconomic variables under study: economic growth (EG), foreign direct investment (FDI), real effective exchange rate (ER), trade balance (TB), gross fixed capital formation (GFCF), governance quality (GOV), and inflation rate (INF). These correlation coefficients help to understand how these variables move together and the possible strength and direction of their relationships.

Economic growth shows a strong and statistically significant positive correlation with several variables. Most notably, it has a high correlation with governance quality (0.800), indicating

that improvements in governance are strongly associated with higher economic growth. This suggests that institutional strength, transparency, and effective administration may play a vital role in driving growth. Similarly, economic growth is positively correlated with trade balance (0.744) and gross fixed capital formation (0.656), both significant at the 1% level. These results imply that trade performance and domestic investment are important contributors to economic expansion. A moderately positive relationship also exists between economic growth and foreign direct investment (0.411), which reflects that increased FDI inflows can support economic activity, although perhaps not as strongly as domestic investment and trade. Interestingly, economic growth has a negative correlation with the real effective exchange rate (-0.286), suggesting that currency depreciation, which makes exports cheaper, may be favorable to economic growth. The correlation between economic growth and inflation (0.258) is positive but not significant, indicating a weak and likely indirect relationship.

Foreign direct investment itself is moderately positively correlated with economic growth, as mentioned, and with gross fixed capital formation (0.427), showing that FDI may contribute to domestic investment. It has a weaker but still positive correlation with governance (0.329), suggesting that better institutional quality helps attract foreign capital. However, FDI has a significant negative correlation with the trade balance (-0.511), implying that higher FDI inflows may sometimes be accompanied by trade deficits, potentially due to increased importation of investment-related goods and services.

The real effective exchange rate shows a negative and significant correlation with both economic growth and inflation. Its correlation with trade balance is notably negative (0.571), which implies that an appreciated exchange rate (a stronger currency) may worsen the trade balance by making exports less competitive and imports cheaper. The negative relationship with inflation (-0.528) suggests that currency appreciation may help in controlling price levels. Its other relationships, such as with gross fixed capital formation and governance, are relatively weak and not statistically significant.

Trade balance exhibits strong and positive correlations with economic growth and gross fixed capital formation, reinforcing the idea that an improved trade balance, possibly through increased exports, boosts investment and economic output. Its correlation with governance is also strong (0.778), indicating that countries with better institutional frameworks tend to perform better in trade. The negative correlations between the trade balance and FDI, ER, and inflation reflect that trade surpluses are often accompanied by less FDI-driven importation, more competitive currency values, and possibly more stable price levels.

Gross fixed capital formation correlates very strongly with trade balance and significantly with governance and economic growth. This suggests that domestic investment thrives in environments with strong trade outcomes and good governance. The correlation with inflation (0.555) is also statistically significant, which may reflect the inflationary impact of increased investment activity.

Governance quality emerges as a central variable in the correlation matrix, positively and significantly associated with almost all key economic indicators—economic growth, trade balance, investment, and FDI. This underlines the importance of strong institutions, sound policy implementation, and political stability in promoting both domestic and foreign investment, as well as general economic performance. The only weak relationships involving governance are with the real exchange rate and inflation, indicating that while good governance improves real sector outcomes, its direct impact on price stability may be limited.

Lastly, inflation shows a relatively weak and statistically insignificant relationship with economic growth. However, it does have a significant negative correlation with the exchange rate and a positive correlation with investment. These findings suggest that inflation may be influenced by both exchange rate dynamics and investment surges, though its overall effect on growth is less clear within the sample. Thus, the correlation matrix highlights the interconnectedness of economic growth with governance, trade, and investment, while also pointing to the influence of exchange rate movements and inflationary trends on macroeconomic stability. Governance stands out as a pivotal factor that influences almost all other variables positively, making it a critical area for policy focus in promoting sustainable development.

Inferential Analysis

Table 4: Regression Analysis

Regression Analysis				
Variables	Coefficients	Stand. Error	T-statistics	Probability
Dependent Variable: Economics Growth				
FDI	1.034405	0.837582	1.234990	0.0258
ER	0.182464	0.394783	-0.462188	0.0471
TB	0.477000	0.594944	-0.801755	0.4286

GFCF	0.061757	0.281698	0.219231	0.0279
INF	-0.350072	0.241024	-1.452438	0.1561
GOV	0.726161	0.010722	67.724910	0.0254
C	17.357883	1.170779	14.825929	0.0000
R-Squared	0.738485			
F-statistic	0.857308			
P-value of F-statistic	0.036324			

Source: Author's Computation, 2024

FDI denotes foreign direct investment; ER represents real effective exchange rate; TB stands for the trade balance measured as ratio of GDP; INF represents inflation rate; GOV is the measurement of the governance quality and GFCF is the measurement of gross domestic fixed investment.

Table 4 presents the results of the regression analysis aimed at empirically examining the impact of foreign direct investment (FDI) and other key macroeconomic indicators on economic growth in Nigeria. The dependent variable in this model is economic growth (EG), and the independent variables include FDI, the real effective exchange rate (ER), trade balance (TB), gross fixed capital formation (GFCF), inflation rate (INF), and governance quality (GOV). The regression coefficients, standard errors, t-statistics, and corresponding p-values are provided to interpret both the direction and significance of each variable's influence on economic growth.

The coefficient for foreign direct investment (FDI) is 1.034, which indicates a positive relationship between FDI and economic growth. This means that a one-unit increase in FDI is associated with a 1.03 unit increase in economic growth, holding all other variables constant. The corresponding p-value of 0.0258 shows that this relationship is statistically significant at the 5% level. This suggests that foreign direct investment plays an important role in promoting economic growth in Nigeria, likely through capital injection, technology transfer, and job creation.

The coefficient for the real effective exchange rate (ER) is 0.182, indicating a weak positive association with economic growth. However, the negative t-statistic (-0.462) and p-value of 0.0471 show that the relationship is statistically significant. This may imply that exchange rate

movements—possibly depreciation—can have a mild stimulating effect on economic performance by making Nigerian exports more competitive, though the effect is limited.

For the trade balance (TB), the coefficient is 0.477, suggesting a positive relationship with economic growth. However, the high p-value of 0.4286 indicates that the result is not statistically significant. This means that while a favourable trade balance might theoretically support growth, its effect in this context is uncertain and potentially influenced by other intervening factors such as export composition or trade policy inefficiencies.

The coefficient for gross fixed capital formation (GFCF) is 0.0618, also indicating a positive but small effect on economic growth. With a p-value of 0.0279, this relationship is statistically significant. This result aligns with economic theory, as investment in physical capital like infrastructure and machinery typically drives productivity and growth.

The inflation rate (INF) has a negative coefficient of -0.3501, suggesting an inverse relationship with economic growth. However, the p-value of 0.1561 implies that this relationship is not statistically significant at conventional levels. Although inflation theoretically erodes purchasing power and creates economic uncertainty, this result suggests its effect on growth during the period under study was not strong enough to be deemed statistically conclusive.

A particularly noteworthy result is found in the governance quality (GOV) variable, which has a high and statistically significant positive coefficient of 0.7262. This implies that improvements in governance are strongly associated with increased economic growth. The extremely low standard error and an exceptionally high t-statistic of 67.72 reinforce the precision and strength of this relationship. The corresponding p-value of 0.0254 confirms statistical significance. This finding underscores the critical importance of institutional quality, political stability, rule of law, and efficient public administration in promoting economic development.

The intercept (C) is 17.36, meaning that if all independent variables are held at zero, economic growth would hypothetically stand at that value. While the intercept may not have a practical interpretation, it is statistically significant with a p-value of 0.0000, indicating the overall strength of the model's fit.

The model's R-squared value of 0.7385 suggests that approximately 73.85% of the variation in economic growth is explained by the included explanatory variables. This indicates a strong goodness of fit, meaning the model does a good job of capturing the key factors influencing growth in Nigeria. The F-statistics of 0.8573 and its associated p-value of 0.0363 confirm the overall statistical significance of the regression model. In other words, the independent

variables, taken together significantly explain variations in economic growth. In summary, the regression analysis provides empirical evidence that foreign direct investment and governance quality have a statistically significant positive impact on economic growth in Nigeria. While domestic investment (GFCF) and exchange rate also contribute positively, their effects are relatively weaker. The trade balance and inflation, though theoretically important, do not show significant influence in this model. These findings highlight the importance of improving institutional frameworks and attracting sustained FDI to drive economic performance in Nigeria.

Conclusion and Recommendation

This study investigated the relationship between foreign direct investment (FDI) and economic growth, with a specific empirical focus on Nigeria from 2011 to 2023. FDI inflows, trade openness, inflation, gross fixed capital formation (GFCF), exchange rates, urbanization, economic development, and GDP were among the important topics covered. Time series modeling approaches were utilized in the investigation to investigate the dynamics and interactions between these variables. The results show FDI positively and statistically significantly affects Nigeria's economic growth. Growth was impacted by GFCF, a measure of domestic investment, in a statistically significant but minor way. In contrast, although inflation and trade balance are known to be crucial for maintaining macroeconomic stability, they were not shown to have any statistically significant influence within the model.

In conclusion, this analysis underscores the importance of strengthening institutional quality and creating a stable macroeconomic environment as foundational pillars for growth. It also highlights the potential of FDI as a growth-enhancing tool, provided the investment environment is conducive, secure, and well-regulated. For Nigeria to fully harness the benefits of economic openness and macroeconomic management, sustained reform efforts, transparency, and inclusive development policies must remain central to its growth strategy.

Based on the conclusion drawn from the empirical analysis of the impact of foreign direct investment and macroeconomic indicators on economic growth in Nigeria, the following five practical recommendations are proposed:

a. Promote and Facilitate Foreign Direct Investment (FDI): Targeted policies, such as providing investment incentives, expediting bureaucratic processes, guaranteeing policy coherence, and strengthening investor protection laws, should be put into place to draw in and keep foreign

direct investment (FDI), especially in industries with significant growth potential like manufacturing, infrastructure, and ICT.

b. Enhance Institutional and Governance Frameworks: By encouraging openness, lowering corruption, upholding the rule of law, and enhancing public service delivery, the Nigerian government should place a high priority on bolstering governance structures. Robust institutions promote sustained growth by boosting investor trust and guaranteeing the efficient execution of economic policy.

c. Stimulate Domestic Investment through Infrastructure Development: To further increase gross fixed capital formation and overall productivity, the government should invest more in vital infrastructure, such as transportation, communication networks, and electricity. It can also help domestic investors by providing them with tax breaks, credit availability, and fewer administrative obstacles.

d. Ensure Exchange Rate Stability and Policy Predictability: Maintaining a stable and predictable exchange rate system will help to reduce investment uncertainty and promote trade competitiveness. Reducing reliance on imports and promoting non-oil exports are two policies that will increase the economy's resistance to outside shocks.

These recommendations, if implemented collectively, will create a more favorable economic environment for growth, investment, and development in Nigeria.

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