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Institutional Quality, Foreign Direct Investment and Economic Growth: Evidence from ECOWAS Member Countries

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Abstract
This study adopts the Autoregressive Distributed Lag (ARDL) model to analyse the short and long-run impacts of institutional quality and foreign direct investment (FDI) inflow on economic growth in ECOWAS member countries, using time series data sourced from the World Bank, UNCTAD and Freedom House for the period 1990 to 2020, the study goes a step further to ascertain whether the impact is homogeneous in the region or not. Amongst others, the results found a positive relationship between FDI inflow and growth in ECOWAS. However, this was not statistically significant in the short run. Furthermore, the institutional quality variable of political regime was found to be insignificant both in the short and long run. However, the impact of coup was negative and statistically significant at 10 per cent in the short run and long run. It was also discovered that the impact of foreign direct investment and institutional quality on economic growth were not homogeneous across ECOWAS member countries such that while the impact was positive for some countries, it was negative for others. In the same vein, the statistical significance of the impacts varied across the economies. The recommendations are that policy makers implement FDI-attractive policies, institutionalize democracy, and create checks and balances and separations of powers to rein in the excesses of the various institutions of government.
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1. Introduction

The role quality institutions and FDI play on economic growth in developing economies cannot be overstated. Some of these roles include knowledge spill-over and capital accumulation (De Mello, 1999). According to Hammed et al (2020), FDI is a relevant means of technology and knowledge transfers, thus resulting in increasing returns to production as a result of productive spill-overs, which drives the growth of the economy. Many developing countries have acknowledged the vital role of foreign direct investment (FDI) in long-run growth as FDI are deemed to bring along with marketing strategies, marketing techniques, trade secrets, patents, brand name and superior technologies (Dunning, 1994).

FDI encourages the development of the transportation and communication systems in the host nation. Furthermore, multinational corporations (MNCs) that engage in FDI are regarded as engines of competitiveness, innovation, know-how, and management abilities; as a result, they are able to enhance the performance and productivity of local businesses in host countries.

The nexus between institutional quality and macroeconomic performance has been the subject of growing literature in both developing and developed economies. Certain institutional issues play important roles in the growth of every economy. For instance, Efendic et al. (2011) argue that the important role of institutions in the economy is determined through their direct and indirect influences on the outcomes of economic development (e.g., by the impacts on transaction costs; hence, on the total costs of production or incentives to invest more in human capital)

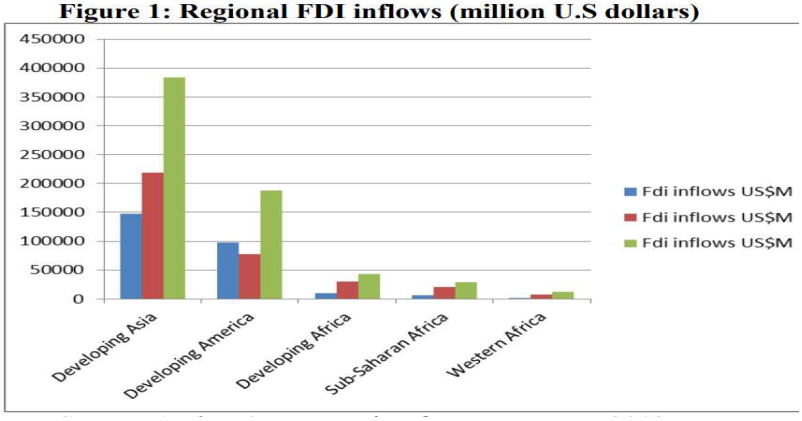
Anthony-Orji et al. (2019) and Benyah (2010) agreed that institutional quality can be regarded as the level to which procedures by regulatory authorities foster the protection of investors and enhance greater access to funds for borrowers. (Bruinshoofd, 2016) empirically show that institutional quality unlocks growth potential of nations without showing evidence of diminishing returns. The result from the empirical analysis shows that political stability and corruption (Proxies for institutional quality) are major determinants of FDI inflows (Esew and Yaroson, 2014). The processes and institutional arrangements that promote the protection of citizens, investors, creditors, and consumers as well as ensure that the economic environment operates optimally and efficiently can therefore be conceptualized as constituting institutional quality. These arrangements and processes include governance, regulations, the stability of the political environment, economic freedom, rule of law, corruption control, civil liberties, assurance of political rights, and the like.

Based on the aforementioned, it is clear that the importance of large volume of FDI and good institutional quality cannot be over-emphasized. However, dysfunctional institutions generally render the economic environment unproductive and obstruct trade, thereby encumbering the growth objective of an economy

(Anyanwu and Yaméogo 2015). This is the case with ECOWAS countries given coups experienced in the past and the recent successful coup experienced in Burkina Faso in February 2022, Guinea in September 2021 and Mali in May 2021. There were also unsuccessful coup attempt in Guinea Bisau in February 2022 and Niger in March 2021. The political instability in this region could slow down the growth process in this region as we would soon find out in this research.

Another problem affecting ECOWAS region is low FDI inflow. From the figure below, we can see that the West African region attracted the lowest volume of FDI inflow compared to Asia, America and sub-Saharan Africa.

Figure 1: Regional FDI inflows (million U.S dollars)



Source: Author's computation from UNCTAD

Base on the above statements, the two possible institutional factors that attributed to these poor performances are inefficient democratic institutions and frequent political instability in ECOWAS countries. While democracy is expected to promote economic growth, (Acemoglu et al., 2015) document that in many occasions in West Africa, individuals saddled with the responsibility of maintaining law and order have themselves perpetually engaged in abuse of and disproportionate use of force against the civilians. In addition, the fundamental freedoms of several citizens have been desecrated via indiscriminate arrests, detentions and even murders, especially in atmospheres where the state fails to hold the perpetrator of such heinous acts accountable.

Base on the foregoing, the objective of this research is to empirically examine the impact of institutional quality and FDI on economic growth in ECOWAS member countries in the short run and long run respectively and to ascertain whether the effect is homogeneous or otherwise.

This study makes a significant contribution to the academic world by determining whether the effect of institutional quality and FDI on economic growth are homogenous in ECOWAS countries and whether institutional quality and FDI have short run or long run effect on economic growth in ECOWAS countries.

The remainder of the article is divided into the following sections: (II) literature review, (III) data and methodological framework, (IV) estimating approach, and (V) empirical results and (VI) Conclusion and recommendation.

2.0 Literature review

There are several empirical studies that investigated the relationship between foreign direct investment and growth as well as institutional quality and economic growth for different countries and regions.

2.1 Foreign Direct Investment and Economic Growth

The literature on FDI and economic growth in general points to a positive relationship between the two variables and recommends few explanations for it. In theory, FDI may affect economic growth through its impact on capital stock, technology transfer, skill acquisition or market competition. There are many empirical studies in studying the impact of FDI on growth. Most of them show that FDI can stimulate economic growth through different channels. As a starting point, Kemp (1961) examined FDI and the advantages in terms of economic growth that the national economy receives from this type of external financing. According to Diamond (1965) the prospect of people in the countries which import capital is bright, and vice versa for people in the countries which export capital, their prospect is depressing. He placed special emphasis on the productivity of foreign investment. If not, the countries receiving it might not get real benefits. From these analyses or in other words from the early literature of the 1960s it is revealed that in the short run the effect of foreign investment on economic growth are positive, but in the long run the benefits are not sustainable. The work done by Srinivasan was expended by Gonzales (1988); he made an analysis of the welfare effect of foreign investments. According to Gonzales, FDI enhances the social uplift of the people, if there are no distortions.

Contemporary studies are not left out. Studies by Carkovic and Levine (2002), Bengoa and Sanchez-Robles (2003), Hsiao and Hsiao (2006) found that FDI leads to economic growth. For example, Olofsodotter (1998) applied the standard OLS method to cross-section data for 50 developing and developed countries over 1980 to1990. Based on her work it was found that the FDI stock has a positive effect on the economic growth rate, due to technology spill-overs. In addition, the effect is stronger for host countries with a higher level of institutional capability as measured by the degree of property rights protection and bureaucratic efficiency in the host country. Ayanwale (2007) carried out studies for Nigeria and China respectively using 2SLS and vector autoregressive approach, their fings show that FDI stimulate growth in both countries.

Furthermore, Adamu and Oriaki (2013) examined the impact of Foreign Direct Investment (FDI) on the economic growth of the countries of the Economic Community of West African States (ECOWAS). They adopted the fixed effects model to estimate regression coefficients of all ECOWAS countries between 2000 and 2009. The FDI-income ratio, exports and human capital were found to be positively related to economic growth. However, a study by Alege et al (2014) states otherwise. They analysed the relationship between foreign direct investment and economic growth in ECOWAS using the System-GMM panel estimation technique covering the period 1970-2011. The result show that the contribution of FDI was insignificant and impacts negatively on growth in ECOWAS despite the controlling for the role of human capital and quality of institutions in the model. Similar studies by Sloboda and Sissoko (2020), Bouchoucha et al (2020), Jirbo, et al (2022), Kumar et al (2022) ascertained that FDI is crucial for economic growth. Kumar, et al (2022) using system GMM examined the relationship between foreign direct investment and financial development in economic growth in 30 emerging economies from 1970-2020 by examing the relationship between them. The study's major findings suggest that FDI and financial development are critical determinants in emerging economies' economic progress.

2.2 Institutional Quality and Economic Growth

On the institutional quality growth-nexus, a growing body of literature on the institutions-growth link has emerged. Some aspects of the emerging literature indicate that the role of institutions in the growth experience of African countries can no longer be called unimportant. For instance, in a study aimed at determining the factors contributing to Africa's growth performance, Mijiyawa (2013) established that between 1996 and 2010, government effectiveness was one of the key drivers of growth. Also, Kandil (2009) obtained mixed evidence on the role of institutional quality among 16 countries in the Middle East and North Africa (MENA). The study established that some measures of institutional quality increase economic growth. Similarly, Masron et al (2010) in their study- Institutional quality as a determinant for inflows: Evidence from ASEAN considered eight ASEAN countries for the period 1996-2008. In this study, World Governance Indicators (WGI) variables for Institutional quality such as voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption were employed.

Adeleke (2014) suggests African governments should enhance their governance structure after examining the effects of governance on the relationship between FDI and growth for a panel data of 31 African countries from 1996 to 2010 both at the aggregated and disaggregated level. With the estimation methods of Pooled OLS, fixed effects and random effects, this author concludes that governance in these countries is quite weak and thus inhibits economic growth but the interaction between it and FDI has a positive impact on economic growth.

Iheonu et al. (2017) investigated the effect of institutional quality on the performance of some West African economies from 1996 to 2015 using a panel of 12 countries in West Africa. The study used some institutional-quality variables and adopted fixed effect, random effect and panel two-stage least squares models (2SLS). The results revealed that government effectiveness was only significant after using the panel 2SLS model to account for endogeneity. All of the institutional-quality variables were seen to positively and significantly affect economic performance under the fixed and random effect models.

Furthermore, Arshad, (2019) carried a study between 1996 to 2016 for 104 low, middle and high-income countries, and discovered a strong positive impact of institutional quality on economic growth, other similar studies include Iheonu et al. (2017), Aziz (2018), Shan. et al (2018)

Salman et al. (2019) conducted research in three East Asian nations from 1990 to 2016 with the purpose of determining whether or not institutional quality has an effect on growth emission. They made the observation that having domestic institutions that are both efficient and equitable is beneficial to simultaneously increasing economic growth and lowering CO2 emissions. Also, Valerina E. et al (2020) also examined the impact of institutional quality in 181 countries and came up with the conclusion that institutional quality do impact in a positive way on economic growth. The Pooled regression model and the fixed effect model were used in the analysis.

3.0 Data, Theoretical and Methodological framework

3.1 Data and Study variables

The data set used in this paper refers to a panel of fifteen ECOWAS countries covering the period 1990 – 2020.

The data used for the study were sourced from the World Development Indicators of the World Bank. The variables included for the study include the GDP per capita, capital stock, labour force, foreign direct investment, human capital, political right, civil liberty and openness.

The relevant data for the dependent GDP per capita growth as well as workforce and investment in human capital (education) were obtained from World Bank Development Indicators (2020) and the data for Trade openness and foreign direct investment were obtained from UNCTAD (2020). Finally, Civil Liberty (CL) and Political Rights (PR) (average is the political regime rating) and coupe d'état were obtained from freedom house.

Table 3.1 Variables, Sources and Expectations

Variables	Expectation	Source
GDP per capita growth	Dependent variable	World Bank Development Indicators (2022)
Foreign Direct Investment Inflow (FDI)	Positive	UNCTAD (2022)
Trade Openness $ln\,(G)$	Positive	UNCTAD (2022)
Investment in human capital-Educati ($lnS_{h,it}$)	Positive	World Bank Development Indicators (2022)
Workforce (aged population 15-64 as percentage of total ($ln\,(N_{it})$)	Positive	World Bank Development Indicators (2022)
Political Regime (POL)-Civil Liberty a Political Rights	Positive	Freedom house (2022)
Coup D'état	Positive	Freedom house (2022)

3.2 Theoretical Framework

The neoclassical growth model by Robert Solow (1950) assumes that technological progress is exogenously determined, and its level is the same across countries. It is renowned for its use of the Cobb-Douglas production function and assumes that, first, the labour force growth is constant; second, all saving is invested, that is, saving (S), investment (I) and the propensity to save (sY) are all equal; and, third, output Y, is determined by the interaction of capital and labour, that is,

$$Y = f(K, L) \qquad (1)$$

The production function Y = f (K, L) shows constant returns to scale and diminishing returns to scale of the variable factor, in the event of other factors being held constant (Mankiw, 2003). These assumptions will then be used in explaining why the economy reaches a steady-state level of growth when capital per worker and the investment requirement are in equilibrium. The model asserts that the increase in the labour supply and or investment in equipment and machinery increases productivity. Technological change is regarded as a major contributor to productivity, through invention and innovation. Increase in capital stock, which takes the form of physical or human capital is also capable of increasing labour productivity. Physical capital emanates from investment in real capital. Human capital involves human investment in education and training (Becker and Barro, 1988).

Another assumption of the neoclassical model, that technology is exogenously determined, and its level of availability is the same throughout the world has been criticized by Stonie and Hague (1975), who argue that technology in the model is tradable in a perfectly competitive market where it is freely available and is endogenously determined for long-run economic growth.

In analysing the effect of market capitalization on economic growth of selected African countries, it is pertinent that an appropriate growth model is devised to accommodate investment in form of foreign investment as variable in the growth model. Thus, following the Solow model as augmented by Mankiw, Romer and Weil (1992) and further modified by Buss and Koniger (2012). The Mankiw et al (1992) augmented version of the Solow growth model which could be represented in the following function:

$$lny_t - lny_0 = -\left(1 - e^{-\lambda_t}\right)lny_0 + \left(1 - e^{-\lambda_t}\right)lnA_t + \left(1 - e^{-\lambda_t}\right)\frac{\alpha}{1-\alpha-\beta}lns_k + \left(1 - e^{-\lambda_t}\right)\frac{\alpha}{1-\alpha-\beta}lns_h - \left(1 - e^{-\lambda_t}\right)\frac{\alpha+\beta}{1-\alpha-\beta}ln(n + g + \delta) \qquad (2)$$

Where:

Growth is measured as the difference between the natural logarithm of output per worker in time period t and its original or initial value $lny_t - lny_0$ which is said to be the function of the following factors:

At = the level of technology
g = rate of technology progress
y0 = initial output per work
sk = saving rate
α/β = the share of capital/human capital in output
λ = the rate of convergence to steady state
δ = depreciation rate

n = the growth rate of the labour force
sh = investment in human capital
Given that output and technological level are not similar in every country, Mankiw et al (1992) further assumed that the level of technology at any given time period is subject to each country's initial level of technology A0 while the rate of technology remains constant across all nations.

Thus;

$$A_t = A_0 e^{gt} \quad (3)$$

In developing nations, the constant uniformity of growth rate of technology is grossly insufficient (Buss and Koniger 2012). They further argued that the dissemination of internationally available technology depends on the country specific factors. Foreign investment is a representative of investment in this regard and could be a way through which more capital is generated for the production in the economy. Hence, foreign investment is believed to very important country specific determinant of the difference in the dissemination of technology across nations. To represent both factors, a different assumption on the country specific development on the level of technology Ait becomes appropriate;

$$A_{it} = A_0 e^{gt} e^{\phi_j FDI_t} \quad (4)$$

FDIt captures foreign investment which could be associated with the development of technological level of a country. To insert this latest assumption into the initial augmented Solow model represented by equation (2), the following equation is obtained;

$$lny_t - lny_0 = -\left(1 - e^{-\lambda_t}\right) lny_0 + \left(1 - e^{-\lambda_t}\right) lnA_t + \left(1 - e^{-\lambda_t}\right) \frac{\alpha}{1-\alpha-\beta} lns_h - \left(1 - e^{-\lambda_t}\right) \frac{\alpha+\beta}{1-\alpha-\beta} ln(n + g + \delta) + \left(1 - e^{-\lambda_t}\right) \beta_j FDI_t \quad (5)$$

Also, the environment through which this capital is invested is very crucial as different economy operates different framework. In this regard, institutional quality is given a concern to which foreign investment could be attracted and economic growth enhanced. Therefore, foreign direct investments work hand-in-hand with institutional environment to promote economic growth.
Thus, equation (5) could be augmented to capture institutional quality as follows;

$$lny_t - lny_0 = -\left(1 - e^{-\lambda_t}\right) lny_0 + \left(1 - e^{-\lambda_t}\right) lnA_t + \left(1 - e^{-\lambda_t}\right) \frac{\alpha}{1-\alpha-\beta} lns_h - \left(1 - e^{-\lambda_t}\right) \frac{\alpha+\beta}{1-\alpha-\beta} ln(n + g + \delta) + \left(1 - e^{-\lambda_t}\right) \beta_j FDI_t * INT_{i,t} \quad (6)$$

In it all, this particular model will allow for the amalgamation of the features of the augmented Solow model with more realistic assumptions about a country-specific development of the technology level. These contending country-specific variables are very essential in differentiating how economic growth is influenced in different countries.

3.3 Methodology

A panel ARDL is deemed suitable because of its dynamic nature. This estimation method entails that all variables are stationary at level or first difference, dependent and independent. To accomplish the task of unit root test, this research will prefer Im, Pesaran and Shin (2003)-IPS unit root test which is suitable for panel data stationarity test especially where there are missing data.

The panel ARDL estimation methodology as suggested by Pesaran and Smith (1995) and Pesaran, Shin, and Smith (2001) is dynamic as it takes into account both the lag of dependent variable and the independent variables. Thus, the panel estimate will portray the true impact of foreign direct investment and institutional quality as they will require lagged acclimatization time to acclimatize to new processes, thus it will take some time to replicate its impact on economic improvement.

The application of panel ARDL is however anchored on two separate schools of thought by estimator preference. On the one hand, Pesaran and Smith (1995) suggested using the Mean Group (MG) estimator to eliminate bias due to heterogeneous slopes in dynamic panels while estimating the short- and long-run variables coefficients. The MG estimator offers accurate estimates of the average of the long-term coefficients but with slope homogeneity, it will be inefficient. Pesaran et al. (2001), on the other hand, endorses a more efficient estimator for long-run coefficients which assumes the homogeneity of and variable in the panel; a Pooled Mean Group (PMG) estimator. This school of thought is of the opinion that the use of PMG estimator will allow the short-run parameters to be heterogeneous while the long-run parameters remain homogenous.

However, the problem of choice between the two estimators is often confronted by researchers. The Huasman (1978) test will be performed in this paper to determine which estimator is most suitable for the panel. As such, it is determined the null hypothesis (H0) that the estimates of MG and PMG are not significantly different; therefore, the PMG is more effective. The baseline will be to reject the null hypothesis if the p-value is less than 0.05.

Usually, the panel ARDL (p, q, q…, q) model is demonstrated thus;

$$y_{it} = \sum_{j=1}^{p} \delta_{ij} y_{i,t-j} + \sum_{j=0}^{q} \beta_{ij} X_{i,t-j} + \gamma_i + \varepsilon_{it} \quad (7)$$

Where y_{it} is the dependent variable, $\left(X_{it}^{'}\right)^{'}$ is M*1 vector that is stationary at a level or first difference; δ_{ij} represents the coefficient of the lagged dependent variable to be estimated; β_{ij} is M*1 coefficient vectors; γ_i stands for fixed effects such that; i=1,…,N; t=1,2,…,T; p, q are optimal lag orders to be determined by estimating the unrestricted model; ε_{it} represent the white noise.

The re-parameterized panel ARDL (p, q, q…, q) error correction model for this paper is represented as follows where some variables are in natural logarithm;

$$ln\Delta y_{it} = \theta_i\left[ln\Delta y_{i,t-1} - \phi_i^{'}(lnS_t + lnN_{i,t} + lnG_{i,t} + lnFDI_{i,t} + POL_{i,t} + CUP_{i,t})\right] + \sum_{j=1}^{p-1} \lambda_{ij} ln\Delta y_{i,t-j} + \sum_{j=0}^{q-1} \varphi_{ij}^{'} \Delta lnS_{t-j} + \sum_{j=0}^{q-1} \varphi_{ij}^{'} \Delta lnN_{t-j} + \sum_{j=0}^{q-1} \varphi_{ij}^{'} \Delta lnG_{t-j} + \sum_{j=0}^{q-1} \varphi_{ij}^{'} \Delta lnFDI_{t-j} + \sum_{j=0}^{q-1} \varphi_{ij}^{'} \Delta POL_{t-j} + \sum_{j=0}^{q-1} \varphi_{ij}^{'} \Delta CUP_{t-j} + \alpha_i + \varepsilon_{it} \quad (8)$$

Notes: $\phi_i^{'}$ = coefficient for speed of adjustment to equilibrium which is expected to be less than 0.

$\phi_i^{'}$ = Coefficients of long-run relationships

$$ECT = \left[ln\Delta y_{i,t-1} - \phi_i^{'}(lnS_t + lnN_{i,t} + lnG_{i,t} + lnFDI_{i,t} + POL_{i,t} + CUP_{i,t})\right] \ldots. (9)$$

Represent the error correction term to be estimated.

λ_{ij} , $\varphi_{ij}^{'}$

Represent the short-run dynamic coefficients

3.4 Model Specification

In order to achieve paper's main goal, it is essential to present an estimable equation derived from the previously modified Solow model, taking into account that it must account for foreign direct investment and institutional quality variables in relation to economic growth in ECOWAS countries.

It is specified as follows:

$$ln\Delta y_{it} = \beta_0 + \beta_1 ln\Delta y_{it-1} + \beta_2 lnS_{h,it} + \beta_3 lnN_{it} + \beta_4 G_{it} + \beta_5 lnFDI_t + \beta_6 POL_{i,t} + \beta_7 CUP_{i,t} + \tau_t + n_i + v_i \quad \ldots. (10)$$

However, the model includes period-specific intercepts (τ_t), accounting for period-specific effects like changes in productivity affecting all countries, country-specific fixed-effects (n_i) and an independent and identically distributed error term (v_i) which are apparently necessary in panel data set up. The variables are the following. $ln\Delta y_{it}$ represents economic growth (GDP per capita growth rate), $lnS_{h,it}$ represents investment in human capital (Education expenditure).

ln N_{it} represents labour force and

G_{it} represents trade openness

$lnFDI_t$ Represents foreign direct investment

POLt represents political regime which is the average rating of political right and civil liberty.

CUPt represents represent the number of coupe d'état.

4.0 Estimation of Results

4.1 Summary statistics and Correlation

Table 4.1 Summary Statistics and Correlation

Panel A Summary Statistics

Variable	$GRT_{i,t}$	$lnFDI_t$	POL_t	CUP_t	$lnEDU_t$	$lnLAB_t$	OPN_t
Obs	454	465	465	465	455	465	455
Mean	1.25094	45.01488	1.276045	0.163441	18.7229	14.7988	0.55241
Std. Dev.	4.69847	112.2434	0.465718	0.453859	1.54869	1.32971	0.22602
Min	-31.333	-18.0972	0	0	15.3214	11.6144	0.00012
Max	21.0279	884.1063	1.94591	4	22.2255	17.9468	1.31485

Panel B Correlation

Variables	$GRT_{i,t}$	$lnFDI_t$	POL_t	CUP_t	$lnEDU_t$	$lnLAB_t$	OPN_t
$GRT_{i,t}$	1						
$lnFDI_t$	0.1268	1					
POL_t	-0.2367	-0.0673	1				
CUP_t	-0.1987	-0.0865	0.2354	1			
$lnEDU_t$	0.1101	0.5417	-0.1229	-0.142	1		
$lnLAB_t$	0.0131	0.519	0.2436	-0.0483	0.7964	1	
OPN_t	0.1982	-0.0955	-0.3959	-0.0185	0.0228	-0.2835	1

Source: Source: Author's Compilation using Stata 16

The summary statistics in panel A in table 4.1 shows that the data is balanced. Panel B of Table 4.1 displays the correlation coefficient for the variables used. The estimated correlation coefficient reports that none of the variables is highly correlated with each other; hence, the problem of multicollinearity will not arise in the model.

4.2 Stationarity Test and Lag Selection Criteria

The panel stationarity test results show that the variables are stationary at either first difference or level; which makes panel ARDL a suitable estimation technique.

Table 4.2 Unit Root Test (IPS)

	Level		1st Difference		Remark
Variable	Constant	Trend	Constant	Trend	
$GRT_{i,t}$	-7.3365***	-6.4256***	-17.0441***	-15.5692***	I0
$lnFDI_t$	0.9853	0.1027	-9.1578***	-6.8232***	I1
$lnEDU_t$	3.9065	-0.4059	-10.4057***	-8.5211***	I1
POL_t	-2.7680***	-1.3425*	-12.3296***	-11.0924***	I0
$lnLAB_t$	1.2290	2.0482	-2.2640**	-0.1632	I1
OPN_t	-0.4636	-1.4572*	-7.9341***	-6.3488***	I0

Note: Numbers in the display are t-statistics generated with lag 1. *** p<0.01, ** p<0.05, * p<0.1; Null hypothesis (H_0): the panel has a unit root. Constant-constant only & Trend-constant and Trend

4.3 Hypothesis Testing

4.3.1 Cointegration and the Long-Run Relationship

In the panel ARDL technique, bound test for cointegration is not obtainable. Therefore, the establishment of a long-run relationship will be following the assumptions and criteria of Banerjee et al (1998) which proposed that models must satisfy the long-run relationship with negative and statistically significant error correction terms. The ECT fully satisfies the stated criteria with reported negative ECT of -0.808 for overall model and significant at one per cent. The coefficient of ECT in the model indicates the speed of error correction. The negative value of ECT is bonded between -1 and 0. Following Sovbetov (2018) and Sovbetov and Saka (2018), this implies there is no serial error correction and instability problem caused by a structural break in the data. The magnitude of ECT is /0.808/ in the model shows that the previous period's disequilibrium of the models is correct at a speed of 80.8 per cent annually. This, indeed, reveals a very high convergence rate which entails a strong cointegration in the panel.

The research additionally used Pedroni's cointegration tests with different statistics to support the existence of cointegration in the model in an additional effort to do so. First, rho statistics reports negative statistics for both the panel and the group (-4.842 and -3.731, respectively), which is supported by t statistics (-6.267, negative statistics for both the panel and the group) (-7.756). The ADF statistic, on the other hand, is likewise consistent with the other two statistics, having negative statistics for the panel (-4.593) and group (-5.885), respectively (See table 4.3)

Table 4.3 Pedroni's Cointegration Tests

Test Stats.	Panel	Group
v	0.3898	.
rho	-4.842	-3.731
t	-6.267	-7.756
adf	-4.593	-5.885

No. of Panel units: 5; Regressors: 4
No. of obs.: 125; Avg obs. per unit: 25
Sources: Author's Computation

4.3.2 Estimated Long and Short run Coefficients

The Hausman test favoured the use of PMG estimator which permits for the homogeneity of the long-run estimation but still allows short-run estimation for respective individual members of the panel. Collectively, in the short-run, real economic growth seems to be positively influenced by the increasing foreign direct investment inflow in West Africa, which is in line with expectations. However, the impact is not statistically significant. This result is posted in Table 4.4. The reported short-run coefficient of foreign direct investment inflow (FDI) is 0.0630 which is not statistically significant. In the long-run, the reported coefficient for foreign direct investment (FDI) is 0.0149 and statistically significant at one per cent. This implies that as foreign direct investment increases by one per cent, economic growth in West African region increases by 1.49 per cent, all things being equal.

Institutional quality was captured in two stand point: political regime rating and coupe d'état. In the first instance, political regime is the average rating of political right and civil liberty and is rated in descending order.

Looking at political regime, the short-run coefficient is reportedly negative -2.427 but not statistically significant. This implies that in the short-run, political regime has the potential of influencing economic growth favourably (since political regime is rated in descending order, this implies that negative coefficient is favourable while positive coefficient is unfavourable). This potential is reportedly not statistically significant. In the long-run, the coefficient of political regime is -0.979 but not statistically significant. In the same vein, the short-run, political regime has the potential of influencing economic growth favourably (since political regime is rated in descending order, this implies that negative coefficient is favourable while positive coefficient is unfavourable).

Table 4.4 PMG Homogeneous Long-and Short Run Estimation

VARIABLES	Short-Run	VARIABLES	Long-Run
ECT	-0.808***		
	(0.104)		
D.FDI	0.0630	FDI	0.0149***
	(0.0586)		(0.00385)
D.POL	-2.427	POL	-0.979
	(1.684)		(0.661)
D.CUP	-2.158*	CUP	-0.561*
	(2.077)		(0.515)
D. lnEDU	6.223***	lnEDU	-1.671***
	(1.760)		(0.380)
D. lnLAB	30.08	lnLAB	5.538***
	(34.55)		(1.261)
D.OPN	1.840	OPN	3.694**
	(3.942)		(1.499)
Constant	-42.04***		
	(5.075)		
Observations	439		439
Country FE	YES		YES
Year FE	YES		YES

Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1
Source: Author's Computation using Stata 16

The second measure of institutional quality is coupe d'état. The estimated coefficient of coup d'état in the short-run is reportedly negative and statistically significant at ten per cent. The coefficient is -2.158 which implies that as coupe d'état increase by one per cent in the short-run, economic growth will reduce by 2.2 per cent, in West Africa, all things being equal. The long-run is consistent with the short-run outcome. The coefficient is reportedly negative -0.561 and statistically significant at ten per cent. This implies that as coupe d'état increase by one per cent in the long-run, economic growth will reduce by approximately 0.6 per cent, in West Africa, all things being equal.

4.3.3 Heterogeneous Short Run Estimation

The heterogonous results are only reported in the short-run since PMG estimator assumed they are homogenous in the long-run. The ECT for each country meets the condition except for Liberia which is positive. Individually, each country experiences a different response to the overall impact of the foreign direct investment on economic growth in West Africa. Some are reportedly positive while some are negative. Again, while some are statistically significant, others are not. Among the significant results is Liberia which reported a positive coefficient of 0.0219 and statistically significant at one per cent.

This implies that in Liberia, as FDI increases by one per cent in the short-run, economic growth will increase by 0.0219 per cent, all things being equal. Results for Nigeria, Senegal and Sierra Leone are reportedly negative coefficient of -0.00788, -0.0789 and -0.141 respectively. The results are statistically significant at ten per cent, one per cent and ten per cent for Nigeria, Senegal and Sierra Leone respectively. The results for other countries are reportedly not statistically significant.

Table 4.5A PMG Heterogeneous Short Run Estimation

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ECT	0.814***	1.289***	0.494***	0.573***	1.069***	0.515***	0.651***	0.816***
	(0.134)	(0.168)	(0.160)	(0.171)	(0.181)	(0.0959)	(0.189)	(0.146)
D.FDI	0.0261	0.0159	0.259	0.0402	-0.0758	0.00868	0.0137	0.821
	(0.0426)	(0.0376)	(0.233)	(0.0346)	(0.313)	0.00563)	(0.0105)	(0.652)
D.POL	0.565	3.096	-0.811	-2.932	-0.506	-1.467	-6.083	-3.050
	(1.329)	(6.393)	(4.968)	(6.127)	(3.107)	(2.762)	(4.755)	(7.712)
D.CUP	0.606	0.855	0	0.789	0.762	-0.0463	-0.918	-1.253
	(0.528)	(1.281)	(0)	(0.844)	(1.178)	(0.938)	(0.579)	(1.220)
D.lnEDU	4.527***	4.244**	4.916	7.992*	0.453	7.291***	-1.509	28.38***
	(1.241)	(1.974)	(6.104)	(4.620)	(1.843)	(1.188)	(1.078)	(6.699)
D.lnLAB	-78.95	-41.45	105.4**	103.7	48.57	271.7**	18.75	-37.29
	(115.5)	(90.33)	(41.03)	(77.90)	(125.1)	(107.2)	(53.76)	(336.7)
D.OPN	4.771	-11.54	18.36**	0.399	-4.222	2.992	-0.526	18.03
	(5.617)	(10.72)	(9.205)	(12.93)	(5.181)	(2.032)	(4.015)	(11.89)
Constant	39.29***	65.96***	20.89***	32.89***	49.53***	36.54***	33.65***	38.16***
	(13.07)	(19.87)	(7.729)	(12.50)	(14.70)	(8.995)	(12.69)	(13.81)
Observations	439	439	439	439	439	439	439	439
Country FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
1=Benin, 2=Burkina Faso, 3=Cape Verde 4=Cote d'Ivoire 5=Gambia 6=Ghana 7=Guinea 8=Guinea Bissau

Table 4.5B PMG Heterogeneous Short Run Estimation

VARIABLES	(9)	(10)	(11)	(12)	(13)	(14)	(15)
ECT	0.0655	1.462***	-1.317***	-0.366***	-0.821***	0.991***	-1.002***
	(0.131)	(0.166)	(0.149)	(0.136)	(0.169)	(0.153)	(0.190)
D.FDI	0.0219***	0.0381	0.0317	-0.00788*	-0.0789***	-0.141*	-0.0275
	(0.00829)	(0.0403)	(0.0357)	(0.00426)	(0.0271)	(0.0821)	(0.0469)
D.POL	-16.84**	-0.0317	2.841	4.927	5.927**	-7.669	-14.37
	(6.667)	(2.664)	(2.847)	(4.602)	(2.492)	(8.993)	(18.78)
D.CUP	-30.72***	0.483	1.969**	0.0159	0	-4.885**	-0.0342
	(3.229)	(1.015)	(0.807)	(0.994)	(0)	(2.149)	(0.882)
D.lnEDU	4.661	4.287	0.870	9.634***	3.952**	6.015*	7.638
	(6.347)	(3.854)	(2.527)	(2.471)	(1.977)	(3.514)	(6.285)
D.lnLAB	-44.65	-254.8	-113.9*	97.69**	56.38	80.34	239.7
	(52.86)	(186.3)	(64.00)	(49.05)	(49.44)	(76.50)	(240.4)
D.OPN	0	3.578	-33.34**	-11.25*	-2.175	33.71***	8.815
	(0)	(13.76)	(13.89)	(6.173)	(6.286)	(12.55)	(12.71)
Constant	3.488	70.77***	-68.07***	-27.10**	-41.98***	52.28***	-56.93***
	(7.465)	(22.51)	(20.68)	(10.83)	(14.76)	(15.24)	(18.49)
Observations	439	439	439	439	439	439	439
Country FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
9=Liberia 10=Mali 11=Niger; 12=Nigeria 13=Senegal 14=Sierra Leone 15=Togo
Source: Author's Computation using Stata 16

Similarly, when measuring the impact of institutional quality on economic growth in West African countries, it can be seen that the impact is positive for some countries but negative for others. Furthermore, the impact is statistically significant for some countries but not statistically significant for others. For political regime, Liberia has a negative coefficient of -16.84 and statistically significant at five per cent. This implies that in Liberia, as political regime becomes better by one per cent in the short-run, economic growth will increase by 16.84 per cent, all things being equal. The result for Senegal is also positive and statistically significant at five per cent. The results for other countries are reportedly not statistically significant.

For Coup de tat, Liberia and Sierra Leone have similar outcomes with negative coefficients of -30.72 and -4.885 respectively. The results are statistically significant at one per cent and five per cent respectively. This implies that in Liberia and Sierra Leone, as coupe d'état increases by one per cent in the short-run, economic growth will decrease by 30.72 per cent and 4.885 per cent respectively. Niger also has a positive coefficient of

1.969 and statistically significant at five per cent.

4.3.4 Stability and Diagnostic Tests

The tests below show that the model is stable using CUSUM and CUSUM of Squares

Table 4. 6 Diagnostic Test Results

R-Square	0.757987
Adjusted R-square	0.620917
Normality Test	1.455036 (0.483107)
Serial Correlation	1.798240 (0.2044)
Heteroscedasticity Test	0.477231 (0.9126)

Note: Numbers in parentheses are probabilities, Jarque Bera Normality Test was utilised, and Serial correlation is with Breusch-Godfrey serial correlation Lagrange Statistics, Heteroscedasticity test is with Breusch-Pagan-Godfrey test. All were done using STATA 16

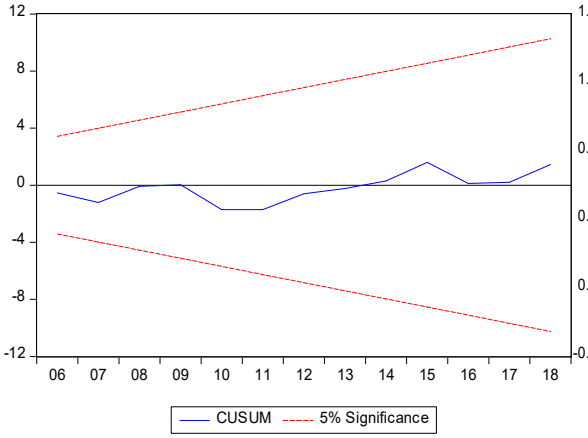


Figure 4.1 CUSUM

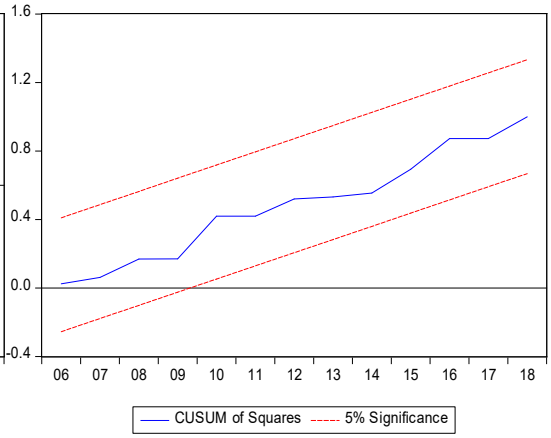


Figure 4.2 CUSUM of Square

4.4 Discussion of Results

The outcome of this research shows that the impact of FDI inflow on economic growth in ECOWAS countries is positive but not statistically significant in the short-run. However, it is positive and statistically significant in the long run. This result is relatively similar to that of Gupta and Garg (2015), Wiredu (2020), Fofana (2018), Hammed et al (2020) Sloboda and Sissoko (2020) Bouchoucha et al (2020) Jirbo et al (2022) Ayenew (2022) who maintained that foreign direct investment has positive influence on economic growth in the long-run while disputing any significant short-run effect.

Institutional quality was captured in two stand point: political regime rating and coup d'état.

On the one hand, the impact of political regime on economic growth in ECOWAS countries is not statistically significant in the short run and long run. This does not support the findings of Adeleke (2014), Asamoah et al (2016) Aziz (2018), and Huynh, et al (2020) which reported significant influence of political regimes on economic growth.

On the other hand, the impact of coupe d'état on economic growth is negative and statistically significant in the short run and long run at 10 per cent. This result is similar to the outcome of Mijiyawa (2013) Adeleke (2014) Asamoah et al (2016) Aziz (2018) Zubair (2018), Layla et al (2020) and Adegboye (2020) which are of the opinion that institutional quality matter in economic growth.

From the results obtained, it was deduced that the impact of FDI inflow on economic growth in ECOWAS member countries is not homogeneous. The impact is felt differently by each country. While the impact is positive for some, it is negative for others. Also, while it is significant for some, it is not significant for others. In Liberia for example, the impact of FDI inflow on economic growth is positive and statistically significant at 1 per cent. However, it is negative and statistically significant for Nigeria, Senegal and Sierra Leone. For the remaining 11 countries, it is not statistically significant. This is in line with Huynh et al (2020) Dorozynski, et al (2020) and Layla et al (2020) who supports that the effect of FDI on economic may differ among countries.

Similarly, the impact of institutional quality is not homogeneous in ECOWAS member countries.

The impact of Political regime on economic growth in Liberia and Senegal is statistically significant at 5 per cent with coefficients of -16.84 and 5.92 respectively. However, it is not statistically significant for the remaining countries.

Furthermore, the impact of coup is statistically significant in Liberia and Niger only at 1 per cent and 5 per cent respectively. Hence, the impact of coup is not homogeneous in ECOWAS countries. This result partly attests to that of Aziz (2018), Huynh, et al (2020) and Adegboye (2020).

5.0 Recommendation and Conclusion

The paper attempts to investigate the impact of institutional quality and FDI inflow on economic growth in ECOWAS for the period of 1990-2020 using panel ARDL technique of estimation. The choice of the estimation technique was adopted to overcome the weaknesses in the empirical works of earlier studies. The continuous decrease in FDI would have negative effect on human capital since FDI leads to increase knowledge and skills imported by multinational corporations as pointed out earlier. The social implication of this is political instability, violence and terrorism which give room for poor quality institutions in ECOWAS countries. These institutions determine the level of FDI an economy attracts and subsequently the level of economic growth it enjoys.

As a policy measure, it is recommended that FDI-incentive such as tax holiday should be implemented by the various governments which would attract investors in large volumes. Furthermore, all democratic institutions should be allowed to operate independently without interference from each other. There should also be Checks and balances in order to check the excesses of the various government institutions put in place and finally, institutionalizing democracy would prevent more coups in the region.

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