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Transport Infrastructure, Foreign Direct Investment and Economic Growth in Nigeria

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ABSTRACT

This study investigates the impact of Transport Infrastructure and Foreign Direct Investment on Economic Growth in the Nigerian economy from 1970-2023 Secondary data needed for the analysis were collected from the Central Bank of Nigeria (CBN) Statistical Bulletin and World bank development indicators on variables used such as; Gross domestic product, Foreign Direct Investment Inflow to the economy, Government expenditure on transport, Exchange rate, Gross fixed capital formation and Interest Rate. The Auto-Regressive Distributed Lagged (ARDL) also known as bound testing approach to co-integration was used to estimate the model. The findings reveal that, in the near term, there are negative and noteworthy correlations between FDI and GDP. Long-term benefits would result from an increase in FDI combined with a rise in the share of government capital spending on transport infrastructure. Interest rates are directly correlated with the gross domestic product (GDP) and have a ripple effect on the stock and bond markets. This research work therefore suggest that government should spend more on construction and upgrading of dilapidated roads to a well-developed and organized road in other to attract foreign direct investment and economic growth in Nigeria.

Keywords: *Transport Infrastructure, Foreign Direct Investment, Economic Growth*

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INTRODUCTION

The standard of a country's road transportation infrastructure plays a major role in its capacity to fight poverty, control population growth, diversify its economy, and enhance the environment. Because expanded infrastructure lowers production costs, especially in the agriculture sector, it also boosts economic productivity. It's still unclear how exactly infrastructure and development relate to one another, but Nigeria obviously requires enough road infrastructure to connect its main production base to locations where final consumption is required. However, the 2021 World Development Report notes that infrastructural capacity rises gradually in step with economic development. WDR 2021. All nations, but especially emerging ones like Nigeria, need to strive to improve their transportation systems and attract more foreign direct investment since these things promote economic growth. Every country needs transportation infrastructure to be economically prosperous because it makes it easier for people and things to move around. Foreign direct investment contributes significantly to economic growth because it brings new capital, state-of-the-art technology, and specialized knowledge to the host country. Therefore, it is thought that infrastructure related to transportation and foreign direct investment play a significant role in the economy's growth (Njoku & Ikej 2018).

In terms of performance, transportation adds very little to the nation's GDP. In prosperous nations, transportation makes up 11 to 16 percent of GDP, whereas in Nigeria it only makes up 1 to 5 percent (Adelekan, 2019). According to studies on the Nigerian economy (Oyesiku et al., 2017), transportation costs account for a significant portion of the

overall cost of most goods, including those utilized in mining, manufacturing, and agriculture. Transportation costs typically represent thirty percent or more of the total cost of the delivered goods. Nigeria's weak and inefficient transportation system contributes to this high cost.

Nigeria's transportation infrastructure includes pipeline, rail, air, sea, and road modes. Most freight is moved throughout the nation via road transit. With 32,000 km of federal highways, 31,000 km of state roads, and the remainder kilometers of local government roads, Nigeria's road system spans 195,500 km in total. Just around 60,000 km (30.7%) of the 195,500 km of roadways are paved. Most of these paved roads are in poor condition because of a lack of investment and upkeep, even after the transportation sector underwent numerous reforms (Onokala and Olajide, 2020). The amount that transportation contributes to the GDP of the nation is not very high.

According World Bank (2020) study, the economy can benefit greatly when the impoverished use reliable road infrastructure services. Having access to well-kept roads has several environmental advantages beyond merely facilitating transportation. For instance, cleaner air and water as well as a reduction in the availability of energy sources that pollute the environment might come from effective transportation networks. In addition to increasing the usage of cars, better roads may also assist reduce emissions as routes become more compacted and vehicle speeds rise. Therefore, improving infrastructure alone won't solve the problem; other essential components include public transportation, cleaner fuels, non-motorized forms of transportation, and improved traffic and land use management. A more effective use of land and transportation capacity can be achieved by integrated urban planning and transportation policy, which will support economic growth.

Transport is an important economic sector, especially in developing countries where it is essential for the sale of agricultural products and for the delivery of extension, health, and education services. It offers the structure needed for a country's economy to develop and flourish. The development of new roads, ports, and tourist attractions is made possible by the transportation sector, which also links every area of the country to the rest of the country (Rudra, 2018).

Even after many years of independence, systemic neglect has hampered Nigeria's rail industry, despite the maritime sector's expansion in terms of capacity and equitable national distribution (Olojede et al., 2023). Significant volumes of bulk freight, such as coal, oil, steel, or agricultural products, as well as containerized cargo are particularly well-suited for transit by the railway. The country has had financial difficulties paying for its rail transportation system ever since the world oil price crashed.

Nigeria's industrial sector progress was impeded by the slow pace of rail modernization, which created inadequate connections between areas rich in agricultural and mineral resources, processing facilities, and potential consumers. Similarly, decreased manufacturing production has resulted in a decrease in demand for high-capacity, less flexible forms of transportation like rail. As a result, almost 90% of all traffic in Nigeria over the past 20 years related to the overland transit of people and products has been done via road (Adesanya et al., 2017). Nigeria's land transport system is currently extremely vulnerable as a result of the nation's low rate of road stock expansion during the last ten years, a large proportion of low-quality road stock, and a noticeable increase in the number of cars on the road (Nigerian Institute of Social & Economic Research, NISER, 2019).

In addition to transportation, foreign direct investment (FDI) is essential for promoting economic growth and development. It makes a nation more competitive and productive by giving it favorable access to cutting-edge knowledge, technology, and managerial abilities. Additionally, FDI helps governments adequately support public services by fostering economic growth, creating job opportunities, and broadening the revenue base. According to a report published by the United Nations Conference on Trade and Development (UNCTAD, 2021, foreign direct investment has demonstrated benefits in fostering economic growth and development by giving nations access to managerial expertise, technological advancements, and increased job opportunities.

According to Samuelson's money arbitrage theory, which maintains that multinational firms aim for higher profit, economists promote free money flow across national borders because it allows capital to chase the maximum rate of return. Despite having a large number of workers and natural resources, Nigeria is seen as a high-risk investment market. The "resource curse" or "Dutch disease," which is the combination of great prosperity derived from natural resources and terrible personal poverty, appears to be plaguing the nation. The country was ranked 170th out of 213 countries in 2019 with a predicted gross national income per capita of $1,200 (World Bank, 2020). Foreign Direct Investment (FDI) has been described by a number of experts and academics as a real boost that can be used to advance any economy. This is done in order to improve corporate governance and, as a result, boost transparency in business operations through foreign direct investment (FDI), which involves more than just the transfer of ownership from domestic to foreign firms. Still, Nigeria presently enjoys one of the highest rates of return among rising economies, with an estimated 30% investment return (Schoeman et al., 2020).

According to Haudi et al. (2020), one advantage of foreign direct investment (FDI) is the ability to diversify in different locations through the international movement of money, which reduces the risk faced by capital owners in their own countries. International investment not only makes home input markets more competitive, but it also

makes cross-border knowledge transfer and human capacity development easier. Increased corporate tax revenues in the host country are a result of gains in foreign direct investment (FDI); nevertheless, the highly capital-intensive technologies that these investments support may exacerbate unemployment in countries where there is a labor surplus. Moreover, monopolies that develop in economic sectors where entry barriers have periodically been tightened may force out local enterprises.

Literature review

The first segment's primary focus is the conceptual review. Mayaki (2019) asserts that transportation infrastructure—which includes highways, railroads, ports, airports, and waterways—contributes to GDP growth. The transportation infrastructure consists of highways, railroads, planes, rivers, canals, pipelines, warehouses, trucking terminals, refueling depots (which include docks and fuelling stations), and seaports. In addition to being utilized for product and people mobility, terminals can also be used for maintenance.

In addition, it refers to the basic architecture that underpins the operation and delivery of transportation services in each of the system's constituent parts, including roads, trains, seaports, and airports (Rodrigue, 2020). The transportation infrastructure—which consists of roads, railroads, airports, and seaports—allows for the unimpeded flow of people, products, and information. These components are necessary in an economy that mostly depends on exports and manufacturing. If eyes are the light of the human soul, then airports and seaports are the eyes through which foreign business visitors view a country (Enems Project, 2019).

Ayenew (2022) asserts that foreign direct investment (FDI) can act as a catalyst for economic advancement in a host nation, given the status of African economies and the amount of FDI in the region. Through this investment, the economic development of a country or region may be reinforced and maintained. Increasing the share of global FDI inflows to the continent is one of the most likely ways to secure the outside capital needed for growth. A complementary link between foreign direct investment (FDI) and trade is predicted by theoretical imperfect competition models that account for the impact of trade performance in the setting of vertical investment used by multinational businesses (Maza & Gutiérrez-Portilla, 2022). Xu and Gashaw (2021) claim that the impact of the actual exchange rate on foreign direct investment (FDI) is unclear and dependent on the motives of foreign investors. Depreciation, for instance, lowers the cost of production and local assets, boosting FDI inflows.

Economic expansion is the process of broadening the scope of economic activity, such as the production and distribution of commodities and services. Even if it might not always yield better outcomes, diversifying an economy's economic basis helps ensure its stability. Oguanobi, Nzeribe, and Ibekilo (2016) define economic diversity as a strategy for achieving a variety of economic results. An economy is varied if it has a variety of revenue streams. It provides governments with backup revenue streams in case one of their economic revenue streams fails, as well as the desired security and dependability (Usman and Landry, 2021).

Theoretical review

The basis of this research is the accelerator theory of investment, an economic model that explains the relationship between changes in the demand for goods and services and the ensuing investment decisions made by companies. It suggests that changes in demand directly affect how much money is invested in an economy, particularly when it comes to capital goods. This idea highlights how changes in demand are what primarily affect how investments behave. The acceleration theory of investment can be used to understand the connection between investments in Nigeria's transportation infrastructure and economic growth. Enhancements to transportation infrastructure, such as road networks, ports, and railroads, can stimulate investment by reducing transportation costs, opening up new markets, and improving the efficiency of production and distribution networks (Rodrigue, 2020).

By implementing laws that encourage demand and provide incentives for investment in crucial areas like transportation infrastructure, policymakers can take advantage of the acceleration effect. Strategic infrastructure investment can create the circumstances for long-term economic growth and development in addition to raising demand in the short term (Du, Zhang et al., 2022).

Empirical review

Badalyan et al. (2019) examined the link and direction of causality between transportation infrastructure, infrastructure investment, and economic growth using annual data from Armenia, Georgia, and Turkey for the years 1986 to 2018. The VECM's findings demonstrate that, in the short term, gross capital formation and the volume of products moved by rail and road have a statistically significant beneficial impact on economic growth. They also found that investments in infrastructure have a causal relationship, both short- and long-term, with economic development and with the number of people who use trains and roads for transportation.

A study by Ng, Law, Jakarni, and Kulanthayan (2019) looked at the relationship between economic growth and other socioeconomic aspects as well as the advancement of road infrastructure. The fixed-effects panel linear regression analysis was performed using time-series cross-sectional data that included 60 countries between 1980 and 2018. The findings of the study demonstrated that road length per worker, per worker physical capital

stock, per worker export, and per worker education spending all increased economic growth.

Nketiah-Amponsah and Sarpong (2019) investigated the effects of infrastructure and foreign direct investment (FDI) on economic growth in Sub-Saharan Africa (SSA) using panel data on 46 countries covering the years 2003–2018. Fixed effects, random effects, and system generalized method of moments (GMM) estimate techniques were used to analyze the data. The results show that a 1% improvement in electrical and transportation infrastructure leads to growth rates of 0.09 and 0.06 percent, respectively. According to the authors, FDI only demonstrated its ability to promote growth in circumstances when it interacted with infrastructure. Together, infrastructure and FDI increase economic development by 0.016 percent. The results also showed that FDI's (foreign direct investment) maximum impact on economic growth occurs in environments with some level of economic infrastructure.

Saidi et al. (2020) examined the relationship between transportation, logistics, and foreign direct investment (FDI) and economic growth in developing countries between 2000 and 2018 using a GMM estimator. A global panel data collection of 46 developing countries was divided into three sub-panels: the European and Central Asian countries (ECA), the East Asian, Pacific, and South Asian countries (EAPSA), and the Middle East, North Africa, and Sub-Saharan Africa (MENA-SSA). It was found that all the underlying factors interacted with each other throughout time. Different panels with different levels of significance typically had different orientations for the variables' causal relationship.

Opoku et al. (2019) examined the relationship between foreign direct investment (FDI) and economic growth in Africa using the system generalized method of moments. The findings demonstrate that while foreign direct investment (FDI) unconditionally and favorably stimulates economic growth, the growth-enhancing benefit of FDI vanishes when conditional sectoral impacts are included. Examining the channels of manifestation, they found that the pass-through influence of foreign direct investment (FDI) is restricted to the agriculture and service sectors.

Ogundipe et al., (2020) assessed the impact of infrastructure absorptive capacity on the FDI-growth discussion in the ECOWAS in their 2020 study. This study assesses this main thrust in the ECOWAS Sub-region from 1995 to 2019 using the system GMM estimating approach. The result suggests that even though growth was less directly impacted by FDI inflow, FDI nevertheless promotes growth. On the other hand, when FDI came into contact with physical infrastructures, its responsiveness reduced. Specifically, the GDP growth responsiveness for road infrastructure dropped from 29.2% to 0.21%.

Orji et al. (2021) looked at the effect of foreign direct investment (FDI) on economic growth in Nigeria, which the authors claim is currently the largest economy in Africa. From 1981 to 2019, the authors also determined the long-term correlation between foreign direct investment (FDI) and economic growth in Nigeria. The autoregressive distributed lag (ARDL) technique and ordinary least square (OLS0) analysis were used in the paper. The empirical results demonstrated a robust and favorable relationship between foreign direct investment (FDI) and Nigeria's economic expansion during the study period.

The influence of foreign direct investment (FDI) on Nigeria's real sector between 1981 and 2018 was examined by Anetor (2019) using the impulse response function (IRF) and variance decomposition (VDC) of variance analysis. The analysis found that while the production of the agriculture sector responded favorably to shocks in FDI inflows, the relationship was not statistically significant. Additionally, the IRF demonstrated that the industrial sector's output was statistically significant and responded well to FDI shocks. He concluded that the growth of Nigeria's industrial sector is positively impacted by inflows of foreign direct investment. Furthermore, the VDC showed that FDI inflows have an impact on both the output of the industrial and agricultural sectors. However, the production of the industrial sector is more affected by FDI inflows than that of the agricultural sector. The study also showed, using the VAR Granger causality, that while FDI inflows support growth in the production of the industrial sector, they do not propel growth in the output of the agricultural sector. The finding that foreign direct investment inflows have not led to growth in Nigeria's agriculture industry forms the basis of the study's conclusion.

Sani and Ajayi (2022) utilized multiple regression, pairwise correlation, unit root test, and descriptive statistics to investigate the impact of infrastructure on foreign direct investment inflow to Nigeria from 1995 to 2021. The results demonstrated that market size and exchange rate were statistically significant, but electricity usage was not.

Chijioke and Amadi (2020) examined the connection between Nigerian government infrastructure spending and economic growth using secondary data. To assess the data, they used the Phillip-Perron and Augmented Dickey-Fuller models in addition to unit root and co-integration tests. Weighted least squares was also used to test the 37-year yearly time series sample using a vector error correction model. The study's findings demonstrated that while government spending on infrastructure related to natural resources and agriculture had a significant negative impact on economic growth in Nigeria, spending on infrastructure related to transportation, communication, education, and health had a significant positive impact.

METHODOLOGY

Model specification and estimation procedure

Based on the research conducted by Ugwuegbe, Okore, and John (2013) and the theoretical framework of the

study. The model employed in this investigation is described as follows:

GDP =f (FDI, CET, RINT, INF)..... **1**

This equation can be transformed into a linear function thus:

GDP =α_0+ α_1FDI + α_2CET +α_3RINT+α_4INFL+U_t 2

A'priori expectation

$\alpha_1 > 0, \alpha_2 > 0, \alpha_3 > 0, \alpha_4 < 0$

Therefore, the model selected for this study is Equation 2. The variables Gross Domestic Product (GDP), Time (t), Real Interest Rate (RINT), Inflation Rate (INF), Capital Expenditure on Transportation (CET), and Foreign Direct Investment (FDI) are used in this context. The variables on the right side of equation 3.2 are the indexes of transportation infrastructure and foreign direct investment. The work employs the ARDL approach, which works even when the appropriate delay times for the variables are different. The fundamental ARDL model is defined as follows:

$$Y_{it} = \sum_{j=1}^{p} \lambda_{ij} Y_{i,t-j} + \sum_{j=0}^{q} \delta'_{ij} X_{i,t-j} + \mu_i + \epsilon_{it} \qquad 2$$

The dependent variable is yit, the error term is ϵit, the dependent variable's lag coefficient is λij, and the representation of the independent variable's lags and current coefficients is δij '. The vector of independent variables is denoted by xi, t - j. To establish a stable connection between the variables in equation 2

RESULTS AND DISCUSSION

Descriptive Statistics

This section of the study covers the statistical properties of the variables used in the investigation. The attributes include Jarque-Bera, mean, median, standard deviation, likelihood, kurtosis, and median. The results are shown in (Table 1). The comparable means of the GDP, FDI, government capital expenditure, real interest rate, and inflation rate are 5.2726.61, 2.99E+09, 796.1064, 3.978788, and 19.91182, respectively. Moreover, the maximum values of 202365.0, 8.84, 3714.400, 18.20, and 74.00 correspond to the GDP, foreign direct investment, government capital expenditure, real interest rate, and inflation rate. As an alternative, the minimal values of the variables for the GDP, foreign direct investment, government capital expenditure, real interest rate, and inflation rate are 494.64, -1.87, 24.04, -31.50, and 5.39, respectively. Over time, the two variables with the highest standard deviations were the GDP and government capital spending (58300.91 and 814.3166, respectively). For the real interest rate, inflation, and government capital spending, values greater than 3.0 are indicated at the apex of the kurtosis-measured distribution. Plasykurtic distributions have kurtosis values of less than three for each of the other variables in the distribution, making them fat and short-tailed. The probability values for the distribution are compared to the findings of the Jarque-Bera test of normalcy in order to ascertain the asymptotic test. Given that each variable has a low probability value and that the means and medians of the variables are nearly equal, we can conclude that the residuals of the distribution have a normal distribution.

The Augmented Dickey-Fuller (ADF) test was used to determine whether the series are stationary and exhibit a random walk concomitant with the stochastic process. Table 2 provides a summary of the findings. At the 5% level of significance, the ADF unit root test shows that both GDP growth and inflation are stagnating. The outcome shows that real interest rates (RINT) and foreign direct investment (FDI) are stationar at first difference. The next section shows that the variables have no unit root problems and that the ARDL model can be used to both I(0) and I(1).

The bound test

The limits test was used to see whether there was a long-term relationship between the variables in the models. The limits test requires that the F-statistic value be greater than the upper bound critical values at the chosen level of significance in order for there to be a long-run relationship. Table 3 provides a summary of the findings. Table 3 shows that, at the 5% level of significance, the F-statistic value of 11.98563 for the ARDL model is more than the upper limits value of 3.49. This implies that there is a long-term relationship between the components.

Lag selection criteria

The study estimated the lag order and length in this model using the LR, FPE, and AIC information criteria. This criterion was selected because it can produce results that are more reliable and long-lasting (Qu & Perron, 2007). Table 4 outlines how to choose the ideal model for your requirements. The third order is favored based on the collection criteria listed in (Table 4) and in line with Andrews and Lu (2001). This is because the largest criterion collection value is found in the third order.

ARDL short run and long run estimates for the GDP model

The Schwarz criteria (SC) are used by the GDP model's

Table 1: Descriptive Statistics.

Variables	GDP	FDI	CET	RINT	INFL
Mean	52726.61	2.99E+09	796.1064	3.978788	19.91182
Median	30375.18	2.01E+09	552.4000	5.800000	12.88000
Maximum	202365.0	8.84E+09	3714.400	18.20000	74.00000
Minimum	494.6437	-1.87E+08	24.04860	-31.50000	5.390000
Std. Dev.	58300.91	2.63E+09	814.3166	9.817133	18.79225
Skewness	1.022949	0.874262	1.833124	-1.541227	1.924348
Kurtosis	2.940179	2.595842	6.588059	6.567072	5.393214
Jarque-Bera	5.760258	4.428436	36.18386	30.56010	28.24242
Probability	0.056128	0.109239	0.000000	0.000000	0.000001
Sum	1739978.	9.85E+10	26271.51	131.3000	657.0900
Sum Sq. Dev.	1.09E+11	2.21E+20	21219571	3084.035	11300.75
Observations	33	33	33	33	33

Source: Authors' computation from Data 2024

Table 2: Unit root test results.

Variables	**At Level**	**1st Diff**	**Critical Stat. at 5%**	**Order of integration**
GDP	11.24212	-	-2.957110	1(0)
FDI	-1.435362	-5.975807	-2.960411	1(1)
CET	2.283462	-	-2.991878	1(0)
RINT	-2.107901	-6.110207	-2.967767	1(1)
INF	-3.349058	-	-2.957110	1(0)

Source: Authors' computation from Data 2024

Table 3: ARDL Bounds TestTable 3: ARDL Bounds Test.

ARDL Bounds Test		
Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	11.98563	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.2	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Source: Authors' computation from Data 2024

Table 4: Lag order length.

Lag	**LogL**	**LR**	**FPE**	**AIC**	**SC**	**HQ**
0	-1508.091	NA	4.43e+37	100.8727	101.1062	100.9474
1	-1367.946	224.2318	2.11e+34	93.19639	94.59758*	93.64464*
2	-1351.190	21.22337	4.25e+34	93.74603	96.31490	94.56783
3	-1307.201	41.05683*	1.85e+34*	92.48007*	96.21660	93.67542

Source: Authors' computation from Data 2024

ARDL process to automatically establish the lag order. The explanatory variables for long-run and short-run behaviors are shown in the following (Tables 5 and 6), respectively: The model's short-run version shows that there is a short-term negative correlation between GDP and the rate of inflation. Akiri et al. (2016) found that growth is significantly impacted by the rate of inflation as well. The theoretical and statistical requirements are met by this solution. It was shown that the short-term GDP was significantly harmed by foreign direct investment (FDI). This analysis shows that FDI is an effective tool for accelerating real growth in Nigeria, which validates the findings of Bello and Adeniyi (2020). Short-term GDP is positively and severely impacted by inflation. According to the error correction coefficient, short-term disequilibrium can be reconciled by the system at a pace of twenty percent every year. Table 6 assessment of the repressor's long-run behaviors indicates that the inflation rate has a minimal positive coefficient at the five percent significance level. This shows that inflation rates support long-term growth, in contrast to Anetor (2019) findings of a negative correlation. More specifically, a growth of 2969.8 is anticipated in

Table 5: Parsimonious Short-rum error correction ARDL Result.

Variables	Coefficient	Std. Error	t-statistic	Probability
D(GDP(-1))	-0.330524	0.153849	-2.148371	0.0455
D(FDI)	-3.44E-07	2.58E-07	-1.332555	0.1993
D(FDI(-1))	-9.52E-07	3.03E-07	-3.142167	0.0056
D(INFL)	-39.87414	23.74993	-1.678916	0.1104
D(INFL(-1))	26.96084	18.64670	1.445877	0.1654
D(INFL(-2))	51.59621	17.82544	2.894526	0.0097
CointEq(-1)*	-0.209772	0.003106	9.585917	0.0000

Source: Authors' computation from Data 2024

Table 6: Long Run Estimates (Dependent Variable=GDP).

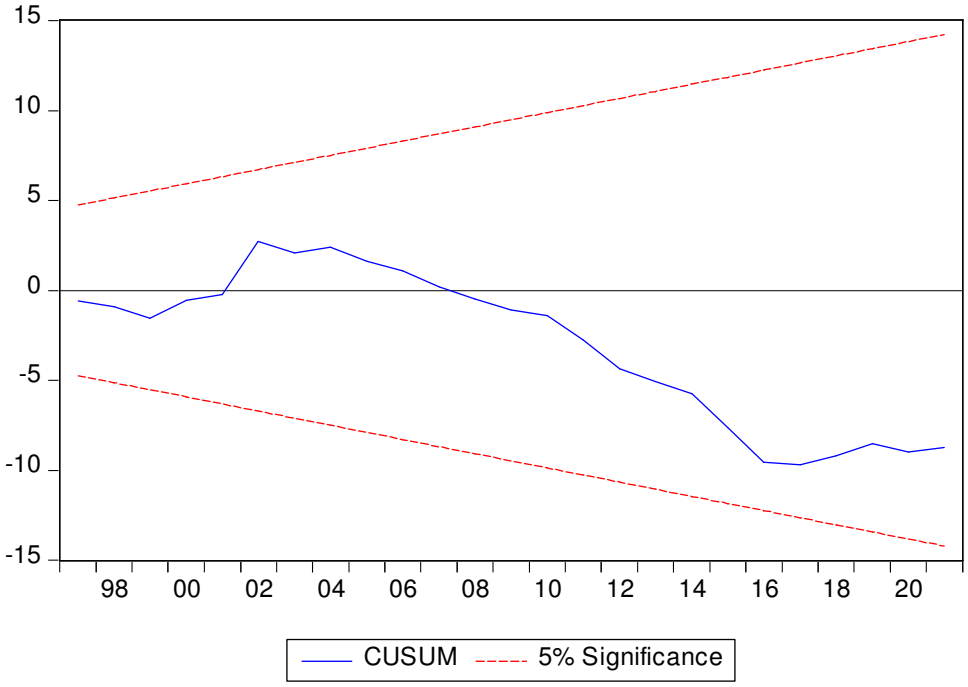
Variables	Coefficient	Std. Error	t-statistic	Probability
FDI	-1.58E-05	1.26E-05	-1.253334	0.2261
CET	-238.9179	194.1354	-1.230676	0.2343
RINT	5641.998	4791.776	1.177434	0.2544
INFL	2969.878	2909.387	1.020792	0.3209
C	-59706.95	68433.63	-0.872480	0.3944

Source: Authors' computation from Data 2024

Table 7: Post Estimation Test Results for the Estimated ARDL Model.

	Serial Correlation	Heteroscedasticity
F-stat.	2.680662	1.594607
Prob.	0.0991	0.1832

Source: Authors' computation from Data 2024



response to a 1% increase in the inflation rate. Oyesiku et al. (2019) indicates that government capital expenditures have a negligible and unfavorable effect on GDP. However, foreign direct investment (FDI) does not significantly contribute to explaining fluctuations in the growth rate, contrary to the findings of Bosede et al. (2018). However, the outcomes of a different study conducted by Bello and Adeniyi (2020) supported the conclusions of this study, showing that FDI has no significant long-term association with economic growth. There was no discernible difference between long-term real interest rates and (Anetor, 2019). Lastly, the results of two post-estimation tests on the estimated ARDL model (the Serial Correlation and Heteroscedasticity tests) are shown in (Table 7). Based on the results shown in Table 7, all probability statistics are

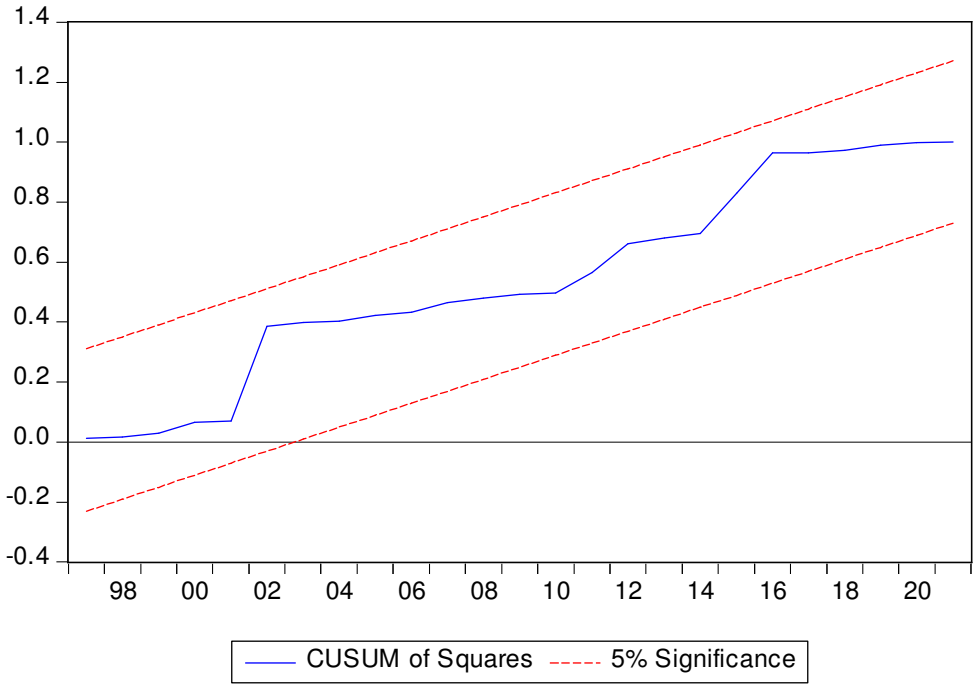


Figure1: CUSUM and CUSUMSQ Plot Test for Stability

more than 0.05. This indicates that the estimated ARDL model has passed all tests and is appropriate for policy recommendation. All of the model's coefficients are stable, which is crucial evidence that the model's parameters are stable, as shown by the graphs CUSUM and CUSUMSQ above, which show that the model's parameters do not undergo structural instability throughout the research (Figure 1).

DISCUSSION

The findings indicate that FDI and GDP have significant and inverse short-term correlations. Long-term gains would result from raising FDI in conjunction with the share of government capital expenditure allocated to infrastructure, such as high-quality highways. This is as a result of the government's supportive position in the industry. Furthermore, a percentage increase in FDI would cause the GDP to decrease by 9.52 percent. On the other hand, FDI has a discernible but adverse 5% influence on the country's economic progress. This result is a true representation of Nigeria's economic situation because the country does not have the fundamental infrastructure needed to support economic growth.

Furthermore, it appears that foreign companies are using their superior financial and technological resources to displace native firms. This outcome is consistent with the research that Akanbi and Du Toit (2010) did. There are several reasons why international investors steer clear of a particular country, but the most common ones are high tax rates for foreign businesses, lax government regulations for foreign investment, and conflict and instability. The government can thus address these issues to increase foreign investment in Nigeria, which is currently low and ineffective for the country's economic advancement.

Interest rates and GDP are positively correlated, which has an effect on the bond and stock markets. Lower interest rates result in lower borrowing costs, which promote investment and spending by consumers and businesses and may even raise the value of assets. Conversely, higher interest rates make borrowing more expensive and encourage saving, according to research conducted in 2019 by Enwerem and Ali. This implies that overall consumer spending is probably going to decrease. Lower total consumer spending on goods and services usually results in slower price increases, which in turn keeps interest rates high and decreases the rate of inflation.

Conclusion

Using the ARDL technique, this study examined the effect of infrastructure on the influx of foreign direct investment into Nigeria between 1970 and 2023.The long-run coefficient indicates that there is a negative and insignificant relationship between Economic Growth (EG) and foreign direct investment in the current year, but that the relationship becomes significant and positive after a year. This implies that economic expansion is necessary for the inflow of foreign direct investment.

Transport infrastructure and FDI exhibited a strong long-term association, but not a short-term one. This implies that improvements in the transportation sector will lead to a rise in foreign direct investment in Nigeria. Foreign direct investment and transportation infrastructure have a negative and insignificant link both now and a year from now.

This implies that the reason for the negligible association could be the frail status of our transportation network, which consists of our highways, trains, airports, and waterways. The transportation infrastructure is not being developed too much, but if it does get better, Nigeria will be able to draw in foreign direct investment (FDI). The challenges of the country's basic infrastructure needs, with a focus on ensuring an efficient, stable, and reliable power supply; safe drinking water; an effective and functional public transportation system; an effective and efficient communication system; positive trade relations; and efficient and steady economic growth in Nigeria, must be effectively addressed if FDI inflow into Nigeria is to be improved or sustained.

Recommendations

Based on the findings of the research, the following recommendations were made;

1. Improving the quality of the transportation infrastructure should be a priority in order to attract and enhance foreign direct investment.
2. The government ought to enact measures that promote foreign direct investment.
3. The federal ministry of transportation ought to achieve equilibrium between the government's endeavors to control transportation, improve the standard of human resources, and augment participation from the private sector.
4. Instead of making a show of themselves and competing with industrialized countries by providing investment incentives, it is believed that governments should focus on building their physical infrastructure and stabilizing interest rates. By doing this, these countries would be able to draw in both foreign and domestic investment, contributing to their development.
5. The government should construct infrastructure since it is an essential part of any plan to attract foreign direct investment (FDI).

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