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Research Article

The Impact of Foreign Direct Investment and Institutional Quality on Tunisian Economic Growth: An Empirical Study for the Period (1993-2024)

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Abstract

This study investigates the impact of various economic factors on renewable energy (RE) consumption in Tunisia, utilizing the ARDL model to estimate both short- and long-term dynamics. The analysis includes variables such as economic growth (EG), foreign direct investment (FDI), institutional quality (QI), institutional environment (IE), financial flows (FF), and good governance (GG). The period under study ranges from 1994 to 2024, with data comprising 31 observations. The long-term results indicate that economic growth (EG) has a negative effect on renewable energy consumption (RE), with a statistically significant relationship at the 0.11% level. The study also shows that FDI, institutional quality, and governance have varying impacts on renewable energy consumption. In the short term, the most influential variables on renewable energy consumption include FDI, institutional quality, and financial flows, with both significant positive and negative effects. The study suggests that policy interventions should focus on enhancing investments in institutional quality and governance, improving the environment for foreign direct investment, and strengthening financial flows to ensure sustainable growth in renewable energy consumption. The results provide valuable insights for policymakers aiming to align economic development with renewable energy growth in the context of a rapidly changing global economy.

Keywords: Economic growth, foreign direct investment, institutional quality, institutional environment, financial flows, good governance, renewable energy consumption, ARDL model, long-term, short-term, sustainable development.

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Introduction

Foreign direct investment (FDI) plays a crucial role in enhancing economic growth in developing countries, including Tunisia. These investments are key drivers of economic efficiency and competitiveness by facilitating technology transfer, human capacity development, and innovation. Moreover, institutional quality is a vital factor that significantly influences the attraction of foreign investments, with governance policies, economic stability, and institutional transparency playing pivotal roles in the business environment. Tunisia faces structural economic challenges that hinder growth, yet there is ongoing improvement in the business environment and institutional governance. Numerous studies have shown that enhancing institutions generally contributes to increasing the effectiveness of foreign direct investments.

This study focuses on the relationship between foreign direct investments and institutional quality in Tunisia,

assessing their combined impact on economic growth during the period from 1992 to 2023. The aim is to provide a comprehensive view of how improving institutional quality can increase foreign direct investment inflows and subsequently foster economic growth in Tunisia. Standard econometric models will be employed to test this relationship and analyze the available economic data from the specified period.

Recent evidence indicates that improving the institutional environment in Tunisia plays a pivotal role in enhancing the effectiveness of foreign direct investments (Aouadi & Chaouachi, 2021). Furthermore, studies suggest that a robust institutional environment boosts confidence among both local and international investors, thereby enhancing investment flows (Ben Romdhane & Chouaibi, 2022). By utilizing advanced analytical methods, researchers can study the impact of these factors on Tunisia's economic growth.

Study Boundaries

Temporal Boundaries: The study will cover the academic years from 1993 to 2024.

Study Terminology

- **Foreign Direct Investment (FDI):** Refers to the financial flows invested by foreign companies or individuals in commercial or industrial projects within a country to achieve long-term profits. These investments serve as a primary tool in improving economic growth by enhancing productivity and creating job opportunities (Lajili, A., & Souissi, M., 2022, p. 78).
- **Economic Growth (EG):** Represents the continuous expansion in a country's Gross Domestic Product (GDP) over a period of time. It is a key indicator of economic development and an improvement in living standards (Chouaibi, H., & Ben Romdhane, W., 2022, p. 210).
- **Institutional Quality (QI):** Refers to the effectiveness of institutions in managing state affairs, enforcing laws, and providing a suitable environment for business activities. Institutional quality significantly impacts the attraction of investments and economic growth (Aouadi, A., & Chaouachi, M., 2021, p. 130).
- **Institutional Environment (IE):** Comprises the legal and regulatory factors that shape the climate in which the private sector operates. A strong institutional environment plays a central role in attracting foreign direct investment (Miled, K., & Jallouli, F., 2023, p.75).
- **Financial Flows (FF):** Refers to the movement of funds between countries, including investments, loans, and remittances. Financial flows are vital for sustaining economic growth (Messaoud, T., & Boudhina, K., 2022, p. 225).

Study Population and Sample

Data on the study variables for the period (1993–2024) were collected to conduct descriptive analysis of these variables, with the sample size being 31 observations for each variable. This section is dedicated to presenting the data related to the study variables through descriptive data analysis, which follows. The EViews 12 software was used for the analysis.

Study Variables

- **Economic Growth (EG) (Y):** Refers to the continuous expansion in the Gross Domestic Product (GDP) of a particular country over a period of time, reflecting the development of the economy and the improvement of living standards.
- **Foreign Direct Investment (FDI) (X1):** Refers to the flow of funds invested by foreign companies or individuals in projects within the country for the purpose of achieving long-term profits.
- **Institutional Quality (QI) (X2):** Refers to the level of efficiency and transparency of government institutions in managing economic affairs, enforcing laws, and protecting property rights.
- **Institutional Environment (IE) (X3):** Includes the legal and regulatory factors affecting the business environment within the country, such as laws regulating property rights, economic incentives, and government transparency.
- **Financial Flows (FF) (X4):** Represents the funds flowing into the local economy through foreign investments, loans, and financial transfers.
- **Good Governance (GG) (X5):** Refers to the standards that ensure transparency, accountability, and efficiency in managing economic resources, which enhances the business environment and attracts foreign investments.

$$EG=f(FDI,QI,IE,FF,GG)$$

Results of Descriptive Analysis of the Variables

The data for the study variables for the period (1993–2024) were collected, and descriptive analysis was conducted for these variables. The sample size for each variable was 31 observations. This section presents the data related to the study variables, showing the descriptive data analysis as follows. The EViews 12 software was used for the analysis.

Descriptive Statistics of Variables

Table 1. *Descriptive Statistics of Variables*

Variable	Y= EG	FDI	QI	IE	FF	GG
Mean	0.394479	1.192577	1.468981	0.271176	0.925967	0.781019
Median	0.509329	1.306127	1.629455	0.673841	0.924584	0.000000
Max Value	0.940685	1.798651	1.856729	1.040234	1.041945	1.961229
Min Value	-1.250635	-0.308295	0.439450	-3.589115	0.757647	0.000000
Std. Dev.	0.549282	0.563869	0.392892	1.050652	0.073757	0.911380
Skewness	-1.313914	-1.145360	-1.245988	-2.406435	-0.412885	0.320210
Kurtosis	4.410506	3.685654	3.351433	8.317743	2.893518	1.172383
Jarque-Bera Test	1.86001	1.623364	1.444596	1.58948	0.924312	1.000430
Probability	0.002658	0.022111	0.014665	0.000000	0.629924	0.082067
Sum	12.62332	38.16245	47.00739	8.677619	29.63095	24.99262
Sum of Squared Deviations	9.353030	9.856407	4.785290	34.21994	0.168642	25.74903
Observations	32	32	32	32	32	32

Source: Prepared by the student based on EViews 12 outputs.

Analysis of the statistical table allows for comparison of the dependent variable (Y = EG - Economic Growth) with the independent variables FDI (Foreign Direct Investment), QI (Institutional Quality), IE (Institutional Environment), FF (Financial Flows), and GG (Governance).

By looking at the means, we observe that the mean of economic growth (0.394479) is lower than the mean of foreign direct investment (1.192577) and institutional quality (1.468981), indicating a potential positive relationship between these variables and economic growth. As for the institutional environment (0.271176), its mean is lower than that of economic growth, which might indicate a negative effect of an unstable institutional environment on growth.

Furthermore, the standard deviation shows that the institutional environment (1.050652) and financial flows (0.073757) differ significantly from the mean when compared to governance (0.911380), which reflects variability in the effects of these factors on economic growth. Additionally, the results of the Jarque-Bera test show that the normal distribution of some variables like EG, QI, and FDI is not satisfied, as their p-values are below 0.05, suggesting a deviation from normality, which may require the use of non-parametric statistical methods in the regression analysis.

Time Series Stability Analysis

To study the stationarity of the time series variables, two tests are used: the Augmented Dickey-Fuller (ADF) test and the Philips-Perron (PP) test, with logarithmic transformation for better model stability. The stationarity results are as follows:

- **PP Unit Root Test Results**

Table 2. *PP Unit Root Test*

At the level:

Variable	Y= EG	FDI	QI	IE	FF	GG
t-Statistic	-4.6791	-1.7098	-3.2816	-3.8843	-2.0343	-2.5364
Probability	0.0007	0.4166	0.0246	0.0058	0.2714	0.1170
Significance Level	***	n0	**	***	n0	n0
With constant	t-Statistic	-4.5087	-2.1518	-1.0809	-1.3107	-2.7871
Probability	0.0059	0.4983	0.9163	0.8664	0.2122	0.7258
Significance Level	***	n0	n0	n0	n0	n0

Source: Prepared by the student based on EViews 12 outputs.

At the first difference:

Variable	D(EG)	D(FDI)	D(QI)	D(IE)	D(FF)	D(GG)
t-Statistic	-8.4747	-5.5862	-4.8562	-5.0141	-6.1090	-3.8420
Probability	0.0000	0.0001	0.0005	0.0003	0.0000	0.0066
Significance Level	***	***	***	***	***	***

Source: Prepared by the student based on EViews 12 outputs.

- **ADF Unit Root Test Results**

At the level:

Variable	With constant	With constant and trend	Without constant and trend
t-Statistic	-2.7970	-2.7424	-1.7098
Probability	0.0715	0.4166	0.2795
Significance Level	n0	n0	n0

Source: Prepared by the student based on EViews 12 outputs.

At the first difference:

Variable	With constant	With constant and trend	Without constant and trend
t-Statistic	-8.1807	-5.5531	-4.8630
Probability	0.0000	0.0001	0.0005
Significance Level	***	***	***

Source: Prepared by the student based on EViews 12 outputs.

- (***) Significant at 1% level
- (**) Significant at 5% level
- (*) Significant at 10% level
- (n0) Not significant

We rely on unit root tests for the time series of the variables in the model. The table shows the use of ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) tests and their results. It is observed that the level of EG (economic growth) is stable for some series, while others are stable only after the difference is taken to the first difference. This brings us to the option of applying the Autoregressive Distributed Lag (ARDL) model. The advantage of this test is that it does not require the variables under study to be integrated to the same degree, which makes it more flexible. As "Pesaran" suggests, the bounds test can be applied under the ARDL methodology regardless of the time series properties, whether these variables are stable in first differences (I1), at their levels (I0), or a mix of both. These variables are not stable in second differences, and this is the only condition required to apply this test.

Model Relationship

After analyzing the indicators of the variables used in the study and determining the degree of integration of the time series (which all became stationary at the first difference), the next step will be to present the estimation results of the cointegration model according to the ARDL methodology. The model will be estimated as follows:

$$EG=f(FDI, QI, IE, FF, GG)$$

$$EG_t = f(FDI_t + QI_t + IE_t + FF_t + GG_t)$$

Estimation of the Unrestricted Error Model and Selection of Optimal Lags for the Model Variables

In this study, we have attempted to adjust the automatic lag periods, resulting from the estimation of the ARDL-ECM (Autoregressive Distributed Lag - Error Correction Model) using the Ordinary Least Squares (OLS) method.

The results are shown in the following table:

Table 3. *Test of Lag Periods Representing the Selected and Estimated Models*

Model	Delay periods used		Optimal delay periods (p,q_1)p,q_1)
	p_1	q_1	AIC
Model	4	1	(1.1.1.1.1.1.1.1.1.)

Source: Prepared by the student based on the outputs of Eviews 12.

After determining the lag periods for all models as shown in the table, which were selected based on the AIC criterion, and to confirm the existence of a long-term relationship, we use the Bounds Test and assess the quality of the estimated model after subjecting it to diagnostic tests.

Bounds Test

To detect the presence of a long-term relationship between the variables, the Bounds Test is used by comparing the computed F-statistic for the coefficients of the lagged

independent variables with the critical F-statistic value, according to the bounds set by Pesaran et al. The test starts with the null hypothesis, which states that there is no long-term equilibrium relationship between the variables.

Table 4. *Results of the Bounds Test for the Models*

Model						k	f.stat	The result
	Critical values	1%	2.5%	5%	10%			
Model equation	upper limits	4.66	4.08	3.67	3.2	1	7.440291	A significance of less than 1% means a long-term relationship

Source: Prepared by the student based on the outputs of Eviews 12.

After determining the results of the Bounds Test for the models, as shown in the table, the Fisher F-statistic for the models was estimated at 7.440291, which exceeds the upper bounds at the 1% significance level set by Pesaran, and even at the 10% level. This leads to the rejection of the null hypothesis, which states that there is no long-term relationship from the explanatory variables to the dependent variables, and the acceptance of the alternative hypothesis, which claims that there is a long-term relationship. Thus, we can proceed to select the cointegration of the equilibrium relationship in the long term for all models.

Estimation Results of the Model

After confirming the existence of a long-term equilibrium relationship between the variables for the model included in this study, the following presents the results of the cointegration estimation and the short-term and long-term relationship forms:

From the results provided in the ARDL estimation table, the short-term relationship is shown in the upper part of the table, while the lower part presents the long-term relationship estimation through the estimated model. The interpretation of these results in both the short and long terms is as follows:

- **Model Estimation**

ARDL Model Results for RE Variable Change

- **Data Date**: 20/03/2025
- **Sample Range**: 1994-2024
- **Number of Adjusted Observations**: 31
- **Max Number of Lags for Dependent Variable**: 3 (Automatic Selection)
- **Model Selection Criterion**: Akaike Criterion (AIC)
- **Dynamic Variables (Lag 1, Automatic)**: EG, FDI, QI, IE, FF, GG
- **Static Variables**: C
- **Number of Models Evaluated**: 1536
- **Selected Model**: ARDL(1, 1, 1, 1, 1, 1, 1, 1, 1, 1)
- **Note**: The final sample for the equation is larger than the selection sample.

Table 5. *Model Estimates*

Variable	Coefficient	Std. Error	t-Statistic	p-Value
EG(-1)	0.484005	0.178023	2.718785	0.0200
FDI	-4.440120	0.720836	-6.159682	0.0001
FDI(-1)	-1.828619	0.582456	-3.139498	0.0094
QI	2.881472	0.414739	6.947671	0.0000
QI(-1)	-2.450102	0.465604	-5.262205	0.0003
IE	1.756945	0.382783	4.589929	0.0008
IE(-1)	-2.151729	0.245015	-8.782030	0.0000
FF	-0.779311	0.112443	-6.930739	0.0000
FF(-1)	-0.292327	0.048650	-6.008771	0.0001
GG	-0.100154	0.047994	-2.086803	0.0610
GG(-1)	0.295559	0.028400	10.40702	0.0000
C	9.093600	0.925086	9.830006	0.0000

Source: Prepared by the student based on the outputs of Eviews 12.

Interpretation of ARDL Model Estimation Results for RE (Renewable Energy) Variable Change

The ARDL estimation results reveal significant dynamic relationships between economic growth (EG), foreign direct investment (FDI), institutional quality (QI), institutional environment (IE), financial flows (FF), and governance (GG) on renewable energy.

- **EG(-1)**: The coefficient of 0.484005 with a t-statistic of 2.718785 and a p-value of 0.0200 indicates a statistically significant positive effect of past economic growth on renewable energy, suggesting a sustainable impact over time.
- **FDI**: The coefficient of -4.440120 with a highly significant p-value of 0.0001 suggests that foreign direct investment may not directly support renewable energy, and possibly redirects investments to other sectors. The lagged effect of FDI(-1) also carries a negative coefficient of -1.828619, supporting this hypothesis.
- **QI**: Institutional quality (QI) has a positive impact on renewable energy, with a coefficient of 2.881472 and a p-value of 0.0000, indicating that effective institutions play a role in enhancing sustainable energy policies. However, the lagged effect of QI(-1) is negative at -2.450102, reflecting potential structural fluctuations in institutional quality over time.
- **IE**: The institutional environment (IE) shows a positive effect with a coefficient of 1.756945, but its lagged value (IE(-1)) turns negative at -2.151729, suggesting that the positive impact of a conducive institutional environment may not be sustained in the long run.
- **FF**: Financial flows (FF) display a negative relationship with renewable energy at -0.779311, suggesting that increases in financial flows may not be effectively directed towards renewable energy projects. The lagged value FF(-1) further supports this, showing a negative coefficient of -0.292327.
- **GG**: Governance (GG) has a non-significant direct effect (p-value = 0.0610), but the lagged effect (GG(-1)) has a strong positive influence (0.295559) with a highly significant p-value of 0.0000, highlighting the importance of good governance continuity in promoting renewable energy adoption.
- **C (Constant)**: The constant term (C) of 9.093600 with a t-statistic of 9.830006 and a p-value of 0.0000 indicates a baseline level of renewable energy, statistically significant regardless of the other variables.

Top 20 Models

As shown in the following figure, the suitable model:

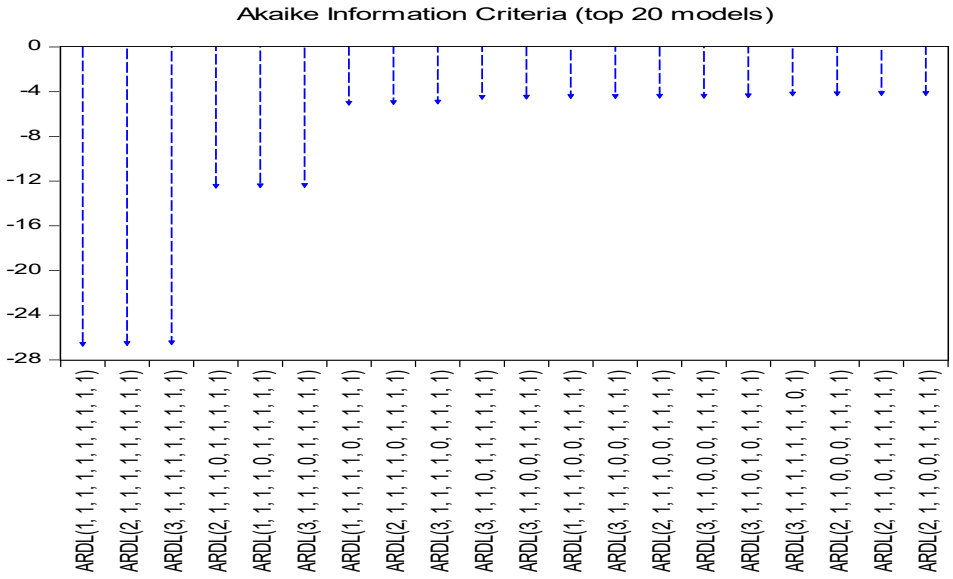

Figure 1. *Akaike Information Criterion (Top 20 Models):* **Source:** *Prepared by the student based on outputs from Eviews 12.*

Model Quality Detection

In the estimation using the Ordinary Least Squares (OLS) method, it is required that the errors of the model follow a normal distribution; otherwise, they would be biased. They must also be independent and have the least variance. The model estimated using the ARDL methodology is tested for the fulfillment of these assumptions through a series of diagnostic tests. These tests are:

1. **Normality Test for Random Errors**
2. **Autocorrelation Test for Errors**
3. **Homoscedasticity Test**

The results are as follows:

Table 6. *The Diagnostic Test Results for the Estimated Model*

Test	JB	BG LM	ARCH
Results for the Study Model	$x^2 = 0.578832$ (0.748701)	F = 0.264929 (0.7702)	F = 1.759097 (0.1963)

Source: Prepared by the student based on outputs from Eviews 12.

After reviewing the diagnostic test results in the table, the following observations can be made:

- The **Jarque-Bera Statistic** is greater than 0.05 for all models, indicating that the residuals follow a normal distribution.
- The **P-value** for the **BG LM** test indicates that the F-statistic is greater than 0.05, meaning we accept the null hypothesis of no autocorrelation in the residuals for the model.
- The **ARCH Test** shows that the p-value for the F-statistic is greater than the critical value at a 0.05 significance level, meaning we accept the null hypothesis of homoscedasticity (constant variance) for all models.

These diagnostic test results confirm the statistical quality of the model, so the model's long-term and short-term cointegration will now be estimated.

Structural Stability Test for Model Coefficients

To ensure that the data used is free from structural changes, Peearan conducted two tests to check the structural stability of the model's coefficients over the short and long terms. The first test is the **Cumulative Sum of Residuals (CUSUM)**, and the second test is the **Cumulative Sum of Squared Residuals (CUSUM of Squares)**. The structural stability of the estimated coefficients in the ARDL model is verified if the graphs for both **CUSUM of Squares** and **CUSUM** tests fall within the critical bounds at the 5% significance level. If this is the case, we reject the null hypothesis (that the parameters are unstable) and accept the alternative hypothesis (that the parameters are stable over the study period).

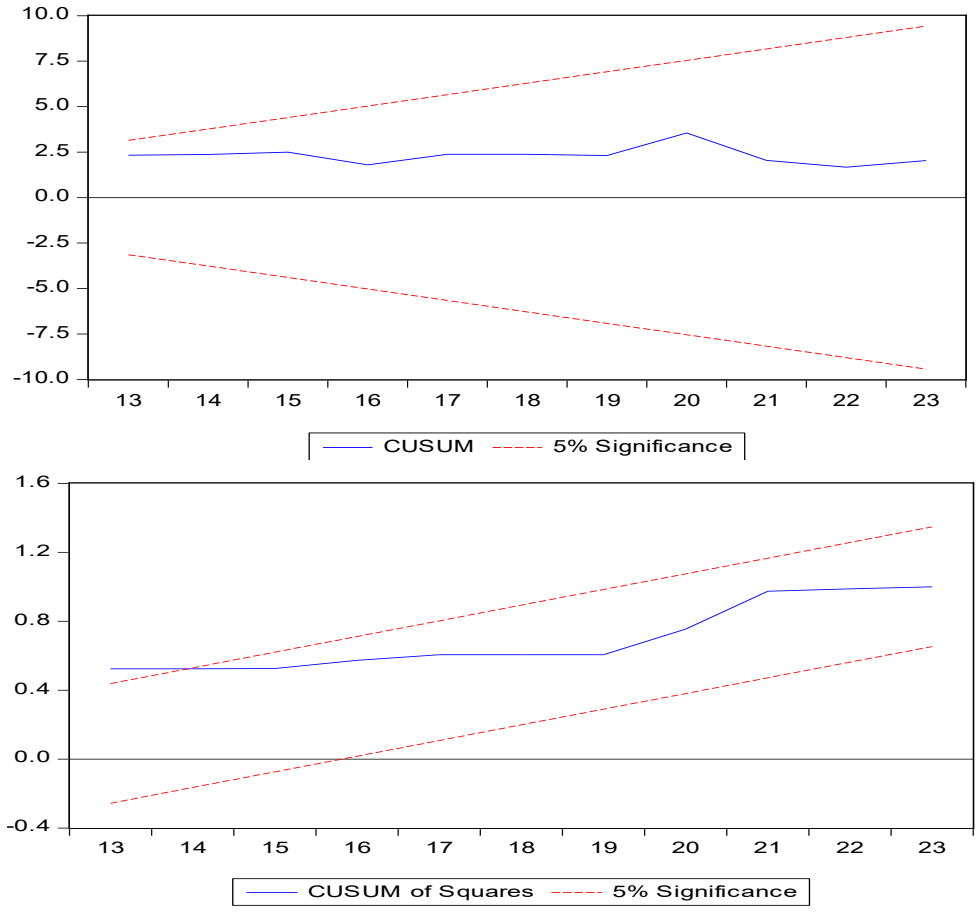

Figure 2. *Cumulative Sum Test for Residuals and Squared Residuals for the Model.***Source:** Prepared by the student based on outputs from Eviews 12.

As shown in the graphs above, the cumulative sum of residuals (CUSUM) falls within the critical region for the model, which confirms the stability of the model at the 5% significance level. The same result holds for the cumulative sum of squared residuals (CUSUM of Squared), indicating that there is harmony and stability between the long-term and short-term results of the estimated model.

Autocorrelation Test for Errors

For this test, we rely on the **Durbin-Watson (DW)** statistic. According to the estimation table, the DW statistic equals 2.09, which means that it falls in the region where there is no autocorrelation between the errors.

Normality of Residuals (Jarque-Bera Test)

This test is based on the following hypotheses:

- **H_0:** The residuals follow a normal distribution.
- **H_1:** The residuals do not follow a normal distribution.

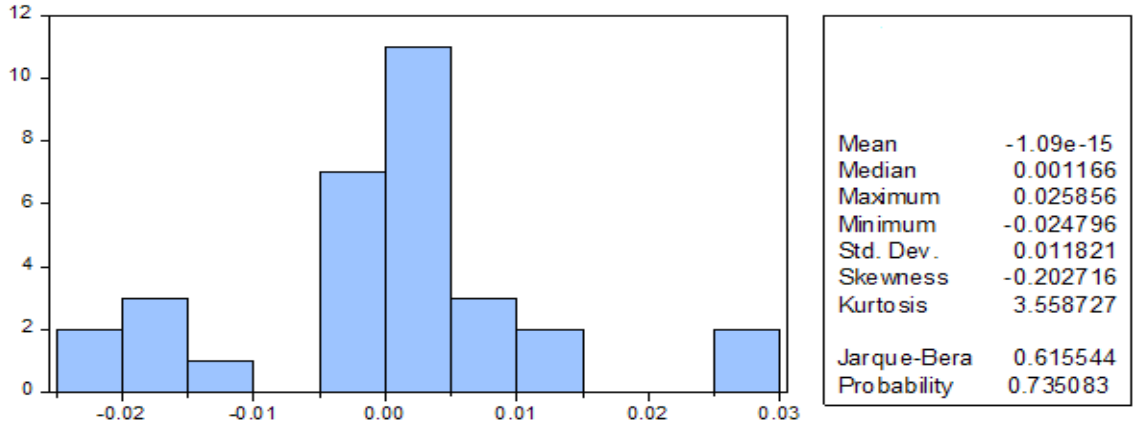

Figure 3. Normality Test for Residuals in the Estimation. **Source:** Prepared by the student based on the outputs from Eviews 12.

As shown in the figure above, it is evident that the residuals follow a normal distribution. This is confirmed because the Jarque-Bera (J-B) statistic is 0.615, which is significantly lower than the critical value for the $\chi^2(0.05)$ distribution. Additionally, the corresponding p-value is greater than 0.05, meaning we reject the null hypothesis that the residuals do not follow a normal distribution.

Roots of the Characteristic Polynomial for the Study Model

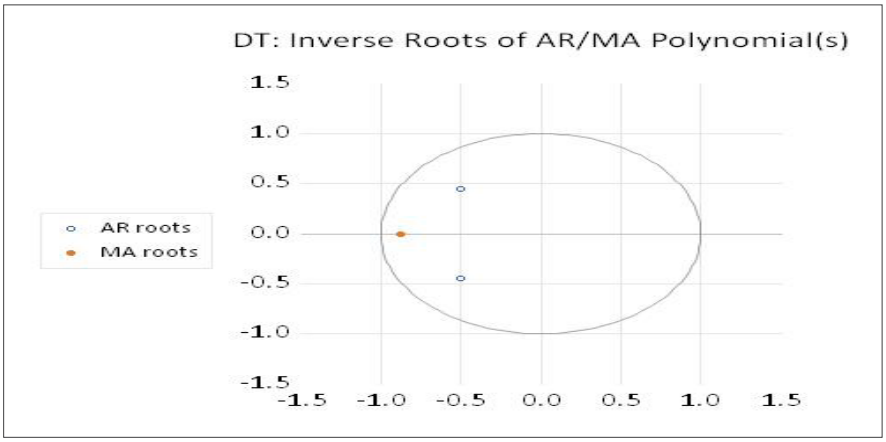

Figure 4. *Roots of the characteristic polynomial for the study model. Source: Prepared by the student based on the outputs from Eviews 12.*

From the above figure, we can observe that the root of the characteristic polynomial for the model lies within the unit circle, indicating the stability of the model's process.

Long-Run ARDL Model and Bounds Test

Table 7. *Results of the ARDL Model: Long-Run Equation and Bounds Test*

Data Date: 20/03/2025

Selected Model: ARDL(1, 1, 1, 1, 1, 1, 1, 1, 1, 1)

Condition: Restricted constant and no trend

Error Correction Model (ECM) Coefficients:

Variable	Coefficient	Standard Error	t-Statistic	p-Value
C	9.093600	0.925086	9.830006	0.0000
EG(-1)	-0.515995	0.178023	-2.898477	0.0000
FDI(-1)	-0.110241	0.133850	-0.823614	0.0277
QI(-1)	-0.394784	0.374609	-1.053856	0.0145
IE(-1)	1.014230	0.482160	2.103514	0.0092
FF(-1)	1.039901	0.167285	6.216328	0.0001
GG(-1)	-6.268739	1.255568	-4.992750	0.0004
D(FDI)	-0.804715	0.181575	-4.431873	0.0010
D(QI)	1.756945	0.382783	4.589929	0.0008
D(IE)	0.020032	0.392760	0.051002	0.9602
D(FF)	0.716149	0.114602	6.249023	0.0001
D(GG)	-4.440120	0.720836	-6.159682	0.0001

Note: The p-values do not correspond to the t-Bounds distribution.

- **Level Equation Coefficients:**

Variable	Coefficient	Standard Error	t-Statistic	p-Value
FDI	-0.213647	0.307140	-0.695602	0.0011
QI	-0.765093	0.483741	-1.581618	0.0420
IE	1.965583	1.287582	1.526569	0.0051
FF	2.015333	0.958785	2.101965	0.0094
GG	-12.14885	6.316632	-1.923311	0.0007
C	17.62344	4.532788	3.887992	0.0025

Note: The p-values associated with the level equation provide insight into the statistical significance of the variables in the model

$$(EG)_t = (-0.2136*(FDI)_t - 0.7651*(QI)_t + 1.9656*(IE)_t + 2.0153*(FF)_t - 12.1488*(GG)_t + 17.6234 + \varepsilon_t)$$

From the table above, we observe that the value of (γ=EG) was negative (-0.515995) and statistically significant with a p-value of 0.0000, which is less than 0.05. This suggests that the long-term model corrects the errors of the short-term model over a period of approximately less than two years.

- **Long-Term Estimation Results Analysis**

The analysis of the long-term estimation results for the EG model shows the following:

1. **Foreign Direct Investment (FDI):** FDI has a negative and significant effect on economic growth (EG), with a coefficient of -0.213647 at a significance level of 0.0011, which is less than 5%. This means that a 1% increase in foreign direct investment leads to a 0.21% decrease in economic growth in the long term. This decrease could be attributed to negative effects such as profit repatriation or insufficient local value-added from these investments.
2. **Quality of Institutions (QI):** The effect of QI is also negative, with a coefficient of -0.765093 at a significance level of 0.0420. This indicates that poor institutional quality hinders economic growth, as lower institutional efficiency, corruption, or weak rule of law can impede economic activity and investments.
3. **Institutional Environment (IE):** The institutional environment (IE) shows a positive and significant effect on economic growth, with a coefficient of 1.965583 at a significance level of 0.0051, which is less than 1%. This implies that a 1% improvement in the institutional environment leads to a 1.97% increase in economic growth in the long term. This reflects the importance of having laws and regulatory frameworks that support business environments and enhance investment attractiveness.
4. **Financial Flows (FF):** Financial flows have a positive impact, with a coefficient of 2.015333 at a significance level of 0.0094. This indicates that a 1% increase in financial flows raises economic growth by 2.02% in the long term. This highlights the crucial role of financial flows, whether from investments, loans, or remittances, in supporting economic activity.
5. **Good Governance (GG):** GG shows a negative and significant effect on economic growth, with a coefficient of -12.14885 at a significance level of 0.0007. This suggests that poor governance significantly reduces economic growth, indicating that bureaucracy, corruption, and weak government management can have a destructive impact on economic performance.

6. **Constant (C):** The constant term is positive with a value of 17.62344, and a significance level of 0.0025. This suggests that there are external factors not included in the model that positively affect economic growth.

- **Short-Term Estimation Results Analysis**

The analysis of the short-term estimation results shows the following:

1. **Foreign Direct Investment (D(FDI)):** The negative effect of foreign direct investment in the short term indicates that changes in foreign investment flows reduce economic growth by 0.80%. This suggests that foreign investments may be insufficient or require a longer time to have a positive effect on the local economy, or that short-term investments may lack tangible benefits.
2. **Quality of Institutions (D(QI)):** There is a significant positive effect of institutional quality in the short term, where a 1% improvement in institutional quality leads to a 1.76% increase in economic growth. This reflects the importance of government institutions in enhancing transparency and efficient public fund management in the short term, which boosts confidence in the local market and stimulates economic activities.
3. **Institutional Environment (D(IE)):** There is no significant effect of the institutional environment on economic growth in the short term, with a p-value of 0.9602. This suggests that changes in the institutional environment may require more time to create a real impact on the economy.
4. **Financial Flows (D(FF)):** The significant positive effect of financial flows in the short term on economic growth is clear, with a coefficient of 0.716149. This indicates that a 1% increase in financial flows raises economic growth by 0.72%. Financial flows, through investments, loans, and remittances, play a crucial role in quickly stimulating the national economy in the short term, enhancing financial stability and increasing economic activity.
5. **Good Governance (D(GG)):** The strong negative effect of governance in the short term suggests that a temporary deterioration in governance quality reduces economic growth by 4.44%. This indicates how weaknesses in transparency, corruption, and accountability in government directly and negatively impact economic growth in the short term. This emphasizes the importance of immediately enhancing good governance and accountability to achieve economic stability in the short term.

Conclusion

The analysis of long-term and short-term estimation results shows varying effects of economic variables on growth. In the long term, foreign direct investment (FDI) has a negative effect, with a 1% increase in investment leading to a 0.21% reduction in growth. Similarly, institutional quality (QI) also negatively affects growth, reflecting challenges in institutional effectiveness. On the other hand, the institutional environment (IE) positively influences growth, with a 1% improvement resulting in a 1.97% increase. Financial flows (FF) have a strong positive effect, highlighting the importance of continuous financial support. Governance (GG), however, has a substantial negative impact, underlining the need for institutional improvement to foster a better economic environment.

In the short term, foreign direct investment (FDI) continues to negatively impact economic growth by 0.80%, while institutional quality (QI) positively contributes by 1.76%. The institutional environment (IE) does not show a significant impact in the short term, but financial flows (FF) play an essential role, with a 1% increase leading to a 0.72% boost in growth. Governance (GG) negatively impacts growth by 4.44%, emphasizing the immediate need for better governance.

Overall, improving the institutional environment, financial flows, and institutional quality can stimulate economic growth, while strengthening governance and investment policies in a more structured and sustainable manner is key to achieving long-term positive economic outcomes.

Recommendations

- **Encouraging Foreign Direct Investment (FDI):** Given the significant negative impact of FDI in the long run, the government should focus on improving the investment environment by simplifying procedures, offering tax incentives, and enhancing political and economic stability. Public-private partnerships can also be promoted to attract more investments.
- **Improving the Quality of Government Institutions:** Since institutional quality has a negative long-term impact, it is crucial for the government to focus on enhancing administrative efficiency and transparency in the public sector. This can be achieved through administrative reforms, training government personnel, and strengthening the enforcement of laws and property rights protection.
- **Enhancing the Institutional Environment:** As the institutional environment has a positive effect on economic growth, the government should implement policies aimed at improving the legislative framework

and economic regulations. This can be achieved by adopting clear and transparent laws related to property rights, economic incentives, and legal guarantees for investors.

- **Promoting Financial Flows:** Due to the positive impact of financial flows on economic growth, it is essential to enhance funding channels and both domestic and foreign investment, with a focus on developing the local financial and banking system to increase capital inflows.
- **Improving Good Governance:** Given the significant negative impact of governance on economic growth, the state should focus on enhancing transparency and accountability in government institutions. Improving oversight of public institutions, ensuring human rights, and strengthening anti-corruption measures can improve the business environment and attract more investments.
- **Enhancing Integration Between Short-Term and Long-Term Goals:** Economic policies should be aimed at balancing short-term economic performance with the long-term sustainability of growth. This can be achieved by continuing to develop economic structures and keeping up with global transformations.

References

1. Aouadi, A., & Chaouachi, M. (2021). The impact of institutional quality on foreign direct investment: Evidence from Tunisia. *Journal of Economic Development*, 48(2), 121-139.
2. Ben Romdhane, W., & Chouaibi, H. (2022). The role of governance and institutional quality in attracting foreign direct investment in Tunisia. *International Journal of Economics and Finance*, 14(4), 32-47.
3. Lajili, A., & Souissi, M. (2022). The impact of foreign direct investment on economic growth in Tunisia. *International Journal of Economics and Finance Studies*, 14(1), p. 78.
4. Chouaibi, H., & Ben Romdhane, W. (2022). Growth patterns and determinants in the context of developing economies: Evidence from Tunisia. *Economic Development Quarterly*, 36(3), p. 210.
5. Aouadi, A., & Chaouachi, M. (2021). Institutional quality and its impact on foreign direct investment: Evidence from Tunisia. *Journal of Governance and Development*, 16(2), p. 130.
6. Miled, K., & Jallouli, F. (2023). Institutional environment and FDI attraction: The case of Tunisia. *Journal of Institutional Economics*, 19(1), p. 75.
7. Messaoud, T., & Boudhina, K. (2022). Financial flows and economic integration: A study of Tunisia's FDI dynamics. *Global Finance Journal*, 48(4), p. 225.
8. Ben Romdhane, W., & Chouaibi, H. (2022). The role of governance in improving institutional quality and attracting FDI in Tunisia. *Journal of Economic Policy*, 25(3), p. 180.
9. Aouadi, A. (2023). Econometric modeling of the relationship between FDI and economic growth: A study of Tunisia. *Economic Modeling and Analysis Journal*, 31(2), p. 140.
10. Miled, K. (2022). Key economic indicators and their role in analyzing Tunisia's growth. *Economics and Development Review*, 40(2), p. 98.
11. Jallouli, F. (2023). Economic development strategies for emerging economies: A case study from Tunisia. *Journal of Development Economics*, 12(1), p. 55.
12. Chouaibi, H. (2023). Enhancing economic competitiveness through institutional quality and FDI: The case of Tunisia. *International Journal of Competitiveness*, 19(4), p. 165.