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Moderating Effect of Institution in FDI-Growth Relationship in Developing Countries: A Case of Nigeria

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Abstract
This paper employed the good governance index as a proxy for institutional quality to examine its moderating effect on the FDI-growth relationship in Nigeria from 2006 to 2020. The ARDL bounds testing approach was employed as the technique of analysis to ascertain the direct impact of FDI on economic growth and the indirect impact through the moderating effect of institutional quality (good governance). The paper provides evidence of a long term relationship between FDI and economic growth as well as a significant unconditional positive impact of FDI on economic growth. Regarding the interactive effect of institutional quality (good governance) on the FDI-growth effect, we find convincing evidence that institutional quality (good governance) alters the effect of FDI on economic growth favourably. Therefore, it is recommended that Nigeria strengthen its governance quality to benefit more from FDI and achieve better economic growth results.
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1.1 Introduction

Economic growth is one of the essential benchmarks for every well-managed economy. Increased economic growth indicates increased economic development and welfare; as a result, governments are interested in finding strategies to improve the growth of the economy. (Etale et al., 2016). Fuller (1991) defined economic growth as an "increase in an economy's productive capacity as a function of Gross Domestic Product (GDP) growth". Thus, economic growth is the expansion of commodities and services in a country that increases consumption. This condition could lead to a rise in labour demand and a rise in labour income.

The relationship between foreign direct investment (FDI) and economic growth is well-studied in the theoretical and empirical development economics literature. With the introduction of endogenous growth theories (Barro, 1991; Barro & Sala-i-Martin, 1995), a renewed interest in growth determinants and extensive research on externality-led growth made it more realistic to include FDI as one of the causes of long-run economic growth. The concept that an economy's openness enhances economic growth is universally acknowledged, regardless of whether the economy is developed or developing (Etale et al., 2016). Foreign direct investment (FDI) is critical for boosting international capital flows, and it has piqued the interest of many experts. FDI can boost the host country's export capacity, resulting in higher foreign exchange revenues for the developing country.

Although the structure of FDI inflows has evolved significantly over time, FDI remains a vital instrument for growth enhancement in the vast majority of countries. According to the Organization for Economic Cooperation and Development (OECD), countries having weaker economies view FDI as the sole means of growth and economic transformation. As a result, governments, especially in developing nations, are putting more emphasis on foreign capital. However, the FDI spillover effect on the host countries does not occur instantaneously but rather depends on the host countries' absorptive capacity, determined by various factors like the quality of the host country's institutional quality.

A country's institutional quality is mainly defined by the extent to which property rights are protected, the level to which rules and regulations are enforced fairly, as well as the level to which corruption exists (IMF, 2003). International development agencies and non-governmental organisations (NGOs) have been campaigning for "good governance" and institutional changes to boost institutional quality to improve the investment climate and stimulate growth in developing nations. These measures are considered critical for economic success and attracting FDI. Despite the paucity of empirical data on the nature of the connection between institutional quality and FDI, the policy appears to have improved in executing these institutional changes once resources and other conditions are under check. As a result, policy debates regarding the importance of institutional quality in assessing a country's competitiveness to attract FDI have intensified.

For decades, African countries have been in a state of abject economic growth delirium. Economic growth in the continents has been epileptic, unsustainable, and even where it has occurred, it has been marred by constant macroeconomic uncertainty and financial crisis. "The economic performances of the African countries have drawn significant attention in recent years, with superlative words such as 'tragedy, mediocre, and dismal' used to characterise the low rates of economic growth witnessed in these countries from the 1980s to date," African countries has been the only developing-world area to 'stagnate,' and growth rates have been generally low. From

1961 to 2000, the average GDP per capita growth rate in SSA was 0.45 percent, compared to 1.6 percent in Latin America and the Caribbean (LAC), 2.3 percent in South Asia (SA), and 4.9 percent in East Asia and the Pacific (EAP)." (Opeyemi, 2020)

According to a United Nations report, African countries continue to have the world's highest poverty rates. In 2021, 490 million people in Africa, approximately 36% of the total population, are living in extreme poverty. This is an increase over the previous year's figure of 481 million. Although Sub-Saharan Africa has a higher percentage of FDI host countries than any other region in Africa, poverty is substantially worse in Sub-Saharan Africa. The region also contains some of the world's poorest countries. Nigeria, Africa's largest economy and third FDI recipient, has a 46 per cent poverty rate, with 90 million people living in extreme poverty out of a population of approximately 210 million. Between 2011 and 2020, Nigeria was one of the leading African destinations for FDI. Nigeria was ranked second in terms of net inflow of $45.1 billion, following only Egypt, which attracted $56.2 billion, and one spot ahead of South Africa, which received $41.3 billion.

Despite the inflow of foreign direct investment into Nigeria, the countries' inability to attract the required level of investment to boost its economy has been a major challenge. Nigeria still suffers from large prevalence of resource gaps due to domestic financial systems' inability to mobilise adequate resources (UNCTAD, 2020). Thus, the quest for economic growth through favourable foreign investment policies has not been readily actualised. Nigeria is still characterised by unimpressive poor macro-economic performance low per capita income, high unemployment rates and the level of economic transformation has been low (Adeyeye et al., 2017). Over years Nigeria annual GDP growth rate has maintained a downward trend. According to World Bank (2020), between 2002 to 2020, Nigeria's annual GDP growth rate dropped from 15 per cent to approximately -1.7 per cent. This is in contrast to current research's reports of foreign direct investment contributing to economic growth and development. It also contradicts recent empirical evidence from China and other rapidly developing Asian nations, in which a reasonable level of growth has accompanied the inflow of FDI. (Modou & Liu 2017)).

Irrespective of the laudable research volume on FDI and economic growth, empirical evidence still shows that the relationship between FDI and economic growth stands conflicting and debatable. On the one hand, one stream of researchers asserts that foreign direct investment has a negative impact on economic growth. (Carkovic & Levine 2017; Bermejo & Werner, 2018; Cruz et al., 2019; Asongu & Odhiambo, 2020). They further augured that foreign direct investment creates income inequality, discourage national sovereignty and self-dependency and also repatriate capital from the economy to the home country; as a result, developing economies are denied the opportunity to grow, thus in agreement with the dependency theory, the resultant effect of FDI dependent nation tends to be detrimental in the long-run. This was in line with Sen (1998), when he emphasised that multinationals may negatively impact the host country's research and development to maintain a technological advantage over local firms. In addition, he emphasises the rise in royalty payments, which would have a negative effect on the balance of payments. According to Vissak and Roolaht (2005), the host country may rely on multinationals' technologies. These authors argued that employees with a high level of education may leave the country because there are no opportunities for R&D in the host country.

This view has been strongly challenged by another stream of researchers who opined that foreign direct investment has a positive impact on economic growth (Galaye Ndiaye & Helian Xu,2016; Hasibul & John 2017; Sokang,2018; Samborskyi, 2020), they further argued that foreign investment is key to solving the problem of low productivity, and scarce local capital in developing economies through efficient exploitation and utilisation. On the other hand, another group of researchers (Ayub et al., 2019; Matsumoto, 2020) believe that the benefits of FDI depend on the absorptive capacity of the host country. They thereby emphasised that the growth effect of foreign direct growth is induced by its interaction with other moderating factors in the host countries, such as the host country's institutional, economic, political, social, and cultural state. This is consistent with Dunning's (2002) assertion that institutional qualities of the host country have become a vital driver being considered by multinational corporations' towards attaining their respective efficient seeking goal rather than market and resource seeking. Considering this underlying problem and the need to reconcile the discrepancies from previous findings, the study contributes by the broader inclusion of all the Worldwide Governance Indicators as a proxy for institutional quality to moderate the FDI-growth effect specifically for Nigeria.

The study is structured into five sections .section one provides the study's background, which has already been discussed. The review of literature is depicted in section two, the adopted methodology of the study and its justification is covered in chapter three, chapter four presents the analysis of the various data collected, results and discussion of findings and finally summary, conclusion and recommendations are discussed in chapter five

2. Literature Review

A quite number of both local and foreign empirical studies have been done on the relationship between foreign direct investment and economic growth. The general observation from these studies is that the results have been mixed depending on many factors, including sample periods, the methodology adopted, estimation techniques, measures of volatility adopted and the countries considered (developed or developing). Some of these empirical

studies are being reviewed in this section

Nguyen et al. (2021) examined the relationship between FDI, trade, and economic growth in Albania. Annual time-series data were used in the study, as well as Johansen cointegration analysis and the error correction model. The findings revealed a long-term connection between foreign direct investment, trade, and economic growth. Similarly, Sapuan and Roly (2021) investigated the relationships between ICT adoption, foreign direct investment, and economic growth in ASEAN-8 countries. The panel regression analysis was used to test these relationships using data from 2003 to 2017. The findings revealed that ICT and FDI dissemination are significant and positively impact the ASEAN-8 countries' economic growth. However, Renzi (2021) also conducted a study to determine the effects of foreign direct investment on South Sudan. According to the report, South Sudan has been unable to completely exploit FDI, which also found that FDI has struggled to boost the country's economy and that poverty levels are still high. Furthermore, despite modest increases in FDI, South Sudanese citizens' average standard of living remains poor, and the country is still embroiled in a long-running civil war that has claimed thousands of lives.

Opeyemi (2020) evaluated the effect of FDI and inflation on economic growth in five African countries from 1996 to 2018. the results showed that FDI has a positive effect on economic growth in all five countries. In the same vein, Gochero and Boopen (2020) used the autoregressive distributed lag (ARDL) method to investigate the impact of mining FDI on the Zimbabwe economy while adjusting for non-mining FDI and domestic investment. Using a time-series data from 1988 to 2018, the result revealed that foreign direct investment in the mining sector has a significant positive relationship with the country's GDP over time. For the period 1980–2014, Asongu and Odhiambo (2020) researched how information and communication technology (ICT) mediates the impact of foreign direct investment (FDI) on economic growth dynamics in 25 Sub-Saharan African countries using the GMM estimation techniques. According to the findings, internet and cell phone penetration significantly mediate FDI, resulting in overall positive net effects on all three economic growth dynamics. Moreover, for the period 1990–2018, Joshua et al. (2020) examined the impact of FDI on economic growth in 200 economies. Panel estimation techniques such as pooled ordinary least squares (POLS), dynamic panel estimation with fixed and random effects, and generalised method of moments were used in the analysis (GMM). The study discovered that FDI, debt stock, and official development assistance all foster growth in the countries studied. However, debt stock has a minor effect. Trade openness and exchange rates, on the other hand, had a mixed (positive and negative) effect on economic development.

Using panel GMM techniques, Baiashvili and Gattini (2020) investigated the effects of FDI inflows on growth in developed and developing economies and how they are mediated by income levels and the efficiency of the institutional environment. It focuses on the relationship between FDI and country income levels, including low-, middle-, and high-income countries. The study found that FDI benefits are not distributed uniformly and mechanically across countries. Furthermore, an inverted-U shaped relationship between countries' income levels and the scale of FDI effect on growth was discovered. Within country income groups, institutional factors positively mediate FDI, with countries with better-developed institutions relative to their income group peers showing a positive impact of FDI on development. Samborskyi et. al. (2020) used multiple regression methods to model the relationship between foreign direct investment and economic growth in a free market economy. Foreign direct investment's positive contribution to economic growth is dependent on their shared impact with domestic direct investment. Furthermore, the authors pointed out that the direct impact of FDI can be decreased as a result of the negative externalities associated with foreign investment, which include, among other things, the replacement of domestic investment and capital repatriation.

Adegboye et al. (2020) evaluated the effect of institutional problems on FDI inflow and how it affects economic growth in sub-Saharan African host countries (SSA). The research used combined data from 30 SSA countries between the years 2000 and 2018. The fixed and random effect regression model was used to estimate the effect of foreign capital on economic growth in the developing SSA sub-region of Africa, with considerations for the quality of institutions. The report confirmed that FDI is critical for economic growth in Africa's SSA sub-region. Gherghina et. al. (2019) investigated the relationship between FDI inflows and economic growth, taking into account many institutional quality variables and the 2030 Sustainable Development Goals (SDGs). The empirical findings support a non-linear relationship between FDI and gross domestic product per capita by estimating panel data regression models for a sample of 11 Central and Eastern European countries from 2003 to 2016. In addition, control of corruption, government effectiveness, and regulatory efficiency, the rule of law, and voice and transparency all influence growth positively. At the same time, political stability and the absence of violence terrorism are not statistically significant. Also, using the Autoregressive Distributed Lag (ARDL) bounds testing approach, Soylu (2019) investigates the effect of savings and foreign direct investment on economic growth in Poland from 1992 to 2016. Findings revealed that FDI has a positive impact on economic growth.

Vásquez et al. (2019) examined the effect of Economic Openness and Foreign Direct Investment on economic growth in eighteen Latin American countries from 1996 to 2014. Findings from the Vectors Autoregressive model estimation revealed that FDI has a negative impact on growth of the selected country. However, Dinh et. al. (2019)

analysed and provided additional and applicable quantitative data on the effect of foreign direct investment (FDI) on economic growth in developing countries in the lower-middle-income group in the period 2000–2014. Findings from the result indicate that foreign direct investment (FDI) tends to boost economic growth in the long run, while having a negative effect in the short run for the sample countries. From 1996 to 2015, Hayat (2019) investigated the role of institutional quality in economic growth, specifically the role it plays through the channel of foreign direct investments. This paper examines the direct impact of institutional quality on economic growth and the indirect impact of institutional quality on economic growth by enhancing FDI-induced economic growth using a larger dataset of 104 countries and the GMM estimation method on dynamic panel data. This paper shows that FDI inflows and institutional quality both lead to higher economic growth. FDI-led growth, on the other hand, was limited to low- and middle-income countries. Better institutional quality was also found to boost FDI-led economic growth in these countries. The paper also discovered that FDI has a negative impact on economic growth in high-income countries. Dinh et. al. (2019) analysed and provided additional and applicable quantitative data on the effect of foreign direct investment (FDI) on economic growth in developing countries in the lower-middle-income group in the period 2000–2014 in their report. Findings from the result indicate that foreign direct investment (FDI) tends to boost economic growth in the long run while having a negative effect in the short run for the sample countries.

Kawaii (2018) examined the role of FDI on the economic growth of 62 selected countries from 1972 to 2016 using a panel analysis approach. Findings revealed that FDI has a positive and significant impact in determining the growth of these countries. This result contrasts with the earlier study conducted by Cakovic and Levine (2017), who also employed a panel data approach to examine the relationship between FDI and economic growth. Their finding revealed that FDI and its components do not exert a robust influence on economic growth. Katerina et. al. (2017) employ the Bayesian analysis to empirically analyse the relationship between foreign direct investment and economic growth of the United States and European nations. Their findings in conformation with Cakovic et. al. (2017) reveal that FDI does not significantly impact the economic growth of these selected countries. Nguyen (2017) uses annual time series data from 1986 to 2015 to investigate the short and long run effects of foreign direct investment (FDI) and export on Vietnam's economic growth using ARDL and error correction models. The findings indicate that FDI has a substantial positive impact on Vietnam's economic growth in the long run, while export has a negative impact. However, in the short run, FDI and export have no significant impact on economic growth.

Hayat (2017) also investigates the role of institutional quality in economic growth, especially as it relates to foreign direct investments. The paper examines the direct and indirect effects of institutional quality on economic growth through foreign direct investments using economic performance-related institutional quality indicators (both an aggregated variable of institutional quality and individual indicators). A dynamic panel data collection of 104 countries was estimated using the GMM estimation method. In contrast to countries with lower institutional quality, FDI inflows induce faster economic growth in countries with higher institutional quality. Similarly, Jilenga and Helian (2017) investigate the effect of FDI on economic growth and the position of institutional efficiency. A sample of 36 countries from Sub-Saharan Africa was used from 2001 to 2015, and the estimation was executed by adopting the Generalize Moment Method (GMM) estimation techniques. The empirical findings reveal that foreign direct investment has a significant negative impact on economic growth. On the other hand, institutional efficiency has a positive impact on economic growth. When the interaction term between FDI and institutional quality is considered, empirical evidence shows that institutional quality increases the FDI spillover effect and thus matters for economic growth. The results of the GMM model show that good institutions are needed to mediate the effects of FDI on economic growth.

Olawunmi and Olufemi (2016) employed the modified growth model to examine the impact of FDI on economic growth in some randomly selected African economies from 1980 to 2013. The two-estimation method used was the ordinary least square regression (OLS) and the generalised moments method (GMM). They found that, except for the Central African Republic, the FDI estimate in all selected countries was significantly positive for both OLS and GMM. However, despite the large and optimistic coefficients of FDI, the extremely small magnitude that indicated a limited or negligible effect of FDI on economic growth was still the most important aspect of the coefficients. In the same vein, Adedeji and Ahuru (2016) suggested in their findings that, while FDI tends to stimulate African development, it is not a critical factor in the growth process of Africa. Furthermore, the researchers claimed that the reception of global FDI by SSA was very unimpressive.

3.1 Methodology and Data

3.2 Model Specification

In order to examine the impact of FDI on the economic growth of Nigeria, the study augment the Mankiw, Romer and Weil (1992) endogenous growth model by following the modified works of Borenztein et. al. (1998), Trinh & Nguyen (2015) and Mamingi & Martin, K. (2018) where FDI is incorporated as one of the factor inputs along with institutional quality, human capital developement, labour, domestic investment, trade openness and inflation rate.

The model for this study is specified as follows:

$$Y_t = \beta_0 + \beta_1 Y_{t-1} + \beta_2 FDI_t + \beta_3 GOV_t + \beta_4 lnHC_t + \beta_5 lnLAB_t + \beta_6 lnGFCF_t + \beta_7 TOP_t + \beta_8 INF_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.1$$

Where Y being the dependent variable is GDP growth rate which stands as a proxy for economic growth, Y_{t-1} is the lagged value of GDP growth rate, FDI is foreign direct investment measured as a percentage of GDP, GOV is good governance used as proxy for institutional quality, HC is human capital development measure as primary school enrolment, LAB is labour, GCFC is gross fixed capital formation used as proxy for domestic investment, TOP is trade openness measured as sum of exports and imports as a percentage of GDP , INF is inflation, β_0 is the intercept, β_1- β_8 are slope of the explanatory variables; *ln* represents the natural logarithm of variables, ε is the error term, and t denotes the time dimension.

There are several reasons for using the log-linear specification to estimate the coefficient of variables. Firstly, the relationship between these different parameters is not linear. Second, in the case of the log model, the coefficient value might be expressed as a percentage or elasticity rather than a unit. Furthermore, we anticipate that FDI inflows, good governance, domestic investment, trade openness, human capital development, labour force, and infrastructure facilities would have a positive impact on economic growth in Nigeria, while inflation will have a negative impact.

In order determine the moderating effect of institutional quality on the FDI-growth relationship, we, therefore, modify the baseline model (Eq. 3.1) to include the interaction between FDI and good governance quality in order to test the hypothesis that the influence of FDI on the growth of Nigeria economy is dependent on the level of governance quality. Therefore, the second set of regression that includes the interactive term can be expressed as thus:

$$Y_t = \chi_0 + \chi_1 Y_{t-1} + \chi_2 FDI_t + \chi_3 GOV_t + \chi_4 (FDI * GOV)_t + \chi_5 lnHC_t + \chi_6 lnLAB_t + \chi_7 lnGFCF_t + \chi_8 TOP_t + \chi_9 INF_t + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots 3.2$$

We are interested in χ_2 and χ_4 which gives details on the marginal effect of FDI on economic growth based on the quality of governance. A positive interaction (χ_4>0) would imply that the governance quality enhances the positive effect of foreign direct investment on economic growth, also a positive coefficient of χ_2 ($\chi_2 > 0$) would imply that FDI has a direct positive effect on economic growth and vice-versa.

Regarding the estimation methods for time series data, The Augmented Dickey-Fuller (ADF) unit root test (Dickey & Fuller, 1979) will first be employed to ascertain the variables' stationarity condition. Thereafter, we estimate the optimal lag to be used in the study according to the lag selection criterion. Once the individual series' stationarity features and lag selection have been determined, linear combinations of the integrated series are assessed for cointegration. The cointegrated relationship between variables is commonly regarded as the variables' long-term equilibrium. The ARDL bound testing technique will be used to perform the cointegrating test and the regression analysis. Various cointegration techniques are available in the prior research, including Engle and Granger (1987), Johansen (1988) cointegration test, and Banerjee et al. (1998). These cointegration techniques, however, have several drawbacks. For example, the Engle and Granger cointegration technique has two phases, and inaccuracy in one step might transfer over to the next, resulting in biased predictions (Ahmed et al., 2019). The cointegration technique developed by Johansen and Juselius (1990) is based on a single equation and needs a consistent order of integration 1(1) and a large sample size.

Furthermore, the availability of several cointegration approaches sometimes leaves a user uncertain regarding selecting an appropriate cointegration method because the results of cointegration testing might differ. The ARDL modelling approach was originally introduced by Pesaran and Shin (1999) and further extended by Pesaran et al. (2001). This approach is based on estimating an Unrestricted Error Correction Model (UECM), which enjoys several advantages over the conventional cointegration techniques. The ARDL bound test approach proposed by (Pesaran et al., 2001) is preferred for the study since it gives reliable estimations for small sample sizes, like this study's case, which spans from 1995 to 2020. Furthermore, the ARDL technique is not dependent on a consistent integration sequence and can be used as long as no variable is integrated at 1(2) (Nathaniel, 2020). This approach employs a simple linear transformation to estimate both short-run and long-run dynamics at the same time, with the error correction term capturing the speed of convergence (Uzar & Eyuboglu, 2019). Furthermore, the ARDL bound testing method is devoid of autocorrelation, and an optimal lag length selection eliminates the issue of endogeneity (Nepal et al., 2021).
The generalised ARDL (p, q) model is specified as:

$$Y_t = \gamma_{0i} + \sum_{i=1}^{p} \delta_i Y_{t-1} + \sum_{i=1}^{q} \beta_i X_{t-1} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots 3.3$$

Where Y_t is a vector and the variable in X_t are allowed to be purely I(0) or I(1) or cointegrated, δ *and* β are coefficient; γ is the constant; i=1,…..k; p,q are optimal lag orders; ε_{it} is a vector of the error terms - unobservable zero mean white noise vector process(serially uncorrelated or independent)
To perform the bound test for cointegration, the conditional ARDL (p, q_1, q_2) model is specified as
Hypotheses:
H_0: $b_{1i} = b_{2i} = b_{3i} = 0$ (where i = 1, 2, 3)
H_1: $b_{1i} \neq b_{2i} \neq b_{3i} \neq 0$

$$\Delta Y_t = \alpha_{01} + \beta_1 Y_{t-1} + \beta_2 FDI_{t-1} + \beta_3 GOV_{t-1} + \beta_4 (FDI * GOV)_{t-1} + \beta_5 lnHC_{t-1} + \beta_6 lnLAB_{t-1} + \beta_7 lnGFCF_{t-1} + \beta_8 TOP_{t-1} + \beta_9 INF_{t-1} + \sum_{i=1}^{P} \alpha_{1i} \Delta Y_{t-1} + \sum_{i=1}^{q} \alpha_{2i} \Delta FDI_{t-1} + \sum_{i=1}^{q} \alpha_{3i} \Delta GOV_{t-1} + \sum_{i=1}^{q} \alpha_{4i} \Delta (FDI * GOV) + \sum_{i=1}^{q} \alpha_{5i} \Delta lnHC_{t-1} + \sum_{i=1}^{q} \alpha_{6i} \Delta lnLAB_{t-1} + \sum_{i=1}^{q} \alpha_{7i} \Delta lnGFCF_{t-1} + \sum_{i=1}^{q} \alpha_{8i} \Delta TOP_{t-1} + \sum_{i=1}^{q} \alpha_{9i} \Delta INF_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots 3.4$$

If there is no cointegration, the ARDL (p, q_1, $q_{2.....}$ q_9) model is specified as:

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{P} \alpha_{1i} \Delta Y_{t-1} + \sum_{i=1}^{q} \alpha_{2i} \Delta FDI_{t-1} + \sum_{i=1}^{q} \alpha_{3i} \Delta GOV_{t-1} + \sum_{i=1}^{q} \alpha_{4i} \Delta (FDI * GOV) + \sum_{i=1}^{q} \alpha_{5i} \Delta lnHC_{t-1} + \sum_{i=1}^{q} \alpha_{6i} \Delta ln\, LAB_{t-1} + \sum_{i=1}^{q} \alpha_{7i} \Delta lnGFCF_{t-1} + \sum_{i=1}^{q} \alpha_{8i} \Delta TOP_{t-1} + \sum_{i=1}^{q} \alpha_{9i} \Delta INF_{t-1} + \varepsilon_t \dots\dots\dots 3.5$$

If there is cointegration, the error correction model (ECM) representation is specified as:

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^{P} \alpha_{1i} \Delta Y_{t-1} + \sum_{i=1}^{q} \alpha_{2i} \Delta FDI_{t-1} + \sum_{i=1}^{q} \alpha_{3i} \Delta GOV_{t-1} + \sum_{i=1}^{q} \alpha_{4i} \Delta (FDI * GOV) + \sum_{i=1}^{q} \alpha_{5i} \Delta ln\, HC_{t-1} + \sum_{i=1}^{q} \alpha_{6i} \Delta lnLAB_{t-1} + \sum_{i=1}^{q} \alpha_{7i} \Delta lnGFCF_{t-1} + \sum_{i=1}^{q} \alpha_{8i} \Delta TOP_{t-1} + \sum_{i=1}^{q} \alpha_{9i} \Delta INF_{t-1} + \lambda ECT_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots 3.6$$

Where
$\boldsymbol{\lambda}$ = (1 - $\sum_{i=1}^{p} \delta i$), speed of adjustment with negative sign
ECT = (Y_{t-1} - ΘX_t), the error correction term
$\theta = \frac{\sum_{i=0}^{q} \beta i}{\alpha}$, is the long-run parameter
$\alpha_{1i} - \alpha_{9i}$ are the short-run dynamics coefficient of the model's adjustment long-run equilibrium

3.3 Data

The dataset used for this study is based on annual time series data spanning from 1996 to 2020 which will be obtained from World Development Indicator (WDI). The dependent variables economic growth proxy by GDP growth rate, while the main independent variables are foreign direct investment and institutional quality (proxy by good governance). As described by Kaufmann et al. (2010), governance quality is composed of six distinct governance indicators: the rule of law, control of corruption, regulation quality, government effectiveness, voice and accountability, and political stability. Based on these indicators, we create a composite governance index that summaries the above six governance indicators into a comprehensive measure by employing the Principal Component Analysis (PCA). According to Laura et al. (2016), PCA is a more suitable measure of corporate governance since it detects governance indicators and eliminates the issue of variable multicollinearity. Next to good governance, we included other explanatory variables which are, human capital development, labour force, trade openness, gross fixed capital formation and inflation

4. Data Analysis and Interpretation

4.1 Test for Stationarity

Given the fact that the ARDL method can estimate a cointegrating vector containing both I(1) and I(0) series, it is still necessary to rule out the likelihood that any of the series is (2). Thus table 1 presents the summary of the Augmented Dickey-Fuller (ADF) in order to ascertain the stationary status of the variables

Table 1. *Summary of the ADF Unit Root Test*

S/N	Variable	ADF Statistic	Critical value (5%)	Order of Integration	Prob (5%)	Remarks
1	GDP	-6.426071	-3.622033	I (1)	0.0455	Stationary
2	FDI	-7.880443	-3.622033	I (1)	0.0000	Stationary
3	GOV	-3.855761	-3.644963	I (0)	0.0335	Stationary
4	HC	-3.967246	-3.622033	I (1)	0.0002	Stationary
5	LAB	-3.767563	-3.710482	I (1)	0.0453	Stationary
6	GFCF	-8.922930	-3.004861	I (1)	0.0000	Stationary
7	OPN	-5.184600	-2.998064	I (1)	0.0004	Stationary
8	INF	-4.819944	-2.991878	I (0)	0.0008	Stationary

Source: Researcher's Computation Using Eviews 10.

The summary of the ADF unit root test as presented in Table 1, revealed a mix of other of integration among the series. The stationarity property is determined where the ADF statistics is less than the critical value (5%).

Moreover, the significant p-value at 5% level of significance also proves the stationary status of the series While economic growth(GDP), foreign direct investment(FDI), human capital development (HC), the labour force(LAB), gross fixed capital formation(GFCF) and openness (OPN) attained stationary after first difference I (1), good governance(GOV) and inflation (INF) attained stationarity at level I (0). This mixed order of integration of the variables calls for the usage of the ARDL approach of cointegration. Therefore, the null hypothesis of the presence of unit root can be rejected.

4.2 Bounds Test Approach to Cointegration

Since the stationary status has been confirmed using the ADF unit root test, we then employed Autoregressive Distributed Lag (ARDL) bounds testing approach to examine the long-run relationship between FDI and economic growth within the period under study. Table 2 presents the result of ARDL bounds test for the cointegration relationship

Table 2. ARDL Bound Test

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	6.805299	10%	2.03	3.13
k	7	5%	2.32	3.5
		2.5%	2.6	3.84
		1%	2.96	4.26

Source: Researcher's Computation Using Eviews 10.0

The result of the bound test, as shown in Table 2, revealed that the F-statistics (6.805299) is greater than the upper and lower bound at a 5 per cent level of significance. This implies that foreign direct investment and economic growth have a long-run relationship. Thus the null hypothesis of no cointegration between the variable is rejected.

4.3 Long-run elasticities Based ARDL-ECM model

Having confirmed that the variables are cointegrated, we estimate the long-run coefficient of the same equation and the associated ARDL error correction models. The ARDL model, on the other hand, necessitates prior information or estimation of the extended ARDL ordering. This good change of the ARDL model's orders is adequate to compensate for residual serial correlation and the issue of endogenous regressors at the same time (Pesaran and Shin, 1997). The Akaike Information Criterion (AIC) or the Schwartz Bayesian Criterion are used to determine the order of the distributed lag on the dependent variable and regressors (SBC). Based on Monte Carlo data, Pesaran and Smith (2001) conclude that SBC is better than AIC because it is a parsimonious model that takes the shortest feasible lag length. In contrast, AIC selects the largest relevant lag length. SBC will be used as a lag selection criterion in this study. Table 3 present the summary of the Long-run elasticities based ARDL-ECM model

Table 3. Summary of the Long run elasticities based ARDL-ECM model

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(GDP(-1))	0.341533	0.094575	3.611223	0.0033
D(FDI)	0.205510	0.075669	2.715887	0.0253
D(GOV)	0.313711	0.103119	3.042211	0.0081
D(FDI*GOV)	0.393337	0.125098	3.144212	0.0026
D(GFCF)	0.158122	0.005979	2.644293	0.0485
D(HC)	0.090350	0.034562	2.614078	0.0270
D(INF)	-0.718841	0.258708	-2.778575	0.0020
D(LAB)	0.089570	0.004128	2.169526	0.0682
D(OPN)	0.122517	0.051843	2.363202	0.0978
ECM	-0.572415	0.173880	3.291998	0.0010
C	0.216450	0.007862	2.752858	0.8426
R-squared	0.776320	F-statistic		4.164815
Adjusted R-squared	0.719921	Prob(F-statistic)		0.011307
Durbin-Watson stat	1.714028			

Source: Researcher's Computation Using Eviews 10.0

The summary of the ARDL-ECM regression estimate as presented in table 3 revealed that the past value of GDP growth rate has a coefficient of 0.341533; this implies that the past of value of economic growth has a positive

impact on the present value; thus a 1 per cent increase in the past value will lead to about 0.34 per cent increase in the present value. The p-value of 0.0033 is also significant at 5 per cent level of significance. Foreign direct investment has a positive and significant impact on economic growth with a coefficient of 0.205510 and p-value of 0.025. This implies that a percentage increase in FDI will lead to about 0.20 per cent increase in economic growth. More also, good governance has a coefficient of 0.313711 and a significant p-value of 0.313711. This means that a percentage increase in good governance will lead to about 31 per cent in economic growth. The interaction between FDI and institutional quality (good governance) has a positive coefficient of 0.39337 and a significant p-value of 0.0026. With institutional quality (good governance), an increase in FDI will lead to a 0.39 per cent increase in economic growth. Moreover, that FDI tend to have a more positive and significant impact on economic growth when moderated with good governance

Furthermore, gross fixed capital formation and human capital development have a significant and positive impact on economic growth; thus, their one per cent increase will lead to about 0.15 per cent and 0.09 per cent increase in economic growth, respectively. Inflation has a negative coefficient of -0.718841 and a significant p-value of 0.0020, meaning that a percentage increase in inflation will amount to about 0.71 decreases in economic growth. Although labour force and trade openness have a positive coefficient of 0.089570 and 0.122517, respectively, the positive impact is not significant on economic growth since the p-value (0.0682 and 0.00978) is greater than the 5 per cent level of significance. The ECM represents the rate at which the dynamic model adjusts to regain equilibrium after a disruption. The ECM coefficient is -0.57, which means that divergence from long-run equilibrium caused by a short-run shock is corrected at an adjustment speed of 57% in the current period. The constant C of the regression model is 0.216450; it is positive and statistically significant at 5% level of statistical significance. The constant provides the value of economic growth when all the independent variables are simultaneously held at zero

The Adjusted R-Squared, which is a more precise measure of goodness of fit, is 0.719921. This implies that about 71 per cent variation in the economic growth of Nigeria over the period under study is influenced by the explanatory variables in the model; thus, the remaining 29 per cent can be attributed to other variables that influence economic growth but not captured in the model. These variables are captured in the error term (ε). The F-statistic of the model is 4.164815 and it is statistically significant at the 5% level of significance since the p-value is 0.0011307; this indicates that the model is well specified and therefore shows that the independent variables jointly have a significant influence on the dependent variable. The Durbin-Watson statistic value of the model is approximately 2, having a value of 1.714028. This value indicates that the model is free from any problem of serial correlation; therefore, the period residual of the model is not correlated with previous period residuals of the model.

4.7 Residual Diagnostics Tests

This section presents the post estimation test that was estimated to ascertain the reliability and validity of the result estimates. They include the Heteroskedasticity test and multicollinearity test. The results from the tests are shown in the tables below.

Table 4. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.997737	Prob. F(10,12)	0.4941
Obs*R-squared	10.44163	Prob. Chi-Square(10)	0.4026
Scaled explained SS	2.191176	Prob. Chi-Square(10)	0.9947

Researcher's Computation using Eviews 10

Table 4 shows the outcome of the Breusch Pagan-Godfrey test, which was used to determine the residual status of the variables. The p-value of 0.5304 surpasses 0.05 at the 5% level of significance, indicating no heteroskedasticity in the series. As a result, the null hypothesis that there is no heteroskedasticity in the residual cannot be rejected. This implies that the model meets the heteroskedasticity test, demonstrating that the residuals have equal variance.

Table 5. Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.507717	Prob. F(1,11)	0.2451
Obs*R-squared	2.772488	Prob. Chi-Square(1)	0.0959

Researcher's Computation using Eviews 10

Table 5 presents the result of the serial correlation test using the Breusch-Godfrey LM test for autocorrelation. The test for serial or autocorrelation in the residuals conducted reveals that the errors are with zero mean and serially uncorrelated given that the Chi-Square statistics in table (6) also exceeds the chosen level of significance (0.00959> 0.05). In other words, there is no serial correlation the residuals.

4.8 Stability Test

To assess the stability of the coefficients, we applied the CUSUM and CUSUMQ of Squares tests as proposed by Brown et. al. (1975) to check the stability of the long-run parameters and the short-run movements for the ARDL-Error Correction Model.

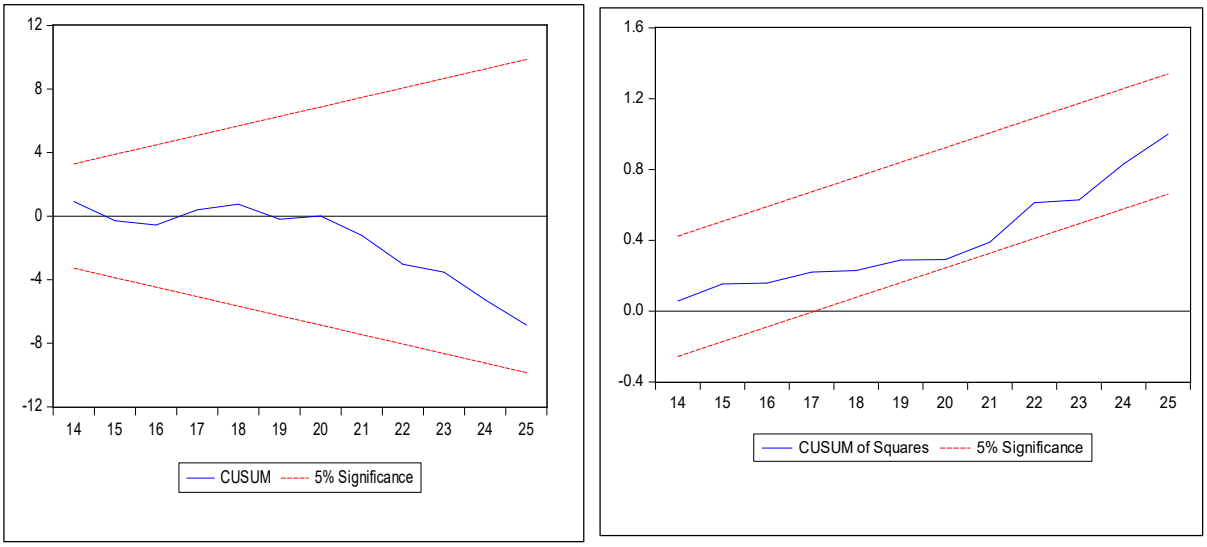

Figure 1. *Plot of CUSUM and CUSUMSQ (Stability Test)*
Researcher's Computation using Eviews 10

Figure 1 indicates that the CUSUM and CUSUMSQ statistics are well inside the 5% critical bounds, suggesting that the ARDL-Error Correction Model's short-run and long-run coefficients are stable.

5. Conclusion and Recommendations

This study provides an empirical analysis of the moderating effect of institutional quality on Nigeria's FDI- growth relationship from 2006 to 2020. The study employed the good governance indicator as a proxy for institutional quality and the ARDL bound testing approach for the regression analysis. The following key findings are established. First, a long-run relationship was established between FDI and the economic growth of Nigeria within the period under study. Second foreign direct investment has an unconditional positive impact on the economic growth of Nigeria. We also found a significant positive impact of institutional quality (good governance) on economic growth. Third, regarding the interactive effect of institutional quality on FDI-growth effect, we find convincing evidence that institutional quality (good governance) alters the effect of FDI on economic growth favourably. Overall this study has established a net direct positive and significant effect of foreign direct investment on economic growth and that this effect is enhanced by institutional quality (good governance). The main policy conclusion of our research is that Nigeria should strengthen its governance quality to benefit more from FDI and achieve better economic growth results. Furthermore, to reap the benefits of FDI, Nigeria must move beyond strengthening general governance to enhance the fight against corruption and build the rule of law by making its judicial system trustworthy in the eyes of the public.

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