

## The effect of financial institution development on economic growth: Evidence from MENA region

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**Abstract:** This study examines the impact of financial institutional development on economic growth in 12 Middle East and North Africa (MENA) countries—Lebanon, Saudi Arabia, Turkey, the United Arab Emirates, Bahrain, Morocco, Jordan, Kuwait, Oman, Qatar, Tunisia, and Egypt—over the period from 1990 to 2023. Using panel data techniques, the analysis begins with pooled ordinary least squares, fixed effects models, and Driscoll–Kraay robust fixed effects models. Given the presence of heteroskedasticity and serial correlation in the pooled ordinary least squares model, robust estimates are obtained through the Driscoll–Kraay method. The results reveal a significant positive relationship between financial institutional development and economic growth, with a one-unit improvement in financial institutions associated with a 2.381-unit increase in economic growth. These findings underscore the importance of strengthening financial institutions as a driver of economic performance in the MENA region. The study contributes to the literature by offering updated empirical evidence over a long time span and highlighting the role of macroeconomic factors in shaping growth outcomes.

**Keywords:** Financial institutional development, Middle East and North Africa (MENA), Panel data, Economic growth.

### 1. Introduction

In the Middle East and North Africa (MENA) region, financial development is best understood through a multidimensional view of financial institutions development (FID) that captures stability, depth, efficiency, and access [1]. Stability reflects the resilience of financial institutions to shocks and their ability to maintain confidence, with recent evidence linking robust institutional frameworks to reduced systemic risk [2]. Depth relates to the breadth of financial services, including private-sector credit, insurance, and non-banking products, which remain constrained in many MENA economies due to shallow capital markets. Efficiency concerns the operational performance of financial institutions, where improvements in resource allocation and cost management directly enhance economic growth [3]. Access reflects the inclusiveness of financial systems, ensuring that households and firms can participate effectively in financial markets. By combining these interrelated dimensions, FID provides a more comprehensive and policy-relevant indicator for exploring the finance–growth nexus in MENA economies.

Although a growing body of literature investigates the relationship between financial development and economic growth, much of it relies on market-based indicators such as private-sector credit, stock-market capitalization, and monetary aggregates. These measures overlook important institutional aspects such as stability, efficiency, and inclusion [4]. This limitation is particularly relevant in MENA, where bank dominance, shallow capital markets, and uneven financial inclusion may distort the finance–growth relationship [5]. Furthermore, empirical findings remain inconclusive. Some studies find a positive relationship between financial institution development and growth, emphasizing the benefits of improved stability, depth, efficiency, and access [3]. Others report a negative association, warning that rapid financial expansion can undermine stability and misallocate resources [6]. A third perspective suggests diminishing returns, where initial gains from FID are significant but marginal benefits decline

once financial systems reach maturity [7]. These mixed results highlight the need for further investigation in the MENA context, where structural characteristics—such as concentrated banking sectors, underdeveloped capital markets, and disparities in financial inclusion—may shape the finance–growth nexus differently from other regions.

This study addresses this gap by examining the impact of financial institutional development on economic growth in 12 MENA countries over the period 1990–2023. FID is used as a proxy for financial development, and the analysis incorporates key macroeconomic control variables—foreign direct investment (FDI), government expenditure (GOVEX), and trade openness (TRADE)—to capture additional drivers of growth. The aim is to provide empirical evidence that can guide policymakers in strengthening financial institutions to support sustainable economic development in the region.

## 2. Literature Review

Financial development is increasingly recognized as a key driver of economic growth, moving beyond the traditional neoclassical emphasis on capital accumulation through savings [8]. Recent growth theories, including endogenous growth models, underscore the critical role of financial intermediation in facilitating investment, innovation, and productivity improvements [9, 10]. Unlike earlier frameworks that treated finance as a passive channel, these models emphasize financial institutions' active role in allocating resources efficiently, reducing information asymmetries, and supporting technological advancement [11].

Empirical research has evolved accordingly, shifting focus from broad monetary aggregates to detailed measures of financial institution development (FID), capturing dimensions such as stability, efficiency, depth, and access [1, 2]. This multidimensional approach recognizes that well-functioning financial institutions not only mobilize savings but also enhance financial inclusion and resilience, which are particularly relevant for developing regions like MENA [3].

Furthermore, studies highlight the complementary roles of banks and capital markets, with financial institutions serving as pillars of growth in bank-dominated economies, while stock markets facilitate liquidity and risk-sharing [6]. This reflects a growing consensus that financial development is fundamental to sustaining long-term economic growth [4].

Recent studies continue to underscore the multifaceted relationship between financial development and growth. For example, Beck, et al. [11] and Beck, et al. [12] argue that both financial depth and efficiency are crucial determinants of economic performance, particularly in emerging and developing markets. Moreover, financial inclusion, regulatory quality, and institutional strength have emerged as significant dimensions of financial development that influence growth trajectories [1, 13]. These theoretical foundations collectively suggest that financial development when inclusive, efficient, and well-regulated can act as a catalyst for sustained economic growth.

The relationship between financial development and economic growth holds particular relevance for countries in the Middle East and North Africa (MENA) region, where financial systems can act as critical enablers of productive investment and macroeconomic transformation. As noted by Beck and Levine [14] efficient financial systems mobilize savings, enhance capital allocation, and facilitate innovation—ultimately driving economic growth.

Empirical evidence from MENA economies supports this link. Al Salamat, et al. [15] using autoregressive distributed lag (ARDL) models for the period 2000–2019, found a statistically significant long-run relationship between stock market development proxied by equity market indices and GDP growth. These results are in line with broader cross-country studies. For example, Sahay, et al. [16] employed fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS) models across 16 low-income nations between 1995 and 2014, confirming that financial sector deepening both banking and market-based positively impacts long-run output growth.

Research by Al-Zeaud and Mohammad [17] found that stock market indicators—such as market capitalization to GDP and turnover ratios—exert a statistically significant and positive effect on economic growth across selected MENA countries from 2000 to 2018. These markets enhance liquidity,

reduce transaction costs, and offer diversified channels for investment, complementing traditional banking systems.

Additionally, Levine and Zervos [18] highlight that well-functioning stock markets are associated with higher rates of capital accumulation and economic expansion by lowering the cost of equity financing and enhancing capital allocation efficiency. Similarly, Caporale, et al. [19] observed that in emerging markets, capital market development contributes to macroeconomic stability by spreading investment risks and providing buffers against shocks.

Recent macroeconomic trends also influence financial sector performance. According to the World Bank, complementary evidence from sub-Saharan Africa reinforces the role of financial institutions and capital markets. Bekele, et al. [20] using a two-step system generalized method of moments (GMM) model across 25 countries from 2010 to 2017, found that improvements in credit provision to the private sector significantly enhanced GDP growth, suggesting the importance of financial depth and efficiency.

Overall, the literature suggests that financial development through both banking institutions and capital markets has the potential to accelerate economic growth in MENA. However, this impact depends on institutional quality, investor protection, regulatory oversight, and financial inclusion mechanisms that promote access to finance for a broad segment of the population and firms.

Government expenditures, foreign direct investment (FDI), and trade remain critical determinants of economic growth in the MENA region, albeit with complex and context-specific effects. Empirical evidence highlights that capital expenditures such as infrastructure and human capital investments positively influence growth, while recurrent spending may hinder it due to crowding out [21, 22]. FDI's impact varies across countries, depending largely on macroeconomic stability and institutional quality, with reforms enhancing investment climates showing stronger growth effects [23]. Trade openness fosters growth by expanding markets and facilitating technology diffusion, yet its benefits in MENA are moderated by export diversification, institutional capacity, and regional integration challenges [24]. Together, these factors underscore the importance of coordinated policies that improve fiscal efficiency, attract sustainable foreign investment, and deepen trade linkages to promote inclusive and resilient growth in the region.

### 3. Methodology

The analysis covers a balanced panel of 12 MENA countries—Lebanon, Saudi Arabia, Turkey, the United Arab Emirates, Bahrain, Morocco, Jordan, Kuwait, Oman, Qatar, Tunisia, and Egypt—over the period 1990–2023. Annual data are sourced from the World Bank's World Development Indicators and the International Monetary Fund's databases. The dependent variable is real GDP per capita (constant US dollars, 2015), serving as a proxy for economic growth. The key explanatory variable is financial institutional development (FID), measured according to the multidimensional index proposed by Svirydzienka [1] which integrates stability, depth, efficiency, and access. Control variables include foreign direct investment inflows (% of GDP), government final consumption expenditure (% of GDP), and trade openness (sum of exports and imports as a percentage of GDP).

The empirical strategy begins with pooled ordinary least squares (POLS) and fixed effects (FE) estimations to establish the baseline relationship between FID and economic growth. Diagnostic tests indicate the presence of heteroskedasticity and serial correlation in the POLS residuals; therefore, robust standard errors are computed using the Driscoll–Kraay method, which accounts for cross-sectional dependence and autocorrelation in the panel data. All variables are log-transformed to reduce skewness and allow for elasticity interpretation. Model estimation and statistical tests are conducted using STATA.

The estimated model is specified as:

$$\text{GDP} = f(\text{FID}, \text{TR}, \text{FDI}, \text{GOVEX}) \quad (1)$$

$$\text{LN} \text{GDPPC}_{it} = \alpha + \beta_1 \text{FID}_{it} + \beta_2 \text{FDI}_{it} + \beta_3 \text{GOVEX}_{it} + \beta_4 \text{TR}_{it} + \varepsilon_{it} \quad (2)$$

## 4. Results and Discussion

This section presents descriptive statistics, correlation analysis, regression results, and diagnostic tests to examine the impact of financial institutional development (FID) on economic growth in the MENA region.

### 4.1. Descriptive Statistics

Table 1 summarizes key statistics for the variables under study. The average GDP per capita is approximately 19,465, with a standard deviation of 18,904, indicating moderate dispersion around the mean. Trade openness (TRADE) averages 88.48% of GDP but varies widely from 29.86% to 202.33%, reflecting diverse degrees of global economic integration among MENA countries. Government expenditure (GOVEX) shows substantial heterogeneity, with a mean of 17.58% and a range spanning 2.36% to 76.22%. Foreign direct investment (FDI) averages 2.72% of GDP, with both positive inflows and net disinvestments observed across the panel. The financial institutions development index has a mean of 0.361 with a standard deviation of 0.081, suggesting data are clustered closely around the mean.

**Table 1.**  
Descriptive statistics.

Variables	Mean	SD	Minimum	Maximum
GDPPC	19465.294	18904.061	1680.71	81608.572
TRADE	88.475	34.266	29.857	202.333
GOVEX	17.575	6.632	2.36	76.222
FDI	2.722	3.595	-4.651	29.52
FID	0.361	0.081	0.08	0.53

Source: Author's calculation using STATA.

### 4.2. Correlation Matrix

The correlation matrix (Table 2) reveals a positive but weak correlation between financial institutional development and economic growth ( $r = 0.1941$ ), implying that the financial system's influence on growth remains modest—possibly reflecting the financial crises experienced in some MENA countries. Trade openness exhibits a stronger positive association with GDP per capita ( $r = 0.3781$ ). Conversely, FDI correlates negatively with growth ( $r = -0.105$ ), which may reflect political instability and conflict in parts of the region.

**Table 2.**  
Correlation matrix.

Variables	GDPPC	FID	TRADE	GOVEX	FDI
GDPPC	1.000				
FID	0.1941*	1.000			
TRADE	0.3781*	0.3543*	1.000		
GOVEX	0.0713	0.1878*	0.0865	1.000	
FDI	-0.105*	0.2390*	0.3181*	-0.1470*	1.000

Source: Author's calculation using STATA.

### 4.3. Regression Analysis

Table 3 reports results from pooled ordinary least squares (POLS), fixed effects (FE), and random effects (RE) panel regressions with Driscoll–Kraay standard errors to correct for cross-sectional dependence and heteroskedasticity. Financial institutional development (FID) consistently shows a strong, positive, and statistically significant impact on economic growth across all models ( $\beta \approx 2.38$ ,  $p < 0.01$ ). This confirms that improvements in financial institutions enhance capital allocation and innovation, supporting economic expansion in MENA countries [13].

Trade openness (TRADE) exhibits a significant positive effect in the POLS model ( $\beta = 0.014$ ,  $p < 0.01$ ) but loses significance in FE and RE specifications, suggesting heterogeneity in trade effects across

countries. Government expenditure (GOVEX) has a marginal positive effect in POLS ( $\beta = 0.016$ ,  $p < 0.1$ ) but negative and significant coefficients in FE and RE models ( $\beta \approx -0.012$ ,  $p < 0.01$ ), aligning with literature that cautions against excessive or inefficient government spending [25].

Foreign direct investment (FDI) reveals contrasting signs: negative and significant in POLS ( $\beta = -0.07$ ,  $p < 0.01$ ) but positive and significant in FE and RE models ( $\beta \approx 0.007$ ,  $p < 0.05$ ). This reflects complex dynamics in the region, where institutional quality and absorptive capacity modulate FDI's growth effects [26].

The fixed effects model explains approximately 55% of the variation in GDP per capita ( $R^2 = 0.5513$ ), a figure comparable to similar macroeconomic growth studies that acknowledge the multifaceted nature of growth determinants [27].

**Table 3.**

Estimation models- Dependent variable GDP per capita.

Variable	POLS	Panel FE Driscoll Kraay	Panel RE Driscoll Kraay
FID	2.395*** (0.000)	2.380*** (0.000)	2.381*** (0.000)
TRADE	0.014*** (0.000)	-0.0007 (0.403)	-0.0006 (0.473)
GOVEX	0.016* (0.052)	-0.012*** (0.000)	-0.012** (0.001)
FDI	-0.07*** (0.000)	0.007** (0.005)	0.007* (0.011)
Constant	7.088*** (0.000)	8.650*** (0.000)	8.703*** (0.000)
R squared	0.2625	0.5513	0.018
F-statistic	0.0000	0.0000	0.0000

Source: Author's calculation using STATA.

#### 4.4. Diagnostics

Several diagnostic tests were performed to ensure the robustness of the regression results by checking for serial correlation, heteroskedasticity, multicollinearity, and cross-sectional dependence. These tests rely on standard asymptotic theory and enhance the reliability of panel data estimation under complex error dynamics [28, 29].

Multicollinearity: Variance inflation factors (VIFs) were computed to detect multicollinearity among regressors [30]. Table 4 shows that all VIF values are below 2, with a mean VIF of 1.18, indicating no multicollinearity concerns.

**Table 4.**

Multicollinearity.

	VIF
FID	1.22
TR	1.23
FDI	1.19
GOVEX	1.09
Mean VIF	1.18

Source: Author's calculation using STATA.

Cross-sectional dependence: The Pesaran CD test was applied to assess error correlations across countries [31]. As shown in Table 5, the test statistic (0.851) is not significant ( $p = 0.3947$ ), indicating the absence of cross-sectional dependence.

**Table 5.**  
Cross section dependency-CD test.

	CD-test	P-value
Pesaran's test	0.851	0.3947

Source: Author's calculation using STATA.

Heteroskedasticity: The Breusch-Pagan test detected heteroskedasticity ( $\text{Chi}^2 = 11.84$ ,  $p = 0.0006$ ), rejecting the null of constant variance [32].

**Table 6.**  
Heteroskedasticity- Breusch Pagan test.

Breusch Pagan test	
Chi2(1)	11.84
Prob>chi2	0.0006

Source: Author's calculation using STATA.

Serial correlation: The Wooldridge test for serial correlation in panel data rejected the null hypothesis ( $F(1,11) = 198.978$ ,  $p < 0.001$ ), indicating autocorrelation in the residuals [33].

**Table 7.**  
Serial Correlation.

Lagrange Multiplier test	
F(1,11)	198.978
Prob> F	0.0000

Source: Author's calculation using STATA.

To address these issues, Driscoll-Kraay robust standard errors were employed, which provide consistent estimates accounting for heteroskedasticity, serial correlation, and cross-sectional dependence [28].

## 5. Conclusions, Findings, and Recommendations

This study examined the impact of financial institutional development, trade openness, foreign direct investment, and government expenditure on economic growth across 12 MENA countries from 1990 to 2023. The results confirm that development of financial institutions significantly fosters economic growth, highlighting the critical role of resilient and inclusive financial systems in facilitating capital allocation and productivity gains [1, 3]. Trade openness also contributes positively, although its significance varies across models, reflecting complex regional trade dynamics [24]. Foreign direct investment presents mixed effects, shaped by political and economic heterogeneity that moderates its growth contribution [23]. Government expenditure impacts differ, with recurrent spending potentially limiting growth while capital investment supports long-term development [21].

Diagnostic checks verified heteroskedasticity and serial correlation in residuals, which were effectively controlled through Driscoll-Kraay standard errors, reinforcing confidence in the estimated relationships. The absence of cross-sectional dependence further validates the panel model approach [31]. Policy implications center on strengthening financial institutions, enhancing trade facilitation, and prioritizing efficient public investment to sustain inclusive growth in MENA. Future research should investigate the dynamic interplay between financial development, institutional quality, and governance to deepen insights into growth determinants in the region [2].

Based on the empirical findings, fostering sustainable economic growth in the MENA region requires a comprehensive policy approach that strengthens financial institutions through enhanced stability, efficiency, and inclusiveness; promotes trade openness by reducing barriers and improving regional integration; optimizes public expenditure toward productive investments in infrastructure, education, and health while curbing inefficient spending; enhances the benefits of foreign direct



investment via improved institutional quality, political stability, and absorptive capacity; and advances governance, transparency, and the rule of law to support financial reforms and create a favorable environment for long-term development.

Future research and policy dialogue should consider the dynamic interactions among these factors to design integrated growth strategies tailored to the unique characteristics of MENA economies.

### Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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