



Financial Development in Arab Countries: Does Access, Depth and Efficiency Contribute to Driving Economic Growth?

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Abstract:

This study examines the impact of financial development indicators (access, depth, and efficiency) on economic growth (GDP) in 11 Arab countries from 1990 to 2021 using the PANEL ARDL model. The results show that financial sector development influences economic growth to varying extents. The Financial Access Index (FIA) demonstrated a positive effect both in the short and long term, emphasizing the importance of improving financial infrastructure. On the other hand, the Financial Depth Index (FID) indicated a negative impact due to rapid, unregulated financial expansion. The Financial Efficiency Index (FIE) showed no statistically significant effects, reflecting inefficiency in the financial sector. The findings also revealed notable differences between countries in their economic growth responses to financial developments, with some nations showing strong positive effects, while others displayed weak or insignificant impacts. The study recommends implementing comprehensive regulatory reforms, strengthening financial governance, and expanding financial inclusion to support sustainable economic growth.

Key Words: Financial Development, Economic Growth, Financial Institutions, Panel ARDL, Arab Countries.

JEL Classification : G20, O16, O53

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Introduction:

Financial sector development contributes to economic development by promoting economic growth through increased savings, attracting foreign capital, and improving capital allocation. It also helps reduce poverty and inequality by expanding access to finance for vulnerable groups, facilitating risk management, and boosting investment and productivity. Evidence suggests that financial development is not merely a result of growth but also plays a role in stimulating it (World Bank, Financial Development, 2023).

In this regard, the relationship between financial development and economic growth has received significant attention and continues to receive it today. However, opinions remain divided regarding the role of the financial system in driving economic growth. This controversial issue has been extensively debated in the



literature since the seminal paper of considering finance as an engine of economic growth through its effects on innovative investments (Schumpeter, 2021). Given the difficulty to determine the direction of the relationship between finance and economic growth at a theoretical level, the majority of the recent studies focused on the empirical facets of this relationship (Matei, 2020). It has been emphasized that the effects are not static and can vary between positive, negative, or neutral impacts. However, the general trend leans toward a positive relationship between financial development and economic growth. This was revealed by (Valickova, Havranek, & Horvath, 2015) study, which confirmed that the impact of finance on growth varies by region. It also showed that measurements based on stock markets generate greater growth effects than those based on banks, highlighting the importance of the financial system structure in accelerating economic development.

According to (King & Levine, 1993), financial development stimulates economic growth through four main ways. First, the financial system enhances productivity by selecting high-quality entrepreneurs and projects. Second, it contributes to raising external financing for these entrepreneurs, enabling them to expand their businesses. Third, it provides better means of diversifying risks associated with innovative activities, thereby boosting investments in new projects. Finally, the financial system helps to more accurately identify potential high profits associated with uncertain innovative ventures, encouraging further investments in innovative fields. In line with this, several studies (Bist & Read, 2018) have confirmed the view that the contribution of financial development to economic growth depends on the level of economic backwardness. They emphasized that economically underdeveloped countries require a more active financial system, while advanced countries do not. However, despite the importance of a developed financial system for economic growth, economically underdeveloped countries, such as those in the Arab region, remain financially underdeveloped. According to the study by (Detragiache, Gupta, & Tressel, 2005), the reasons for the weak financial system in these countries are attributed to two main factors: political instability and corruption. In addition to that, in the Arab region, many countries face challenges in developing their financial sectors, including weak financial infrastructure, inadequate regulatory frameworks, and the prevalence of informal economies (Hassan, Sanchez, & Yu, 2011).

Based on the previous context, this study focuses on analyzing the impact of financial development on economic growth in eleven Arab countries (Algeria, Egypt, Jordan, Kuwait, Libya, Oman, Qatar, Saudi Arabia, Sudan, Tunisia, and the UAE) over the period from 1990 to 2021. This analysis aligns with the challenges these countries face in enhancing the stability and growth of their financial systems, such as the lack of diversification in financial markets, over-reliance on oil revenues in some countries, and the political and economic measures aimed at stimulating innovation and increasing both domestic and foreign investments. The study also aims to provide insights into how financial development can be used as a tool to improve financial inclusion levels, reduce economic disparities between different social classes, and achieve sustainable growth that can withstand global economic fluctuations.



In this regard, the problem we aim to address is as follows: ***Does financial development contribute to driving economic growth in Arab countries?***

I. Literature review

Several studies have addressed the relationship between financial development and economic growth, with variations in objectives, methodology, and results. Below, we will present an overview of the key previous studies related to the topic of this research and highlight the research gaps between them.

- The study by (El Menyari, 2019), investigates the influence of financial development and the presence of foreign banks on the economic growth of African countries from 1995 to 2015. Using the system GMM estimator, the study reveals that foreign bank entry positively and significantly impacts economic growth in North and Southern Africa, while it shows negative or negligible effects in West, Central, and East Africa. Furthermore, the development of financial markets is found to positively affect economic growth only in Southern Africa. It emphasizes the need for long-term policies to enhance the financial sector in Africa.
- The study by (An, Zou, & Kargbo, 2021), explores how financial development influences economic growth across 30 countries in the region between 1985 and 2015. Unlike general analyses, it categorizes countries into low-, middle-, and upper-income groups to assess variations in financial impacts based on income levels. Using dynamic and static panel data models, the study finds that financial depth and intermediation hinder per capita growth in low- and middle-income nations but stimulate growth in upper-income ones. Credit supply supports growth in low-income countries but has a negative effect in middle-income and overall SSA samples. Additionally, financial liberalization fosters growth in upper-income groups while restricting it in lower categories. The study highlights how financial strategies must consider income differences to achieve effective growth outcomes.
- The study by (Aluko & Ibrahim, 2020) explores how institutional quality influences the relationship between financial development and economic growth in Sub-Saharan Africa. Using a Sample splitting approach, it finds that financial development boosts growth only in countries with strong institutions when measured by the International Country Risk Guide. However, using World Governance Indicators, financial development positively impacts growth regardless of institutional quality, with a stronger effect in countries with weaker institutions. The study emphasizes the role of a robust financial sector in supporting growth, even in environments with weak institutions.
- The study by (Grassa & Gazdar, 2014) examines the comparative impact of Islamic and conventional financial development on economic growth in five GCC countries (Bahrain, Kuwait, Qatar, Saudi Arabia, and the UAE) from 1996 to 2011. Using generalized least squares, OLS, and panel data models, the research assesses various financial development indicators. The findings reveal that



Islamic finance significantly contributes to economic growth in these countries, while conventional finance shows no notable impact. The study underscores the importance of advancing financial reforms in Islamic finance to enhance savings, investments, and long-term growth.

- The study by (Emara & El Said, 2021) explores how financial inclusion and governance influence economic growth in the MENA region. Using GMM dynamic panel data from 44 emerging markets (1990-2018), the study finds that financial inclusion positively impacts GDP growth, particularly when supported by strong governance, such as rule of law and political stability. The effect of firms' access to finance is significant only in countries with robust institutions. The study suggests that improving both financial access and governance would be especially beneficial for MENA countries, recommending national strategies to enhance these areas for economic growth.
- The study by (Boukhatem & Ben Moussa, 2018) examines the impact of Islamic banking on economic growth in 13 MENA countries from 2000 to 2014. It finds that Islamic finance stimulates economic growth, but this effect is hindered by weak institutional frameworks. Additionally, oil-exporting MENA countries do not significantly benefit from oil-related deposits to increase loan volumes. The study recommends that governments adopt supportive economic and institutional policies to foster the development of Islamic finance.
- The study by (Durusu-Ciftci, Ispir, & Yetkiner, 2017) examines the role of financial development in economic growth. It combines a theoretical model that highlights the importance of credit and equity markets as long-term determinants of GDP per capita with empirical analysis of data from 40 countries over 1989–2011. The results show that both credit and equity markets positively influence long-term GDP per capita, with credit markets having a stronger impact. The study suggests that policies should focus on deepening financial markets and strengthening legal frameworks to foster economic growth.
- The study by (Abu-Bader & Abu-Qarn, 2008) investigates the causal relationship between financial development and economic growth in Egypt from 1960 to 2001. Using a trivariate vector autoregressive (VAR) framework with investment as an additional variable, the study employs Granger causality tests and cointegration with vector error-correction (VEC) methodology. The results reveal that financial development and economic growth are mutually causal, with financial development driving economic growth through increased investment and enhanced efficiency.
- The study by (Ibrahim & Alagidede, 2018) examines the impact of financial development on economic growth in sub-Saharan Africa, using panel data from 29 countries over the period 1980–2014. The analysis, based on the system generalized methods of moments (GMM), finds that financial development supports economic growth, but its effectiveness depends on the balanced growth of both the financial and real sectors. The study shows that rapid, unregulated credit growth negatively impacts economic growth by financing risky and



unsustainable investments. However, the study highlights that the effect of excess finance on economic growth is stronger when channeled through investments.

- The study by (Fengju & Wubishet, 2024) investigates the relationship between financial development and economic growth in 18 East African countries from 1995 to 2021, emphasizing the role of institutional quality. Using dynamic panel estimation (GMM) to address potential endogeneity and reverse causality, the research highlights how factors such as government stability, rule of law, military involvement in politics, and corruption control influence the financial development-growth nexus. The results show that while financial development positively impacts economic growth, the effect is significantly stronger in countries with stronger institutional frameworks, suggesting that robust institutions enhance the benefits of financial development on growth.
- The study by (An, Chen, & Yeh, 2025) examines the role of financial development (FD) in enhancing the growth effects of foreign direct investment (FDI) in emerging and developing Asian economies from 1996 to 2019. Using the Financial Development Index from the IMF and panel smooth transition regression (PSTR), the study analyzes the threshold effect of FD on the FDI-growth nexus. The findings reveal that FD positively mediates the effect of FDI on growth up to a certain level, beyond which excessive FD can hinder the growth benefits from FDI. Financial institutions play a stronger role than financial markets, and the impact of FDI on growth follows an inverted-U shape, dependent on financial depth. The study highlights the importance of improving access and efficiency in financial systems to maximize the benefits of FDI and FD.

The research gap between the studies lies in their objectives, methodologies, and findings. While many studies focus on the general relationship between financial development and economic growth (El Menyari, 2019) and (Ibrahim & Alagidede, 2018), few explore specific contexts such as the impact of Islamic finance (Grassa & Gazdar, 2014) or the role of institutional (Aluko & Ibrahim, 2020). Methodologically, most studies rely on panel data techniques (e.g., GMM, GLS, VAR), while some use newer indices like the Financial Development Index from the IMF (An, Chen, & Yeh, 2025). In terms of findings, there are variations in the effects of financial development across countries with different income levels and institutional quality, with financial development showing positive effects in higher-income countries (An, Zou, & Kargbo, 2021) but mixed or negligible effects in others (Ibrahim & Alagidede, 2018).

In this regard, the current study focuses on analyzing the impact of financial development on economic growth in eleven Arab countries (1990–2021) using the Panel ARDL methodology to understand both short- and long-term relationships, with an emphasis on multiple dimensions of financial development (access, depth, and efficiency). This study distinguishes itself from previous research that examined broader regions (e.g., Africa or GCC countries) using methodologies such as GMM or OLS, by providing a more detailed and precise analysis of Arab countries, while accounting for individual country heterogeneity. Additionally, it addresses a research



gap by focusing on institutional quality and the separate dimensions of financial development, offering actionable insights for policymakers in the region.

II. Data and methods

This study focuses on analyzing the impact of financial development on economic growth in eleven Arab countries (Algeria, Egypt, Jordan, Kuwait, Libya, Oman, Qatar, Saudi Arabia, Sudan, Tunisia and UAE) over the period 1990–2021.

1. Data

The data is collected from reliable sources such as the World Bank and the International Monetary Fund (IMF). The variables used in the analysis are divided into dependent, and independent variables, The following table illustrates this:

Table 1: «Variables and data collection sources»

Variable	Description	Source	Measurement
Dependent Variable			
GDP	Gross Domestic Product	(World Bank, World Development Indicators, 2022)	Constant 2015 USD.
Independent Variables			
FIA	Financial Institutions Access Index	(IMF, 2022)	Composite index (0–1), where 1 indicates the highest level of access (This index compiles information on the accessibility of financial services, measured by the number of bank branches per 100,000 adults and the number of ATMs per 100,000 adults).
FID	Financial Institutions Depth Index		Composite index (0–1), where 1 indicates the highest level of depth (This index aggregates key financial metrics, such as bank credit to the private sector, pension fund assets, mutual fund assets, and insurance premiums, all as percentages of GDP).
FIE	Financial Institutions Efficiency Index		Composite index (0–1), where 1 indicates the highest level of efficiency (This index measures financial institutions' efficiency through metrics like net interest margin, lending-deposit rate spread, non-interest income to total assets, overhead costs, ROA, and ROE).

Source: Prepared by authors.

The selection of FIA, FID, and FIE represents the methodological contribution of this study in analyzing the relationship between financial development and economic growth, as these indicators provide a comprehensive assessment of financial sector performance through three key dimensions. The FIA index reflects financial



accessibility and its role in enhancing financial inclusion, which contributes to increased savings and expanded credit opportunities. The FID index measures financial depth by evaluating the volume of credit and investments provided by financial institutions, influencing capital allocation and fostering long-term economic growth. Meanwhile, the FIE index focuses on the efficiency of financial institutions in managing resources and ensuring cost-effectiveness, thereby enhancing the sustainability of the financial sector. By incorporating these indicators, this study offers an integrated analytical framework that provides a more precise understanding of the role of financial development in supporting economic growth.

2. Research method

The study employs a Panel ARDL (Autoregressive Distributed Lag) approach to analyze the relationship between financial development and economic growth. This methodology is chosen because it allows for the estimation of both short-run and long-run relationships in the presence of variables with different orders of integration (Pesaran, Shin, & Smith, 1999).

The analytical methodology begins by addressing data non-stationarity through panel unit root tests. The Levin-Lin-Chiu (LLC) Test, which assumes common unit roots across units, and the Im-Pesaran-Shin (IPS) Test, which allows for individual unit roots, are applied. Furthermore, it was ensured that none of the variables exhibit second-order integration (I2) to prevent estimation issues and to ensure the reliability and validity of the applied model. Next, we proceed to Cointegration Analysis to explore long-run relationships using the Kao Residual Cointegration Test, the Pedroni Heterogeneous Panel Cointegration Test, and the Westerlund Test.

Following this, we apply the Panel ARDL model, utilizing the Pooled Mean Group (PMG), Mean Group (MG), and Dynamic Fixed Effects (DFE) estimators to capture both long-run coefficients (the relationship between financial development indices and GDP) and short-run dynamics, including the speed of adjustment via the Error Correction Term (ECT). The Hausman Test is then used to select between the PMG and MG estimators, with robustness checks performed via DFE estimation. Finally, we conduct a country-specific short-run analysis by deriving individual nation results from the ECM coefficients to identify heterogeneity in short-run impacts.

III. Empirical findings and discussion

This section presents the experimental results of the study on the relationship between financial development and economic growth in Arab countries using the ARDL model. The results related to the long-run equilibrium coefficients of financial development indicators on GDP, the speed of adjustment to equilibrium, and country-specific short-run effects are discussed. Additionally, the strength of the results and their alignment with the economic reality in the region are addressed.

1. Panel Unit Root Test and Cointegration Test

1.1. Panel Unit Root Test

Before estimating the model, it is essential to check the stability of the variables to avoid misleading regression results. This study uses two common unit root tests



for panel data: the Levin-Lin-Chiu (LLC) test, which assumes the presence of a common unit root process across all sub-sectors (Levin, Lin, & Chu, 2002). It is suitable for panel data with a small number of countries and a long time series. And the second test is the Im-Pesaran-Shin (IPS) test, which allows for the presence of individual unit root processes across sub-sectors, making it more flexible in dealing with heterogeneous panel data (Im, Pesaran, & Shin, 2003). The null hypothesis for both tests posits that the data series contains a unit root, while the alternative hypothesis suggests stationarity. If the variables are found to be stationary at level (I(0)) or at the first difference (I(1)), the Panel ARDL methodology can be applied (Pesaran, Shin, & Smith, 1999). The next table demonstrates this:

Table 2: «Panel Unit Root Test Results»

Variable	Levin-Lin-Chiu (LLC)		Im-Pesaran-Shin (IPS)	
	Level	1st Difference	Level	1st Difference
GDP	0.3859 (0.6502)	-3.7600 (0.0001)	5.0676 (1.0000)	-7.8713 (0.0000)
FIA	3.8961 (1.0000)	-4.2656 (0.0000)	4.9593 (1.0000)	-8.6492 (0.0000)
FID	0.4476 (0.6728)	-7.8666 (0.0000)	2.1597 (0.9846)	-9.9134 (0.0000)
FIE	-2.6857 (0.0036)	-9.9541 (0.0000)	-3.4331 (0.0003)	-11.6925 (0.0000)

Note: those in () are p-Value

Source: Stata 15 software output.

The Panel Unit Root Test results show that most variables, including GDP, FIA, and FID, are non-stationary at the level but become stationary at the first difference, as indicated by both the Levin-Lin-Chu and Im-Pesaran-Shin tests. Specifically, the p-values for these variables at the level are greater than 5%, signaling non-stationarity, while at the first difference, the p-values are less than 5%, indicating stationarity. In contrast, the FIE is stationary at both the level and first difference, as shown by the p-values in both tests. These results suggest that the variables under study are either I(0) or I(1), making the Panel ARDL model appropriate for analyzing both short-run and long-run relationships (Pesaran, Shin, & Smith, 1999).

Despite the results presented above, which confirmed the stationarity of the variables (GDP, FIA, and FID) at level and the variable (FIE) at the first differences, it is essential to ensure that the degree of integration does not reach the second differences (I2). This precaution is necessary to avoid estimation issues and to confirm the validity of the model. The integration test results are as follows:

Table 3: « ADF and PP unit root tests»

Variable	ADF test	PP test
GDP	I(1): 1st Difference	I(1): 1st Difference
FIA	I(1): 1st Difference	I(1): 1st Difference
FID	I(1): 1st Difference	I(1): 1st Difference
FIE	I(0): Level	I(0): Level

Source: Stata 15 software output.



The unit root test results using ADF and PP indicate that the variables GDP, FIA, and FID are integrated of order $I(1)$, as they become stationary after first differencing, while FIE is $I(0)$, meaning it is stationary at level. Given the absence of $I(2)$ variables, the Panel ARDL model is deemed appropriate for analyzing both short-run and long-run relationships. Furthermore, the presence of $I(1)$ variables suggests the potential existence of a long-run equilibrium relationship, highlighting the importance of cointegration analysis, which will be further examined in the following section of the study.

1.2. Panel Cointegration Test

To investigate the existence of a long-run equilibrium relationship between financial development indicators and economic growth, the study employs the Kao, Pedroni, and Westerlund cointegration tests. The Pedroni test accounts for cross-sectional dependence and heterogeneity (Pedroni, 2004), while the Kao test, similar to Pedroni, assumes homogeneity (Kao, 1999). Additionally, the Westerlund test provides further robustness by allowing for structural breaks and cross-sectional dependence in panel data (Westerlund, 2005). The rejection of the null hypothesis in these tests confirms the existence of a cointegrated relationship. The next table demonstrates this:

Table 4: «Panel Cointegration Test Results»

Test	Statistics	p-value	Decision
Kao Test			
Modified Dickey-Fuller	2.4884	0.0064	Alternative Hypothesis: Cointegration exists
Dickey-Fuller	3.1149	0.0009	
Augmented Dickey-Fuller	2.9338	0.0017	
Unadjusted modified Dickey-Fuller	2.5562	0.0053	
Unadjusted Dickey-Fuller	3.2500	0.0006	
Pedroni Test			
Modified Phillips-Perron	3.2440	0.0006	Alternative Hypothesis: Cointegration exists
Phillips-Perron	2.4988	0.0062	
Augmented Dickey-Fuller	2.8865	0.0019	
Westerlund Test			
Variance ratio	2.6847	0.0036	Alternative Hypothesis: Cointegration exists

Source: Stata 15 software output.

The results of the cointegration tests using the Kao, Pedroni, and Westerlund methods confirm the existence of a long-run relationship between financial development indicators (FIA, FID, FIE) and economic growth (GDP) in the studied Arab countries. All the provided statistics show positive values with statistically significant p-values, supporting the rejection of the null hypothesis in favor of the existence of cointegration. The inclusion of the Westerlund test strengthens the robustness of these findings by accounting for structural breaks and cross-sectional



dependence. These results indicate a stable long-run relationship between the financial variables and economic growth, highlighting the crucial role of financial development in enhancing economic performance over time.

2. Panel ARDL Approach

Due to the nature of the dataset, The ARDL approach is used due to its flexibility in controlling variables with different degrees of integration. The main model of the panel ARDL approach is:

$$\Delta GDP_{it} = \alpha_i + \sum_{j=1}^p \beta_{ij} \Delta GDP_{i,t-j} + \sum_{j=0}^q \gamma_{ij} \Delta FDI_{i,t-j} + \delta_i EC_{i,t-1} + \varepsilon_{it}$$

Where:

- GDP_{it} : GDP for country i at time t .
- FDI_{it} : Financial development indicators (access, depth, efficiency).
- $EC_{i,t-1}$: Error correction term.
- ε_{it} : Error term.

2.1. Panel ARDL model estimators

This section presents the results of the Panel ARDL model using three estimators: Mean Group (MG), Pooled Mean Group (PMG), and Dynamic Fixed Effects (DFE). The findings are analyzed to understand the long-run and short-run relationships between financial development indicators (FIA, FID, FIE) and economic growth (GDP) in the selected Arab countries. Additionally, the Hausman Test is used to determine the most efficient estimator. The next table demonstrates this:

Table 5: «MG, PMG and DFE estimation results»

Estimator	Mean Group (MG)		Pool Mean Group (PMG)		Dynamic Fixed Effects (DFE)	
	Coefficient	p-Value	Coefficient	p-Value	Coefficient	p-Value
Long Run						
FIA	559.0032	0.236	290.4523	0.000	826.6216	0.098
FID	361.2161	0.895	-464.2155	0.000	964.8263	0.111
FIE	343.603	0.658	-10.13696	0.846	1292.081	0.084
Short Run						
ECT	-0.03000	0.651	-0.0441981	0.009	0.015785	0.029
FIA	71.88275	0.211	72.40295	0.044	34.28454	0.136
FID	-85.44462	0.002	-104.072	0.005	-71.42304	0.000
FIE	0.171182	0.987	1.956749	0.872	7.226432	0.441
Cons_	13.54035	0.304	5.447812	0.033	20.10185	0.000

Source: Stata 15 software output.

In order to choose the appropriate model to estimate the relationship between financial development and economic growth, we use the Hausman test. The results of the test are as follows:



2.2. Hausman Test

The Hausman Test is a statistical test used to compare models like Pooled Mean Group (PMG), Mean Group (MG), and Dynamic Fixed Effects (DFE), the Hausman Test helps identify the most efficient and consistent estimator. The test compares the coefficients of the two models and checks for systematic differences. If the p-value is greater than 5%, the null hypothesis is not rejected, and the PMG estimator is preferred. If the p-value is less than 5%, the alternative hypothesis is accepted, and the MG or DFE estimator is preferred (Hausman, 1978). The results of this test are as follows:

Table 6: «Hausman Test»

Trade-off	Statistics	p-Value	Decision
MG/PMG	0.27	0.9654	PMG is more efficient than the MG
PMG/DFE	0.32	0.9553	PMG is more efficient than the DFE

Source: Stata 15 software output.

Both p-values (0.9654 for MG/PMG and 0.9553 for PMG/DFE) are greater than 5%, indicating that the null hypothesis cannot be rejected. This means that the PMG estimator is the most efficient and consistent for estimate the relationships between financial development indicators and GDP.

2.3. Interpretation of Results

The PMG estimation results provide a nuanced understanding of the relationship between financial development indicators and economic growth in the studied Arab countries.

The Financial Institutions Access Index (FIA) exhibits a statistically significant positive impact in both the short and long run, indicating that greater accessibility to financial services enhances economic participation, promotes savings and investment, and facilitates credit availability for businesses and households. This result aligns with financial inclusion theories, which suggest that improving access to banking services stimulates productive economic activities and accelerates growth.

Conversely, the Financial Institutions Depth Index (FID) has a significant negative impact on GDP in both the short and long run. This suggests that while financial deepening typically enhances economic performance by expanding credit availability, excessive or misallocated credit especially in the absence of strong regulatory frameworks may contribute to financial instability and inefficient capital allocation. This finding is consistent with the literature warning against rapid financial expansion that prioritizes volume over quality, potentially leading to economic distortions and unsustainable debt levels.

The Financial Institutions Efficiency Index (FIE) does not exhibit a statistically significant effect on GDP, implying that efficiency improvements in the financial sector have not yet translated into meaningful economic gains. This could reflect inefficiencies in financial intermediation, high transaction costs, or structural



challenges in financial institutions that limit their contribution to economic growth. The lack of impact suggests the need for targeted reforms to enhance the cost-effectiveness and operational efficiency of financial services in the region.

The negative and statistically significant error correction term (ECT) (-0.044) confirms the presence of a long-run equilibrium relationship, with deviations from equilibrium being corrected at a speed of 4.4% per year. This relatively slow adjustment suggests that while financial development influences growth, structural and institutional factors may hinder a rapid transition to equilibrium.

These findings underscore the necessity of a balanced financial development strategy. Policymakers should prioritize financial accessibility by expanding banking infrastructure and digital financial services while simultaneously implementing prudential regulations to ensure sustainable financial deepening. Additionally, improving financial efficiency through institutional reforms and technological advancements is crucial to maximizing the sector's contribution to economic growth. Strengthening financial supervision, enhancing transparency, and fostering responsible lending practices can mitigate risks associated with excessive credit expansion, ensuring that financial development translates into sustainable economic progress.

2.4. PMG Individual Nations Short-Run Results

The following section presents the short-run results for individual Arab countries using the PMG (Pooled Mean Group) method.

Table 7: «PMG individual nation results»

Nation	Ect	D(FIA)	D(FID)	D(FIE)	Cons_
Algeria	0.00672**	130.7907	-147.5369	-2.759952	2.504588
Egypt	0.016686	382.391***	-142.101*	38.36598*	3.563325
Jordan	0.007031*	-9.17847	-1.769435	6.948451*	0.3371941
Kuwait	-0.08026**	90.70502**	16.53078	26.79602	6.020936
Libya	-0.5259***	110.296	-154.1846	-30.61204	28.39397
Oman	-0.0054495	-5.191051	8.688121	4.407021	1.68451***
Qatar	-0.0067091	-77.7646**	20.88126	84.175***	4.0335***
Saudi Arabia	0.0191777	6.531983	-353.06**	-63.08829	7.225788
Sudan	0.028591***	76.72369	-15.38926*	-2.084104	-2.382982*
Tunisia	0.0555742*	60.84403***	-117.57***	3.54747	-1.63964
UAE	-0.0016166	30.28435	-259.282**	-44.17088	10.18479**
Note: *, **, and *** denote significance at 10%, 5%, and 1% levels.					

Source: Stata 15 software output.

The analysis of country-specific results varying effects of financial development indicators on economic growth across the selected Arab countries studied. Starting with the Error Correction Term (ECT), positive but insignificant values were observed in Algeria, Egypt, Jordan, and Saudi Arabia, indicating slow adjustments to economic equilibrium after disruptions. Conversely, Libya and Kuwait exhibited significant negative ECT values, suggesting faster convergence to long-term equilibrium following shocks. Sudan and Tunisia demonstrated positive and



statistically significant adjustments, while Oman, Qatar, and the UAE had non-significant negative values. For the Financial Institutions Access Index (FIA), Egypt, Kuwait, and Tunisia showed positive and significant effects, implying that improved access to financial services promotes economic growth. Algeria, Libya, and Sudan had positive but insignificant results, while Qatar and Jordan reported negative, though mostly non-significant, impacts. In terms of the Financial Institutions Depth Index (FID), a strong negative effect was observed in Saudi Arabia, the UAE, and Tunisia, indicating that excessive financial sector depth might hinder growth. Algeria, Egypt, and Libya reported similar negative relationships but with varying significance levels. Sudan and Qatar displayed mixed results with limited statistical relevance. For the Financial Institutions Efficiency Index (FIE), Qatar, Jordan, and Egypt exhibited positive impacts, with Qatar showing strong statistical significance. Tunisia, Sudan, and Algeria demonstrated weak or insignificant effects. Negative but insignificant impacts were found in the UAE, Saudi Arabia and Libya.

Conclusion

This study focused on analyzing the impact of financial development on economic growth in eleven Arab countries from 1990 to 2021. Its findings emphasize the necessity of adopting targeted financial policies that align with the structural and economic characteristics of each Arab country to ensure sustainable financial development that effectively contributes to driving economic growth.

In this context, it is evident that enhancing access to financial services is a key pillar in supporting economic activity by enabling individuals and businesses to access the necessary financing for investment and production. However, unregulated financial expansion poses a significant risk, potentially leading to economic imbalances, increased non-performing debts, and poor resource allocation. Therefore, controlling excessive financial expansion becomes an urgent necessity to mitigate these risks. This requires improving the regulatory frameworks of the financial sector and strengthening supervisory and oversight mechanisms over financial activities to ensure sustainable economic growth without compromising financial stability.

Moreover, the role of financial institution efficiency highlights the importance of improving the internal processes of financial institutions and enhancing the use of financial technology (FinTech) to improve the quality of financial services and reduce their costs. Financial system efficiency not only entails offering innovative financial services but also ensuring the existence of transparent and secure systems that contribute to protecting customer rights and reducing operational risks.

In this regard, to build a healthy and balanced financial environment that contributes to achieving sustainable economic growth and mitigating financial risks, while enhancing the resilience of Arab economies against future economic shocks, this study recommends the implementation of comprehensive regulatory reforms aimed at improving monetary and financial policies to ensure their alignment with economic development goals and financial stability. The study also recommends strengthening financial governance through the adoption of strict supervisory



practices to address challenges related to corruption and financial mismanagement. Additionally, it calls for expanding financial inclusion in a sustainable manner to integrate economically and financially marginalized groups and provide innovative financing opportunities to support small and medium-sized enterprises.

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