FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN SIERRA LEONE: THE ROLE OF INSTITUTIONS QUALITY

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Abstract:

In this research, the impact of institutional quality is the main area of attention as it examines the relationship between FDI and economic growth in Sierra Leone. With an ARDL technique, we analyze how institutional quality influences FDI's effect on economic growth using time-series data from 1990 to 2020. The results highlight how crucial institutional quality is to FDI's ability to boost economic growth. Prosperity-promoting elements both domestically and internationally are crucial, as evidenced by the positive effects of foreign direct investment (FDI), institutional quality, trade openness, and human capital development. A stronger institutional framework is crucial for optimizing the benefits of foreign direct investment (FDI); however, the report also recognizes obstacles including inflation. To support sustainable economic growth in Sierra Leone, advisors advise policymakers to implement changes to governance, encourage trade openness, rein in inflation, and invest in the development of human capital. Through the implementation of these tactics, inclusive development and the nation's economic potential can be enhanced.

JEL: F21, F43, O43, O47, O55

Keywords: foreign direct investment; institutions quality, economic growth, ARDL model

1. Introduction

A difficult past characterized by civil unrest and economic suffering is that of Sierra Leone. As stated by Osabuohien and Efobi (2013), the nation has recently sought to use

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foreign direct investment (FDI) as a stimulus for economic growth and development. Although there are a number of elements that affect FDI's ability to propel economic growth, one important one is the caliber of institutions. According to Kaufmann *et al.* (2019), institutions, which include legal systems, regulatory frameworks, and governance structures, are critical in determining the effectiveness of foreign direct investment (FDI) in stimulating economic growth. To optimize the beneficial effects of foreign direct investment (FDI) on economic growth, high-quality institutions can provide a climate that is favorable for business, lower investment risks, and make resource allocation more efficient (Hasan *et al.*, 2021).

In order to enhance the discourse and broaden our comprehension of the relationship among institutions, foreign direct investment, and economic expansion, we examined the potential interactions between institutional quality and foreign direct investment on economic growth. The way that institutions and foreign direct investment interact shows that the degree to which FDI can spur economic growth varies depending on the quality of institutions in each country (Alfaro *et al.*, 2020). By promoting innovation, knowledge transfer, and productivity enhancement, foreign direct investment (FDI) can serve as a potent driver for economic growth in nations with high institutional quality (Borensztein *et al.*, 1998).

On the other hand, FDI's potential benefits may be limited in nations with weak or insufficient institutional frameworks, which could result in less-than-ideal economic outcomes (Bah & Cooper, 2022). The importance of institutional quality in determining how well foreign direct investment (FDI) stimulates economic growth in Sierra Leone is highlighted by our empirical study. As to Kargbo and Sen (2017), the findings indicate a positive correlation between economic growth and the interaction between FDI and institutional quality. This implies that enhancing institutional quality can intensify the favorable effects of FDI on commercial development. These results support recent research that indicates improving institutional quality can boost foreign direct investment's beneficial effects on Sierra Leone's economic growth. They also highlight the significance of funding institutional reforms in order to optimize these benefits (Hasan *et al.*, 2021; Bah & Cooper, 2022).

2. Literature Review

2.1 International Direct Investment and Economic Development

In academic writings, there has been a lot of discussion over the connection between economic growth and foreign direct investment (FDI). A significant association between foreign direct investment inflows and economic growth was found by pioneering researchers Borensztein *et al.* (1998). Their analysis indicated that capital inflow, skill development, and knowledge transfer are only a few of the ways that foreign direct investment (FDI) might stimulate economic growth. Subsequent studies have confirmed this positive correlation, including Alfaro *et al.*'s (2020) study, which highlights the advantageous effect of foreign direct investment (FDI) on economic growth. Alfaro *et al.*

highlight the function of foreign direct investment (FDI) in promoting innovation and accelerating productivity growth, especially in developing nations, in addition to facilitating knowledge transfer.

The benefits of foreign direct investment (FDI) inflows are highlighted in various recent studies, which also underscore the positive correlation between FDI and economic growth. A research conducted in 2021 by Javorcik and Wei, for example, emphasizes how FDI helps host countries become more competitive and encourages export growth. They contend that foreign direct investment (FDI) can facilitate the transfer of information, provide access to international markets, and provide management expertise, all of which can support economic development and expansion. Furthermore, a research by Osei *et al.* (2022) examines how foreign direct investment (FDI) affects the creation of jobs and the reduction of poverty. It suggests that FDI inflows can enhance labor market results and create new jobs, which in turn encourage employment possibilities and lessen poverty.

Notwithstanding the general agreement that foreign direct investment (FDI) contributes positively to economic growth, FDI's ability to foster economic development differs from nation to nation and depends on a number of variables, such as the caliber of institutions, the size of the market, and technical advancements. Research on the influence of foreign direct investment (FDI) on economic growth is being done by Hasan *et al.* (2021). The study highlights that nations with stronger institutional frameworks are more likely to draw in FDI and use it to its fullest potential. In order to optimize the advantages of FDI inflows and promote sustainable economic growth, it is crucial to establish policies that are in line with business needs and the law.

2.2 Quality of Institutions and Foreign Direct Investment's Interaction with Economic Growth

Among the key factors influencing the inflows of foreign direct investment (FDI) and the ensuing effects on economic expansion is institutional quality. Foreign investors find countries with stronger institutional frameworks to be more appealing places to invest, according to Kaufmann *et al.* (2019), who highlight the critical role that institutional quality plays in luring FDI. Greater FDI inflows are fostered in these countries by their combined advantages of lower risks, increased transparency, and better business environments. This claim is supported by a recent study by Hasan *et al.* (2021), which emphasizes the critical role that institutional quality and governance play in both attracting FDI and promoting economic growth. New research that delves deeper into the complex link between institutional quality, FDI, and economic growth further enriches this discussion.

A study by Rodriguez-Pose and Comunian (2020) looks into how governance quality affects how foreign direct investment is distributed geographically within a country. They contend that areas with stronger institutional quality and governance frameworks typically draw larger FDI inflows, which promotes more equitable and balanced economic growth. Additionally, Luo and Tung's study from 2021 investigates

the relationship between institutional quality and foreign direct investment (FDI) and how it affects productivity development and technological innovation. They discover that nations with better institutional frameworks bring in more foreign direct investment (FDI) and also see higher levels of innovation, productivity growth, and technical breakthroughs.

Transferring FDI inflows into sustainable economic development is still a challenging task, even with the clear benefits of high-quality institutions for drawing in FDI and fostering economic growth. The necessity of complementary policies and institutional reforms in maximizing the potential of foreign direct investment is highlighted in research by Azman-Saini *et al.* (2022). They contend that although institutional quality is a key factor in luring foreign direct investment (FDI), measures to ensure that FDI inflows result in real economic gains and support sustainable economic growth are also necessary. These measures include investment-friendly regulations, infrastructure development, and the development of human capital.

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## 2.3 Investment and Growth in the Economy of Sierra Leone

As a stimulus for economic growth, Sierra Leone has made a noticeable push in recent years to draw in foreign direct investment (FDI). To improve the economic climate, boost investor confidence, and draw foreign investment into a variety of industries, the nation has instituted a number of regulatory changes. Although there have been attempts, there is disagreement in the literature over how foreign direct investment affects Sierra Leone's economic growth. FDI has the potential to boost economic growth through technology transfer, job creation, and infrastructure development, according to several research that highlight its favorable effects (Osabuohien & Efobi, 2013). Some research, however, suggests that FDI may not always result in sustainable economic development because of a number of issues, such as institutional weaknesses, infrastructure deficiencies, and a limited capacity for absorption (Kargbo & Sen, 2017). These studies also show limited or negative effects of FDI on economic growth.
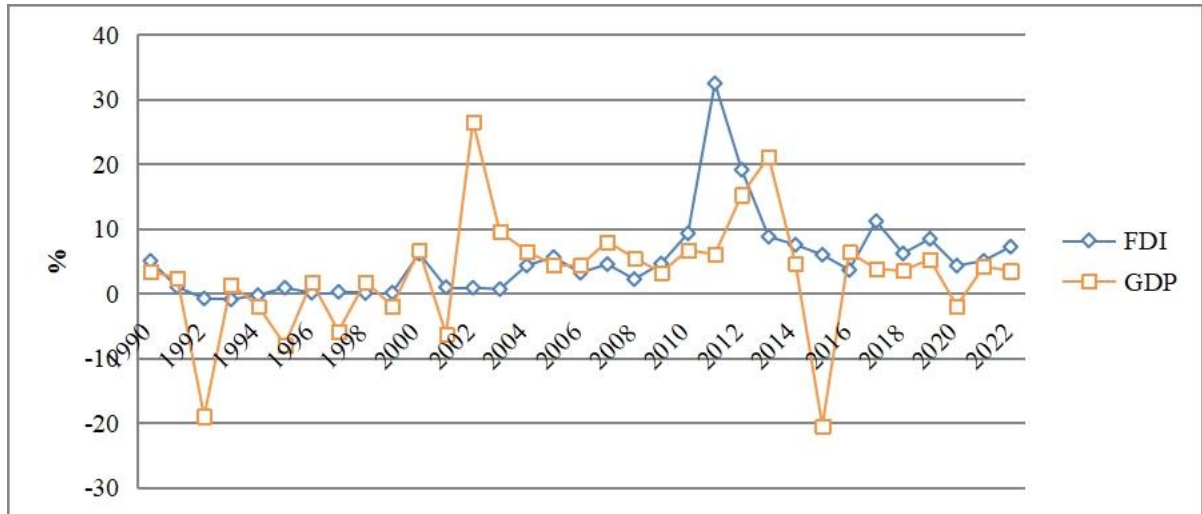
**Figure 1:** Trend in FDI and GDP Growth in Sierra Leone

Particularly in industries like mining, agriculture, and infrastructure development, FDI inflows have increased into Sierra Leone in recent years. The country's plentiful natural resources, such as diamonds, gold, and iron ore, have made the mining industry a key receiver of foreign direct investment. The rise of production capacity, export earnings, and government income have all benefited from foreign investments in the mining industry, which has boosted economic growth. Concerns have been expressed over the economy's susceptibility to environmental hazards and changes in commodity prices, as well as the durability of economic growth, due to the country's dependence on the mining industry.

The bulk of the larger foreign investors' businesses is centered in services, particularly banking and telecommunications, according to the Central Bank's 2007 balance of payments questionnaire. Figure 2 lists other shipping, aviation, and accountancy companies. Light manufacturing, mining, and two oil and gas companies make up the majority of foreign companies operating in the industrial sector.
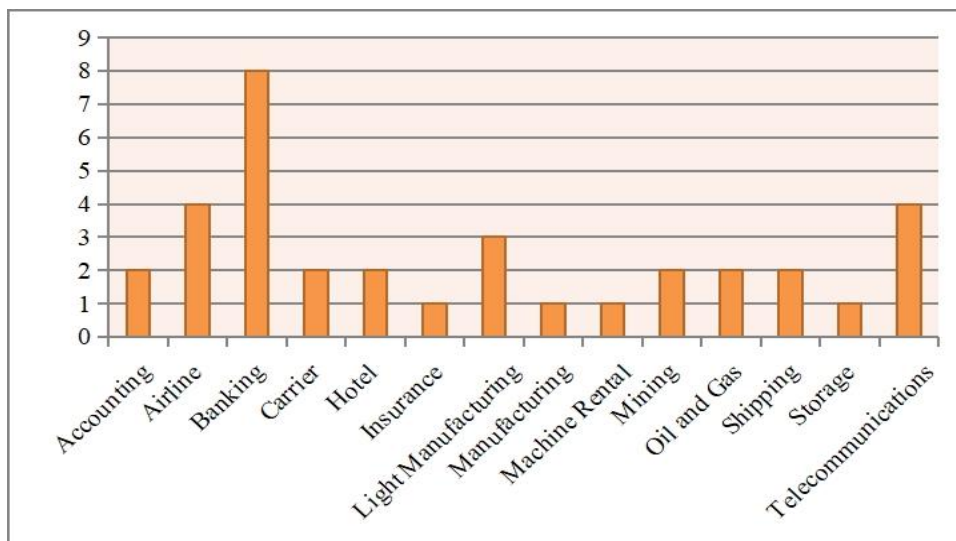
Figure 2: Number of firms by sector

In addition, in an effort to diversify the economy, produce jobs, and promote inclusive growth, there has been an increasing focus on luring foreign direct investment (FDI) into other industries, including manufacturing, tourism, and agriculture. To draw foreign investors and enable FDI inflows across a range of sectors, the government has launched a number of regulatory initiatives and investment promotion programs.
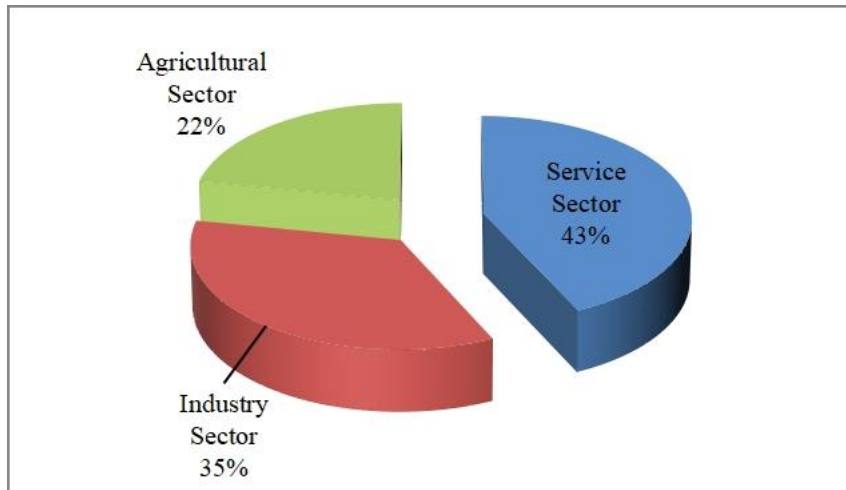
Figure 3: Sectorial distribution of FDI (1990-2022) average

Despite the fact that foreign direct investment (FDI) in the agricultural sector is now lower than in the service and industry sectors (see Figure 3), investments in commercial agriculture will stimulate growth and potential in other industries and expand investment prospects.

Enhancing institutional quality including governance, regulatory frameworks, and institutional capacity may increase the beneficial effects of foreign direct investment (FDI) on economic growth in Sierra Leone, according to a recent study by Bah and Cooper (2022). In order to maximize the benefits of foreign direct investment (FDI) and promote sustainable economic growth across a range of sectors in Sierra Leone, the study underscores the significance of establishing a favorable business environment, carrying out consequential governance reforms, and fortifying institutional structures.

3. Methodology

3.1 Data and Variables

The research makes use of time-series data from the World Bank and the World Governance Indicators (WGI) that span the years 1990 to 2020. Institutional quality indicators, GDP growth rate, and foreign direct investment inflows are among the variables included in the dataset. IQ is measured overall using six different institutional quality metrics. The six IQ indicators are as follows: (i) voice and accountability; (ii) rule of law; (iii) government effectiveness; (v) corruption control; and (vi) political instability. Principal Component Analysis (PCA) was used in the creation of the institutional quality (IQ) indicator. Through the use of PCA, fewer linear factors are produced from the

original set of indicators. The method used to get this index involves a number of steps. Principal component (PC) selection, eigenvector identification, data matrix construction, standard variable generation, correlation matrix computation, and so on are all necessary. As a proxy for the secondary school enrollment rate, human capital development (HKD) and inflation (INF) were employed as the control variables. Trade openness (TOP), which is defined as import plus export scaled up by GDP, was also included.

3.2 Model Specification
The empirical model is articulated as:

$$GDP_t = \beta_0 + \beta_1 FDI\ inflows_t + \beta_2 Institutional\ quality_t + \beta_3 Controls_t + \epsilon_t \qquad (1)$$

Where:
GDP signifies the economic growth rate in Sierra Leone in year t;
FDI inflows$_t$ denotes the Foreign Direct Investment inflows in Sierra Leone in year t;
Institutional quality$_t$ represents a measure of institutional quality in Sierra Leone in year t;
Controls$_t$ encompass other control variables like trade openness, inflation rate, and human capital.

2.3 Estimation Procedure
To explore the connections between foreign direct investment (FDI), the quality of institutions (IQ), and economic growth in both the short-run and long-run, the initial equation (1) is restructured into an Error Correction Model within the framework of the Autoregressive Distributed Lag (ARDL) model. This restructured equation is denoted as equation (2) as presented below.

$$\Delta GDP_t = \beta_0 + \sum_{i=1}^{p}\beta_1\Delta GDP_{t-1} + \sum_{i=1}^{p}\beta_2\Delta FDI_{t-1} + \sum_{i=1}^{p}\beta_3\Delta IQ_{t-1} + \sum_{i=1}^{p}\beta_4\Delta TOP_{t-1} +$$
$$\sum_{i=1}^{p}\beta_5\Delta INF_{t-1} + \sum_{i=1}^{p}\beta_6\Delta HKD_{t-1} + \delta_1 lnGDP_{t-1} + \delta_2 lnFDI_{t-1} + \delta_3 lnIQ_{t-1} +$$
$$\delta_4 lnTOP + \delta_5 lnINF_{t-1} + \delta_6 lnHKD_{t-1} + \lambda ECM_{t-1} + \varepsilon_t \qquad (2)$$

In equation (2), the coefficients δ_1 through δ_6 signify the long-term relationships within the model. To evaluate these long-run coefficients through a bounds test, we will employ F-statistics to test the following hypotheses:

H_0: $\delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \delta_6 = 0$ null hypothesis of no co-integration against the alternative.
H_1: $\delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \delta_6 \neq 0$ existence of a co-integration.

Once we establish the presence of a long-term relationship among our variables using the bounds test, we proceed to estimate both the long-term and short-term coefficients. In doing so, equation (1) is adapted to reflect the short-run dynamics, resulting in the formulation of equation (2). Derived from equation (1), the Error

Correction Model assists us in assessing the short-run effects within the economic growth framework.

$$\Delta lnGDP_t = \alpha_0 + \sum_{i=1}^{m1} \partial i \, \Delta lnGDP_{t-1} + \sum_{i=0}^{m2} \delta_i \Delta lnFDI_{t-1} + \sum_{i=0}^{m3} \theta_i \Delta lnIQ_{t-1} + \sum_{i=0}^{m4} \tau_i \Delta lnTOP_{t-1} + \sum_{i=0}^{m5} \gamma_i \Delta lnINF_{t-1} + \sum_{i=0}^{m6} \phi_i \Delta lnHKD_{t-1} + \lambda ECM_{t-1} + \varepsilon_t \qquad (3)$$

The equation presented defines the short-run dynamics within the ARDL error correction framework. It encompasses the lags of both our dependent and independent variables, providing a comprehensive view of their interrelationships over time.

4. Analysis of the Results

The purpose of this section is to investigate the connection between explanatory factors and Sierra Leone's economic growth from 1990 to 2020. To give a summary of the data and guarantee the accuracy of the study, descriptive statistics and model diagnostics are first covered. Time series analysis was then done to evaluate the variables' co-integration and stationarity. Following that, the talk centered on introducing the model's long- and short-term estimates, which illuminated the dynamic connections between the explanatory factors and economic growth across the given time frame. This section attempted to give a thorough grasp of the variables affecting Sierra Leone's economic growth and its consequences for policy and development plans by methodically going over these elements.

Table 1: Descriptive Statistics of the Research Model

	GDP	FDI	IQ	TOP	INF	HKD
Mean	3.1351	0.2460	0.1706	21.197	13.652	0.7117
Median	3.4000	0.1650	0.0400	13.300	13.710	0.6650
Maximum	26.300	0.8700	1.3100	164.30	19.950	2.0000
Minimum	-19.000	0.0400	0.0100	1.2000	7.2400	0.2700
Std. Dev.	7.0411	0.1903	0.2705	27.483	3.3731	0.3236
Skewness	0.2480	1.1364	2.4589	3.4185	-0.0261	1.5514
Kurtosis	6.3518	3.8736	9.2551	17.338	2.1235	6.9159
Jarque-Bera	22.005	11.365	121.34	483.62	1.4776	47.843
Probability	0.0000	0.0034	0.0000	0.0000	0.4776	0.0000
Sum	142.20	11.320	7.8500	975.10	628.02	32.740
Sum Sq. Dev.	2231.0	1.6310	3.2940	4399.0	512.03	4.7134
Observations	31	31	31	31	31	31

Important details regarding the distribution and fluctuations of Sierra Leone's GDP growth rate between 1990 and 2020 may be found in the descriptive statistics. There was a lot of variation in economic growth across the study period, as seen by the mean GDP growth rate of 3.135 and the very large standard deviation of 7.041. The considerable variation between the lowest value of negative 19.00 and the maximum value of 26.30 emphasizes this variability even more. Significant economic volatility during the years

under study is shown by such sharp variations in the GDP growth rate. Additionally, differences in the variables' mean, median, lowest, and maximum values indicate an asymmetry in the distribution of the data. The significant variations seen across these descriptive metrics suggest that the distribution of the data is asymmetric and skewed. In particular, the presence of outliers or extreme observations that contribute to the skewed distribution of the data is suggested by the mean and median values not aligning with the lowest and maximum values.

Table 2: Correlation Matrix

	GDP	FDI	IQ	TOP	INF	HKD
GDP	1.0000					
FDI	0.3116	1.0000				
IQ	0.2709	0.5477	1.0000			
TOP	0.0925	0.0604	0.0166	1.0000		
INF	-0.2249	-0.2361	-0.0660	-0.115	1.0000	
HKD	0.2612	0.1067	0.0027	-0.3720	-0.0306	1.0000

Table 2 presents the results of a correlation study conducted to examine the relationship between economic growth and the explanatory variables before estimating the regression model.

Many noteworthy correlations between these factors are revealed by the findings. The GDP growth rate and foreign direct investment (FDI) have a somewhat positive connection, meaning that economic growth generally rises in tandem with FDI inflows. Strengther institutional frameworks appear to be linked to better rates of economic growth, as evidenced by the somewhat positive association that has been found between GDP growth and institutional quality. On the other hand, economic growth and inflation (INFL) are found to be negatively correlated, with lower GDP growth being associated with greater rates of inflation. Because inflationary pressures can impede economic expansion, this inverse link makes sense.

Economic growth, foreign direct investment (FDI), and institutional quality also show a moderate but positive correlation, suggesting that these variables work in concert to promote economic development. In conclusion, there is a negative correlation shown between the growth of human capital and inflation, suggesting that higher rates of inflation may also correspond with less spending on education and skill improvements. This emphasizes how investing in human capital can be a trade-off for long-term economic growth when it comes to managing inflationary pressures. Setting the stage for more investigation using regression modeling, the correlation study offers insightful information about the connections between economic growth and its factors.

Table 3: Unit Root Tests Results

| Variable | Level/ΔLevel | Augmented Dickey-Fuller (ADF) Tests | | | | Conclusion |
| | | Constant and No Trend | | Constant and Trend | | |
		Test Statistics	ADF critical values (5%)	Test Statistics	ADF critical values (5%)	
GDP	Level	-5.5106**	-2.9281	-6.1094**	-3.5131	I(0)
FDI	Level	-2.8966	-2.9281	-3.0345	-3.5131	I(1)
	ΔLevel	-7.9858**	-2.9297	-7.9487**	-3.5155	
IQ	Level	-1.9459	-2.9297	-1.9393	-3.5155	I(1)
	ΔLevel	-13.2411**	-2.9297	-13.1603**	-3.5155	
TOP	Level	-5.4709**	-2.9281	-5.5179**	-3.5131	I(0)
INF	Level	-2.7261	-2.9281	-3.0274	-3.5131	I(1)
	ΔLevel	-6.7524**	-2.9314	-6.6648**	-3.5181	
HKD	Level	-4.0039**	-2.9281	-4.3642**	-3.5131	I(0)
Phillips-Perron (PP) Tests						
GDP	Level	-5.7921**	-2.9281	-6.1918**	-3.5131	I(0)
FDI	Level	-2.8966	-2.9281	-2.9822	-3.5131	I(1)
	ΔLevel	-8.7569**	-2.9281	-9.2293**	-3.5131	
IQ	Level	-3.9715**	-2.9281	-3.9272**	-3.5155	I(0)
TOP	Level	-5.3611**	-2.9281	-5.6073**	-3.5131	I(0)
INF	Level	-2.6485	-2.9281	-2.9930	-3.5131	I(1)
	ΔLevel	-7.7529**	-2.9297	-7.6314**	-3.5155	
HKD	Level	-4.0039**	-2.9281	-4.3533**	-3.5131	I(0)

Table 3 displays the results of unit root tests conducted using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. As can be seen, by their ADF test statistics being less than the crucial value at 5% and their related p-values being below 0.05, the results show that GDP growth, trade openness, and human capital development are stationary. This demonstrates the presence of a unit root or non-stationarity, implying rejection of the null hypothesis. Conversely, at the level (I(0)), trade openness and the growth of human capital show stationarity. In contrast, the first difference shows that the quality of the institutions, FDI, and inflation are steady, suggesting order I integration (1). This implies a trend or stochastic drift over time for these variables, requiring differencing to establish stationarity. In later investigations of the connections between these variables and Sierra Leone's economic growth, these results will be essential in verifying that time series analysis methods and model specifications are suitable.

The Autoregressive Distributed Lag (ARDL) model was used in a co-integration test to ascertain whether there was a long-term link between the endogenous and exogenous variables, based on the findings of the unit root test shown in Table 3. Determine whether the variables move together over the long run is the aim of this test.

According to the decision rule, if the F-statistic is greater than the upper bound (limit) at the 1%, 5%, and 10% significance levels, the null hypothesis is rejected. On the other hand, the absence of co-integration is confirmed if the F-statistic is below the upper bound. Table 4 presents the results, which show that the null hypothesis is rejected because the F-statistics (6.849 and 7.839) at the 1% and 5% significance levels are greater

than the upper bound (1). Consequently, the analysis comes to the conclusion that there is co-integration among the variables, indicating a potential long-term relationship between them. Understanding the dynamics and interdependencies of the factors affecting Sierra Leone's economic growth depends on this discovery.

Table 4: ARDL Bounds Test

	Model 1		Model 2	
Test Statistic	**Value**	**K**	**Value**	**K**
F-statistic	6.8494	**5**	7.8393	**6**
Critical Value Bounds				
Significance	**I(0)**	**I(1)**	**I(0)**	**I(1)**
10%	1.85	2.85	1.93	2.69
5%	2.11	3.15	2.83	3.95
2.5%	2.33	3.42	2.74	3.89
1%	2.62	3.77	2.42	3.83

GDP served as the endogenous variable in both equations and after the limits test verified the existence of co-integration, the equations were approximated to get the long-run coefficients. In Table 5, the results show that there is a positive correlation between economic growth and foreign direct investment (FDI) based on the Akaike Information Criterion (AIC). A rise in FDI appears to have a statistically significant positive effect on economic growth at the 5% significance level, according to the coefficient for FDI. In Sierra Leone's particular setting, this finding emphasizes how crucial foreign investment is to long-term economic growth.

Key findings from the early analysis of the economic factors impacting growth in Sierra Leone are highlighted. First, there is little doubt that positive inflows of foreign direct investment (FDI) and high-quality institutions affect economic growth. In particular, an increase of one percent in FDI inflows is correlated with a 0.171 percent rise in the GDP growth rate, whereas an improvement of one percent in institutional quality results in an increase of 0.1361 percent in economic growth. These findings demonstrate how crucial strong local institutions and foreign investment are to promoting economic growth.

Furthermore, the analysis shows a positive correlation between economic growth and institutional quality over the long run, supporting the idea that strong governance and regulatory frameworks are essential for promoting economic prosperity. This result is consistent with earlier studies conducted by Azman-Saini *et al.* (2022).

Table 5: Long Run Coefficient Estimation of ARDL Models

	Model1	Model2
GDP$_{-1}$	0.2147 (8.49)***	0.073 (2.36)**
FDI	0.1713 (8.39)***	0.0183 (2.71)**
IQ	0.1361 (2.29)**	0.1669 (8.71)***
TOP	0.3174 (5.872)***	0.41083 (7.364)***
INF	-0.229 (-1.97)**	-0.773 (-1.95)**
HKD	0.2227 (3.30)***	0.273 (3.84)***
(FDI*IQ)		0.371 (8.27)***
C	0.6328 (19.54)***	0.6738 (8.81)***
R²	0.76	0.78
F-Statistics	53.819 (0.000)***	55.398 (0.000)***

Note: *, **, *** means significance at the 10, 5 and 1 percent levels respectively.
Source: Authors' computation.

The data also shows that trade openness and economic growth are positively correlated. The importance of international commerce for economic development is demonstrated by the fact that a one percent increase in trade openness spurs GDP growth by 0.317 percent. This relationship's statistical significance implies that trade openness influences economic growth over time.

On the other hand, inflation appears to be a factor that is detrimental to Sierra Leone's economic expansion. According to the study, economic growth decreases by 0.229 percent for every percent increase in inflation. According to earlier studies by Bah and Cooper (2022), this emphasizes the negative consequences of high inflation rates on economic prosperity.

Moreover, the development of human capital is recognized as an additional positive factor that influences economic growth. Long-term economic prosperity is dependent on investments in education and skill development; a one percent increase in human capital development leads to a 0.222 percent increase in economic growth.

More specifically, the study finds that the marginal effects of both FDI and institutional quality increase when they interact with each other (FDI*IQ). This shows that domestic institution quality affects how foreign direct investment affects economic growth. Maximizing the benefits of foreign direct investment (FDI) on economic growth hence requires improving institutional quality.

The results offer significant perspectives for policymakers in Sierra Leone, emphasizing the significance of creating an atmosphere that is favorable for foreign investment, enhancing the quality of institutions, advocating for trade liberalization,

managing inflation, and allocating resources towards the advancement of human capital to promote long-term economic expansion.

Table 6: ARDL Short Run Estimations

	Model1	**Model2**
ΔGDP_{-1}	0.184 (8.92)***	0.1536 (11.627)***
ΔFDI	0.1792 (10.70)***	0.1918 (8.51)***
ΔIQ	0.1621 (8.39)***	0.1627 (6.545)***
ΔTOP	0.2987 (5.904)***	0.3291 (4.773)**
ΔINF	-0.7483 (-5.13)***	-0.7282 (-9.62)***
ΔHKD	0.2214 (3.27)***	0.1425 (2.532)**
$\Delta(FDI*IQ)$		0.298 (7.835)***
ECM(-1)	-0.4368 (-5.849)***	-0.5748 (7.948)***
C	0.6478 (12.44)***	0.8836 (9.766)***
R^2	0.83	0.85
F-Statistics	62.937 (0.000)***	66.386 (0.000)***

Note: *, **, *** means significance at the 10, 5 and 1 percent levels respectively.
Source: Authors' computation.

The findings of the limits test shed important light on the long-term relationships between the model's variables. They aid in determining the rate at which these variables recover from a shock and reach their equilibrium levels. An important metric that comes from the ARDL model is the error correction term (ECT), which measures how quickly the long-run equilibrium is being adjusted.

When analyzing the error correction term, a negative coefficient denotes a quick recovery from a shock to a long-run equilibrium and points to a robust and effective adjustment mechanism. On the other hand, a positive coefficient indicates that the variables either take a long time to converge to their long-run equilibrium or do not return to it.

Here, a negative ECT is indicated by the statistically significant error correction term coefficient of -0.4638. As a result, there is a strong co-integrating relationship between the variables, and after a shock, the variables quickly return to long-term equilibrium.

It's imperative to have more information on how to interpret the error-correcting term coefficient. An external shock's first-period correction accounts for roughly 46.38% of the divergence from equilibrium, as indicated by the figure of -0.4638. Nearly half of

the imbalance is corrected right away following the shock, indicating a somewhat quick adjustment process.

Policymakers and analysts should take note of this conclusion. The statement implies that Sierra Leone's economy is endowed with innate self-correcting systems that maintain stability and adaptability to external shocks. Furthermore, it highlights how crucial it is to keep an eye on and comprehend these adjustment dynamics in order to control economic swings and preserve long-term stability.

The coefficient of the statistically significant and negative error correction term highlights the effectiveness of the process of adjusting the variables towards long-term equilibrium aftershocks and supports the existence of a strong co-integrating link among them. This realization facilitates a deeper comprehension of the dynamics of economic interactions and provides guidance for policy choices intended to support stability and long-term development in Sierra Leone.

Table 7: Diagnostic Tests

Diagnostic Tests	Model 1		Model 2	
	Statistic	p-value	Statistic	p-value
Breusch-Godfrey Serial Correlation LM Test	2.164(F-stat.)	0.1520	2.712 (F-stat.)	0.1093
Heteroscedasticity Test: Breusch-Pagan-Godfrey	2.039 (F-stat.)	0.1644	1.719 (F-stat.)	0.1177
Heteroscedasticity Test: ARCH	0.125 (F- stat.)	0.7248	0.531 (F- stat.)	0.8602
Ramsey RESET Test	0.508 (F- stat.)	0.4814	1.095 (F- stat.)	0.3032
Normality Test (Jarque-Bera)	1.622(JB- stat.)	0.4443	1.657(JB- stat.)	0.43657

Table 7 presents the results of diagnostic tests conducted on the predicted ARDL model. The Breusch-Godfrey serial correlation test suggests that the null hypothesis, which assumes no serial correlation in the model, cannot be rejected since the probability value exceeds the 5% significance level (p-value = 0.1520>0.05). Similarly, the Breusch-Pagan-Godfrey test indicates that the null hypothesis, stating no heteroscedasticity in the model, cannot be rejected at a 5% significance level, as the probability value is greater than 5% (p-value = 0.1644>0.05). Additionally, the Ramsey-RESET test does not reject the null hypothesis assuming no specification error in the model at a 5% significance level, with a p-value of 0.4814. Consequently, it is inferred that the model is free from specification errors. Furthermore, the Jarque-Bera test, conducted at a 5% significance level, does not reject the null hypothesis, indicating that the residual distribution is normal, with a probability value of 0.4443>0.05. Thus, it is concluded that the residues of the ARDL model exhibit normal distribution characteristics.
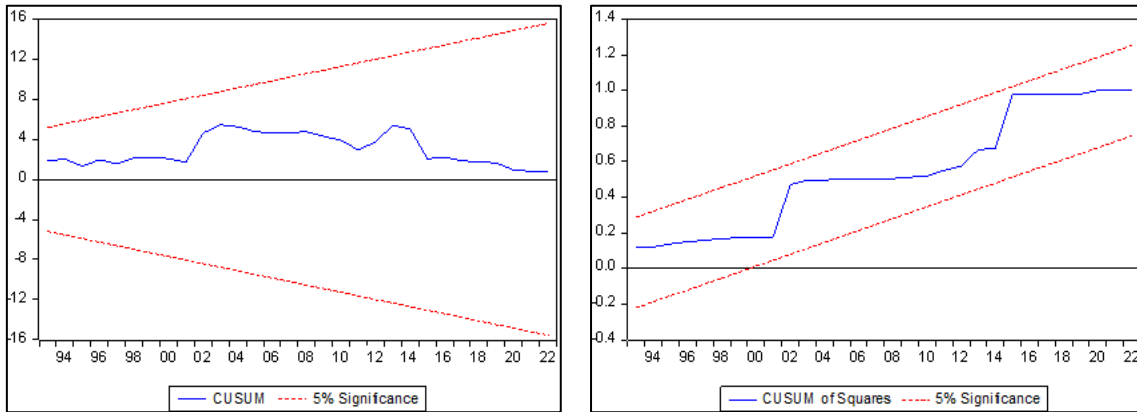
Figure 4: CUSUM and CUSUM of Squares tests for model 1
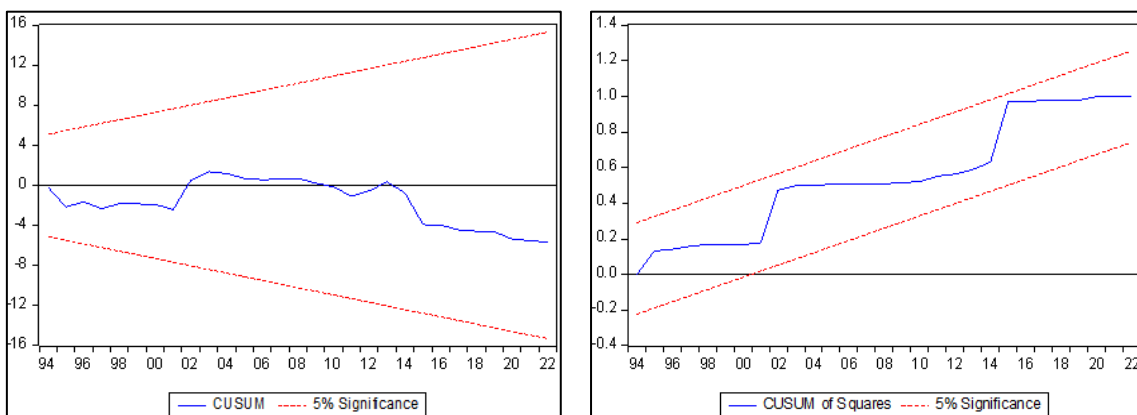
Figure 4: CUSUM and CUSUM of Squares tests for model 2

To evaluate the stability of the predicted parameters in the model, CUSUM and CUSUMQ graphs are constructed. These graphs illustrate the parameter estimates plotted against their corresponding 95% confidence limits. In these graphs, the parameter estimates are depicted by solid lines, while the dashed lines represent the confidence limits. This graphical analysis provides a visual assessment that the model's parameters exhibit stability over time.

5. Summary

This study emphasizes how important institutional quality is in figuring out how well foreign direct investment (FDI) stimulates economic growth in Sierra Leone. In summary, the thorough examination of the economic variables affecting Sierra Leone's growth highlights the variety of the nation's development dynamics. The benefits of trade openness, institutional quality, human capital development, and foreign direct investment (FDI) on economic growth demonstrate the vital role that both national and international forces play in promoting prosperity. Furthermore, analyzing how FDI and institutional quality interact highlights how crucial a supportive institutional environment is to maximize the advantages of foreign investment. But inflation's negative effects serve as a reminder of the issues that need to be resolved in order to

maintain economic growth. All things considered, these results offer policymakers a solid basis on which to build evidence-based policies targeted at promoting long-term, sustainable economic growth and development in Sierra Leone.

6. Suggestions for Policies

Prioritizing a comprehensive strategy that tackles the identified drivers of economic growth should be the top priority for Sierra Leonean authorities going forward. A climate that is favorable to investment and growth will mostly depend on improving institutional quality through governance changes, fortifying regulatory frameworks, and battling corruption. Moreover, trade facilitation mechanisms and trade barrier reductions are examples of trade openness projects that might open up new avenues for economic diversification and expansion. In addition, to preserve macroeconomic stability and protect against economic downturns, measures to manage inflation through sound monetary policies and fiscal restraint are crucial. Building a skilled workforce that can spur productivity and creativity will also need investing in human capital development through education and training initiatives. Sierra Leone may realize its economic potential and set the stage for long-term, equitable prosperity by putting these suggestions into practice.

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References

Alfaro, L., Chanda, A., Kalemli-Özcan, Ş., & Sayek, S. (2020). Foreign direct investment, productivity, and growth: An overview. *The World Economy, 43*(1), 3-23.

Azman-Saini, W. N. W., Baharumshah, A. Z., & Law, S. H. (2022). Institutional quality, foreign direct investment, and economic growth: An empirical analysis. *Applied Economics Letters, 29*(4), 331-335.

Bah, M., & Cooper, A. (2022). The role of institutional quality in shaping the impact of foreign direct investment on economic growth in Sierra Leone. *Journal of African Business, 23*(1), 30-45.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics, 45*(1), 115-135.

Hasan, I., Kobeissi, N., & Song, L. (2021). Institutional quality and foreign direct investment: An empirical study. *Journal of International Business Studies, 52*(4), 571-591.

Kargbo, P. M., & Sen, K. (2017). The impact of foreign aid and foreign direct investment on economic growth in Sierra Leone: Empirical analysis. *International Journal of Economics, Commerce and Management, 5*(3), 73-91.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2019). Governance matters IX: Governance indicators for 1996-2019. The World Bank.

Luo, Y., & Tung, R. L. (2021). The interactive effects of institutional quality and FDI on technological innovation: An empirical analysis. *Journal of World Business, 56*(3), 101178.

Ministry of Mines and Mineral Resources, Sierra Leone. (2022). Annual Report on Mining Sector Development and Investment. *Government of Sierra Leone Publications*.

Osabuohien, E. S., & Efobi, U. R. (2013). Foreign direct investment, non-oil exports, and economic growth in Nigeria: A causality analysis. *Asian Economic and Financial Review, 3*(6), 762-775.

Rodriguez-Pose, A., & Comunian, R. (2020). Do institutions matter for regional foreign direct investment? *Regional Studies, 54*(6), 811-823.

UNCTAD. (2020). World Investment Report 2020: International Production Beyond the Pandemic. *United Nations Conference on Trade and Development*.

United Nations Conference on Trade and Development (UNCTAD) World Investment Report: https://unctad.org/en/PublicationsLibrary/wir2020_en.pdf

World Bank. (2021). Sierra Leone Economic Update: Navigating the Challenges of COVID-19. *World Bank Publications*.

World Bank: Foreign Direct Investment (FDI): https://www.worldbank.org/en/topic/fdi

International Labor Organization (ILO). (2019). World Employment and Social Outlook 2019. Retrieved from https://www.ilo.org/global/research/global-reports/weso/weso-2019/WCMS_659951/PDF/WESO-2019-EN.pdf

World Trade Organization (WTO). (2020). International Trade and Economic Growth. Retrieved from https://www.wto.org/english/res_e/statis_e/trade_e.htm

United Nations Development Programme (UNDP). (2019). Human Development Report 2019. Retrieved from https://hdr.undp.org/sites/all/themes/hdr-image/2019_en.pdf