FDI INFLOWS AND ECONOMIC GROWTH IN THE ARAB WORLD: THE ROLE OF INSTITUTIONAL QUALITY

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Abstract

This study empirically analyzes the potential role of institutional quality in absorbing the spillover effects of foreign direct investment (FDI) flows on growth in a collection of Arab nations. The analysis is carried out using system GMM estimate on panel data from 11 Arab countries from 1994 to 2018. It creates overall indices of conducting business and measures of economic freedom using principal components analysis (PCA) as weights. According to the study, the quality of institutions has a vital role in improving economic growth indirectly by absorbing spillovers from FDI inflows. On the one hand, the study finds that higher macroeconomic stability and financial development boost growth. The findings of this study have various policy implications.

Keywords: institutional quality, FDI, GMM estimate, and PCA.

Introduction

One of the key ways for a recipient country to acquire technology and expertise is through foreign direct investment (FDI). Through the transmission of administrative and organizational practice abilities, FDI expands the body of knowledge already present in the host nation. Through capital accumulation, it also encourages domestic businesses to employ more sophisticated technologies. Through technology spillovers and resulting increases in productivity, FDI is believed to open up export markets and to encourage domestic investments (Huynh (2022)). Regarding the connection between FDI and economic growth, there is disagreement. FDI inflows and economic growth are not independently correlated, according to Husain et al. (2021); Ali et al. (2019); Suliman et al. (2018). If domestic investment declines as a result of FDI and local businesses find it difficult to compete with strong foreign rivals, GDP may be badly impacted (Zhang (2021)). According to empirical data, the initial conditions in the host economy, such as complementarity between foreign and local investments, export focus, macroeconomic stability, human capital, and the caliber of institutions, are what have the most influence on FDI's beneficial effects on growth. Before the global financial crisis (GFC), Arab economic performance in terms of GDP per capita growth grew slightly due to increase in oil prices, a wide range of economic reforms, improvement in the business climate and privatization (ESCWA, 2008). However, in 2009 the growth of the region recorded a downturn. This wasn't just because of the GFC; it was also because of issues with institutional quality, social policies, and economic management that hampered the effective distribution of production factors (World Bank, 2013). Due to low levels of FDI inflows2 and a reduction in the price of oil3, as well as a decline in domestic savings and investment, the growth of Arab economies ultimately slowed down. As a result, it is crucial for Arab governments to diversify their economies. If they have trouble raising capital flow levels, the solution may lie in

improving the current institutional framework, which is what this study aims to do.

The growth impacts of FDI inflows and its spillovers through various channels, including new technological processes for production, labor training and skill development, education, exports, institutions, and financial markets, have been examined in several studies. However, a small amount of attention has been paid to the study of Arab economies. These studies mostly concentrate on the regions of Asia, Africa, North and South America, and East Europe. To the best of my knowledge, no research has yet been done for Arab economies on the potential contribution of institutional quality to absorbing the spillover effects of FDI flows for growth. By including a wide range of institutional quality assessments in the analysis—doing business, economic freedom, political risk, along with other significant variables like the GFC—this study fills a gap and adds to the body of research on Arab economies. The investigation of whether FDI affects growth directly or via institutional channels adds to the body of knowledge on FDI growth in Arab economies. Along with macroeconomic policy and financial development variables, it experimentally investigates the consequences of the global financial crisis on growth in the Arab region. In order to avoid testing partially correlated indices against one another, this study develops overall indices for doing business and economic freedom indicators by computing their weighted average and using factor loadings from principal components analysis (PCA) as weights. This gives this study advantages over other studies. The current work uses system GMM (Arellano-Bover/Blundell-Bond) methodologies for the econometric analysis to address endogeneity, omission of pertinent variables, measurement error, sample selectivity, or simultaneity-related problems.

The following primary research inquiries are addressed in this study: What impact do FDI inflows have on growth? What part do institutions play in helping FDI inflows to the Arab area have a positive growth impact? Can improvements in investor protection, political stability, and the business climate, which result in higher FDI inflows, spur economic growth in the Arab region?

The structure of this essay is as follows: The literature review is in Section 2. Methodology is described in Section 3. The summary statistics, correlation, and stationarity tests are illustrated in Section 4. In Section 5, the empirical findings are covered. Section 6 offers a conclusion and discusses possible policy ramifications.

Literature review

The growth impact of FDI has sparked a lot of empirical research on both industrialized and developing nations. However, the endogenous growth model views FDI as a source of physical capital, technology, and knowledge for host economies. The majority of early empirical work on the FDI-growth relationship is based on the neoclassical model of growth, which views FDI as physical capital in the production function. Overall, the empirical literature paints a complex, contradictory picture of how FDI and growth are related. In a sample of 46 developing nations, Le et al. (2021) explore the contribution that FDI makes to growth as a source of physical capital and spillover. According to the findings of their estimation, FDI has beneficial spillover effects on economic growth. They discover that FDI is more successful than domestic capital at boosting growth performance, with exports coming in second. In a study published in 2019, Ali et al. (2019) empirically examined the impact of FDI on growth using data compiled from 32 developing nations between 1965 and 1992. They conclude that while FDI contributes

significantly to the process of economic growth, domestic investment must always take precedence.

Slesman et al. (2019) make the case that a firm's capacity to absorb and incorporate new technology from MNEs may be constrained by the significance of institutions in the growth process, particularly the degree of economic freedom. Their findings demonstrate that FDI alone has no direct impact on output growth and that the impact of FDI is dependent on the degree of economic freedom in the host country for 85 countries from 1975 to 2004. Ben Jelili (2020) examines how FDI affects economic growth in two distinct regions: Central and Eastern Europe (CEE) and the Middle East and North Africa (MENA). They discover that FDI has a negative impact on growth in MENA and non-EU accession nations, but a positive impact on growth in countries that are EU candidates. They contend that the impression of EU membership as an impetus for greater commitment and serious reforms may have contributed to the favorable impact of FDI on growth. Aziz (2022) use panel unit root tests and panel cointegration analysis to examine the causal link between FDI and GDP for the MENA region's countries over the period of 1971 to 2011. Their findings demonstrate that GDP, not FDI, drives the region's FDI. They advise governments to provide a stable macroeconomic environment and good institutions in order to take advantage of FDI spillovers more effectively.

Leasiwa et al. (2022) conduct an empirical analysis of the impact of foreign direct investment (FDI) on the development of the Arab Maghreb Union (AMU) countries from 1990 to 2010. Their findings imply that FDI favorably impacts growth in specific economic and financial circumstances, such as when adapting to an export promotion trade regime. For 13 MENA countries over the period of 1990 to 2010, Bouchoucha (2021) estimate the effects of FDI and some macroeconomic factors on economic growth and find that FDI, domestic capital, and trade openness have a positive impact on growth while government spending and inflation have a negative impact.

Methodology

Data and variables

Panel data from a set of Arab nations from 1994 to 2018 is used in this study. 6 Information on the definition and data sources is given in Table A1. In this study, variables are created in two different approaches to measure institutional excellence. First, two quality indices are computed by the study utilizing the PCA technique. To quantify the indirect impact of FDI inflows on growth, the study also creates an interacting term between institutional quality indicators and FDI inflows. The yearly average growth rates of real GDP are used in this study as a proxy for the dependent variable, which is economic growth (Chen et al. (2021); Aziz (2022). The UNCTAD statistics data repository is where the information on real GDP growth is sourced.

Capital indicators

Both domestic and foreign capital contributes to an economy's overall capital accumulation. The proportion of gross capital formation growth is used in this study as a stand-in for domestic investment (Ashraf et al. (2022); Aziz (2022)). The World Development Indicators of the World Bank provide the information on domestic investment. In addition to domestic investment, foreign direct investment (FDI) is a part of overall investment and aids in the transfer of knowledge from one country to another, both of which are important for economic

progress (Zamani & Tayebi (2022); Zeeshan (2021)). The data on FDI inflows are from World Bank's World Development Indicators.

Quality of institutions

By setting long-term expectations for the political and economic environment, institutions can reduce uncertainty and provide incentives for effective production rode (2022).FDI and local businesses can collaborate more effectively with well-developed institutions, which encourage productivity spillovers. Poor institutional quality, on the other hand, is frequently linked to low investment and sluggish productivity development. Additionally, it may restrict the cooperation between foreign and domestic businesses, reducing the indirect advantages of FDI (Berggren, Bergh & Bjørnskov (2012); Jude & Levieuge, 2013). This study uses data from several sources, including the World Bank's Ease of Doing Business Index, the Fraser Institute's Economic Freedom Index, and the Political Risk Services (PRS) Group's International Country Risk Guide (ICRG), to assess the quality of institutions.

When it comes to local businesses, the regulatory environment has numerous key elements that the ease of doing business reflects. A good reform, according to the definition of doing business, is one that speeds up, lowers the cost of, makes it simpler administratively for, or strengthens the protection of, property rights, which encourages investment and, eventually, growth. Seven of the ten measures in the database of doing business are obviously relevant to examining the relationships between the regulatory environment and the expansion of the Arab economies. Starting a business, dealing with building permits, registering real estate, paying taxes, trading internationally, obtaining credit, and resolving insolvency are the signs that have been picked.

This study computes a weighted average for the seven distinct indicators of regulations, using factor loadings in PCA as weights, in order to provide an overall index of rules for conducting business. Greater index values correspond to higher institutional quality ratings. The first year these statistics were released, 2004, serves as the foundation year. To make sure that regulations are appropriately taken into account, this study builds an interactive term with FDI inflows in addition to the quality of regulations variable that it already has. It is important to note that, depending on the severity of rules, it is possible that countries' growth will be prevented from benefiting from increased FDI inflows. Thus, this interactive term will assess how well corporate regulation facilitates the absorption of the spillover effects of FDI inflows for the purpose of boosting growth. If the interaction term's coefficient is positive, it follows that the level of business activity affects the marginal impact of FDI inflows on growth.

The degree to which a nation's institutions and policies promote economic freedom is determined by a number of factors, including the size of the government, the protection of property rights under the law, access to stable currency, freedom to transact internationally, and regulations on credit, labor, and business. These measures aid in determining the contribution of economic institutions as determinants of growth and development more thoroughly and clearly distinguishing it from political, climatic, locational, cultural, and historical influences (Young & Sheehan (2014)). The study calculates a weighted average of the five distinct economic freedom indicators, using the factor loadings from the principal components analysis as weights. More economic independence is reflected in the index's higher values, which translates to excellent institutional quality. To assess the contribution of

economic freedom in determining the effects of FDI inflows on growth, the study also develops an interacting term between economic freedom and FDI inflows.

The ICRG is a risk rating system that, for each nation it covers, assigns a numerical value (risk points) to a predetermined range of risk components based on a predetermined weighted scale. It gauges how strong property rights are and how effectively corruption is suppressed. The three ICRG indicators used in this analysis are law and order, political stability, and corruption (Alfaro et al. (2004)).

Dummy variables

- **World Trade Organization membership**

Members of the WTO include Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and UAE. Their participation may improve trading and capital inflows, spurring economic expansion. In this analysis, a dummy variable with a value of one for an Arab WTO member economy starting in the year of accession and a value of zero otherwise is used (Makoni (2021)). The dummy investigates the link between Arab economies' expansion and WTO participation. The membership statistics for the World Trade Organization are taken from www.wto.org.

- **Global financial crisis (GFC)**

The GFC caused a recession in the world's economies in 2008, which slowed down economic activity and decreased trade, oil prices, and inflows of domestic and international investment. Foreign direct investment (FDI) into Arab nations decreased by 15.5% in 2015 compared to 2014, 16.7% in 2016 compared to 2015, and 32.5% in 2017 compared to 2016. FDI increased by 15.3% in 2018 compared to 2017. The dummy assumes a value of 1 from 2009 to 2011 and 0 in all other cases Bouchoucha (2021).

Other variables

This study makes use of a wide range of potential growth-influencing variables. Table1 provides a foundation for the definition and data sources. Human capital, inflation, exchange rates, government consumption, trade openness, natural resources, liquid liabilities, bank size, bank credit, stock market size, and stock market liquidity are some of these variables. The level of a nation's workforce is referred to as human capital, and it is crucial for progress (Benhabib & Spiegel, 1994; Curwin & Mahutga, 2014). Uncertainty about macroeconomic conditions can be exacerbated by inflation, which often slows the rate of investment (Onafowora & Owoye (2019); Mowlaei & Intezar (2021)). Exchange rate volatility creates doubt about the viability of international trade and investment, which lowers their levels and has an adverse effect on GDP (Nguyen et al. (2022); Neise et al. (2022)). Government spending contains expenses that have no immediate impact on productivity, can raise inflation levels, may contain corruption, and consequently could result in decreased outputs (Ramzan et al. (2019); Han & Lee (2020)). A country's economy may be exposed to the wealth of global knowledge and technology through trade openness, which boosts productivity and exports (Mejia (2021); Wahab et al. (2020)). Natural resource revenues18 support economic growth in a variety of ways. It might be used to finance economic diversification, develop human capital, or upgrade infrastructure, all of which would raise output levels (Shittu et al. (2022)). Huge natural resource rents,

however, could give rise to behaviors like rent-seeking and a lack of transparency in resource sales and revenue spending. These funds may be diverted away from beneficial economic activities in economies with poor anti-corruption systems, which would slow growth (Szalai (2018); Zeeshan (2021)). The increase in liquid liabilities has traditionally served as a leading indicator of financial sector expansion (M2). According to Ganti & Reddy (2022) and Bui (2020), it alludes to the magnitude of the formal financial intermediary system. The total amount of demand, time, and savings deposits is referred to as the bank's size. To address any shortages that may result from the liquid liabilities (M2) indication, it excludes money in circulation held outside the banking system Arvin et al. (2021). Because it exclusively considers credits to the private sector and not to the state sector, bank credit is a direct indicator of financial development. Compared to financial systems that only channel credit to government or state enterprises, those that give more credit to the private sector are more actively involved in conducting business research, exercising corporate control, offering risk management services, mobilizing savings, and facilitating transactions (Sahin & Ege (2015; Ang (2009)). A sizable stock market can enhance the gathering of information about businesses, which greatly enhances resource allocation and has effects on economic growth (Irandoust (2021); Yimer (2022)). The turnover ratio can be used to gauge the liquidity of the stock market. According to Okuyan (2022), Lee & Cheng (2022), high turnover is frequently regarded as a sign of low transaction costs.

Econometric estimation

The study uses the system (GMM) estimator of Sare et al. (2022) and Chen et al. (2022) to address concerns with endogeneity, omission of pertinent variables, measurement error, sample selectivity, unobserved country specific effects, and simultaneity bias. Here is the empirical model:

$$y_{it} = \delta y_{i,t} - 1 + \beta x_{it} + u_{it} \qquad i=1,\ldots,N \quad t=2,\ldots T, \qquad (1)$$

Where i denote a country and t denotes time. δ is scalar, y_{it} is the annual real GDP growth rate, x_{it} is a set of explanatory variables which includes domestic and foreign capital, macroeconomic policy and institution quality (Table A1). u_{it} is the error term, which comprises an unobserved individual effect μ_i (time-invariant), and the remainder disturbance v_{it} (time-variant):

$$u_{it} = \mu_i + v_{it} \qquad (2)$$

Where $\mu_i \sim$ IID $(0, \sigma^2_\mu)$ and $v_{it} \sim$ IID $(0, \sigma^2_v)$ independent of each other and among themselves. The dynamic panel data regressions described in above Equations (1) and (2) are characterized by two sources of persistence over time that is, autocorrelation due to the presence of a lagged dependent variable $y_{i,t}-1$ among the regressors and individual effects characterizing the heterogeneity among the individuals μ_i. Arellano and Bond (1991) suggest first-differencing Equation (1) to eliminate the unobserved effect since the disturbance μ_i does not vary with time as follow:

$$y_{it} - y_{i,t-1} = \delta (y_{i,t-1} - y_{i,t-2}) + \beta (x_{it} - x_{i,t-1}) + (v_{it} - v_{i,t-1}) \qquad (3)$$

GMM helps overcome endogeneity by using laggedvalues of the explanatory variables as instruments. However, first-differencing generates a new statistical issue that the constructed differenced error term v_{it} is now correlated with the dependent lagged variable $y_{i,t-1}$; $y_{i,t-}$

2 which is included as a regressor. In order to address this issue, Arellano and Bover (1995) and and Chen et al. (2022) proposed a system GMM estimator that uses moment conditions of lagged levels as instruments for the differenced equation [Equation (1)] as well as moment conditions of lagged differences as instruments for the level equation [Equation (3)]. However, the validity of these additional instruments and the absence of second-order autocorrelation for vit are both requirements for using the system GMM. Sare et al. (2022) provide the Sargan test of over-identification and the Arellano- Bond AR (2) autocorrelation to evaluate these two situations. The validity of the instruments is examined using the Sargan test of over identification. When the Sargan test is non-significant, the instruments are legitimate because there is no correlation between them and the residuals. There must be no second-order autocorrelation in the residuals for the Arellano-Bond AR (2) autocorrelation test to conclude that there is none, and the test's outcome must be negligible.

Empirical results

Tables 4–6 report the results for various versions of the two-step Sare /Chen GMM estimation in Equation (3). GDP growth is a dependent variable.

Table 1: Summary statistics of the variables

Variables	Mean	SD	Min.	Max.	Obs.
GDP growth	4.87	7.84	-42.46	50.67	275
Domestic investment	10.12	22.17	-60.47	187	243
Human capital	3.27	3.05	-2.95	17.47	275
FDI inflows	19.84	2.21	9.22	24.38	249
Inflation	4.04	4.43	-4.85	25.72	218
Exchange rate	2.98	2.08	0.35	5.74	275
Government consumption	19.97	13.21	5.75	201.03	275
Trade openness	92.71	31.55	38.35	210.15	253
Natural resources	19.44	6.83	11.98	26.55	275
Liquid liabilities (M2)	9.83	1.65	8.05	11.57	273
Bank size	9.76	2.27	7.38	12.24	259
Bank credit	47.21	17.97	16.03	91.61	272
Stock market size	38.66	9.34	28.82	48.86	226
Stock market liquidity	17.71	4.31	13.22	22.43	211
Doing business	3.97	1.92	-3.57	3.83	73
Economic freedom	-2.08	1.77	-5.78	2.25	129

Government stability	8.76	2.05	1.07	11.51	275
Law and order	4.32	1.04	1	6	275
Corruption	2.51	0.67	1	4	275

The positive and significant lagged GDP growth coefficient suggests that nations with larger internal markets experience quicker economic growth. This result is consistent with Charles et al. (2020). Positive and large domestic investment has occurred. This suggests that the importance of growth in the Arab region increases with the level of domestic investment. Abdouli & Omri (2021) findings and this result are congruent (2014). Results for the human capital variable are inconsistent. This runs counter to the findings of Borges et al. (2020), who indicate that human capital has a positive and considerable impact on growth. Results from the FDI inflows coefficient are inconsistent. The findings of Su, et al. (2019); Fazaalloh are in conflict with this one (2019).

The doing business variable in Table 4 is positive and substantial, which suggests that business regulation has a considerable impact on growth. Doing business and FDI inflows interact in a way that positively and significantly affects growth. The spillover from FDI inflows can be absorbed by nations with solid business regulations. To put it another way, effective laws enable Arab economies to benefit from FDI inflows. This research supports the idea that improving business practices is necessary to promote FDI influx spillovers; as a result, both direct and indirect benefits result from doing business. Contrary to Ofoeda et al. (2022) this outcome.

Table 2: Corrélation matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
GDP growth	1																		
D invs	0.43	1																	
Human capital	−0.08	−0.06	1																
FDI inflows	0.1	0.04	−0.05	1															
Exchange rate	0.01	−0.06	−0.09	0.55	1														
Inf	0.16	0.26	−0.14	0.34	0.08	1													

Gov. cons	0.04	−0.07	0.41	0.08	−0.26	0.19	1												
Trade openness	−0.19	−0.08	0.46	−0.11	−0.53	−0.18	−0.09	1											
Natural resources	0.21	0.28	0.44	−0.04	−0.25	0.03	−0.36	0.07	1										
L Liabilities	0.31	0.34	−0.02	0.16	0.04	0.29	−0.07	0.17	0.008	1									
Bank size	0.43	0.26	0.03	0.12	0.03	0.15	0.04	0.003	0.11	0.53	1								
Bank credit	−0.37	−0.36	0.19	−0.27	−0.28	−0.26	0.2	0.57	−0.37	−0.33	−0.22	1							
S M size	0.22	−0.05	−0.08	−0.14	−0.05	−0.07	0.36	−0.20	−0.24	−0.13	−0.11	−0.02	1						
S M liquidity	0.15	0.25	0.04	0.38	0.18	0.36	−0.04	−0.20	0.19	0.32	0.16	−0.27	0.08	1					
Doing business	0.21	0.18	−0.03	0.04	0.04	0.15	−0.06	0.006	0.01	0.46	0.35	0.02	0.11	0.22	1				
Eco freedom	−0.35	0.01	−0.06	−0.37	−0.33	0.13	−0.14	0.22	−0.09	−0.27	−0.17	0.24	−0.15	−0.23	0.09	1			
Gov stability	0.27	0.25	0.14	0.36	0.09	0.08	−0.01	0.2	−0.04	0.57	0.47	−0.12	−0.26	0.32	0.32	−0.09	1		
Law and order	0.14	0.12	−0.06	−0.40	−0.31	−0.48	0.33	−0.01	−0.27	−0.04	0.05	−0.06	0.15	−0.27	0.02	0.06	0.008	1	
Corruption	−0.09	−0.07	0.04	−0.26	−0.18	−0.36	0.32	0.35	−0.02	−0.33	−0.01	0.41	0.23	0.17	−0.11	0.12	−0.03	0.18	1

Table 3: Panel unit root tests

Variables	LLC	IPS	Fisher
GDP growth	−10.868* (0.000)	−10.347* (0.000)	−11.356* (0.000)
Domestic investment	−6.611* (0.000)	−6.236* (0.000)	−9.3801 (0.000)

Human capital	−6.959* (0.000)	−5.448* (0.000)	−8.558* (0.000)
FDI inflows	−4.011* (0.000)	−2.486* (0.000)	−6.531* (0.000)
Inflation	−6.051* (0.000)	−5.388* (0.000)	−7.718* (0.000)
Exchange rate	−5.689* (0.000)	−2.403* (0.008)	−6.792* (0.000)
Government consumption	−4.711* (0.000)	−3.831* (0.000)	−7.626* (0.000)
Trade openness	−0.952 (0.162)	−1.557** (0.058)	−4.947* (0.000)
Natural resources	−4.291* (0.000)	−3.851* (0.000)	−7.831* (0.000)
Liquid liabilities (M2)	−4.579* (0.001)	−4.781* (0.000)	−8.392* (0.000)
Bank size	−5.614* (0.000)	−6.553* (0.000)	−9.498* (0.000)
Bank credit	−2.833* (0.002)	−1.862** (0.032)	−6.239* (0.000)
Stock market size	−2.847* (0.002)	−2.501* (0.006)	−4.831* (0.000)
Stock market liquidity	−1.476*** (0.071)	−1.562* (0.058)	−5.879* (0.000)
Government stability	−2.489* (0.006)	−2.367* (0.008)	−6.611* (0.000)
Law and order	−4.251* (0.000)	−3.361* (0.000)	−7.439* (0.000)
Corruption	−1.789** (0.031)	−1.412*** (0.078)	−5.889* (0.000)

*Therefore, LLC tests for common unit root, while IPS and Fisher test for individual unit roots. p-values in brackets.. *, **, *** denote significance at the 1, 5 and 10% levels respectively for p-values.*

Economic freedom's positive and statistically significant coefficient suggests that fewer onerous restrictions promote greater economic growth. When economic freedom is high, economic performance is stronger because investment is more productive. This outcome concurs with Bengoa et al. findings (2020). Economic freedom and FDI inflows interact, and this connection has a favorable and significant effect on growth. This suggests that when the institutional framework is stronger, the impact of FDI inflows on growth increases. Economic freedom has both immediate and long-term benefits. This conclusion is in line with those made by Azman-Saini et al. (2010); Vadlamannati et al. (2009).

High-quality institutions can encourage the accumulation of capital, raise innovation and skill levels, and lower transaction costs and investment risks. Institutional quality indicators from the ICRG include government stability, law and order, and corruption control. The greater the indicator's value, the lower the risk associated with that indicator. On growth, the government stability index has a favorable and considerable effect. According to Jude & Levieuge this outcome (2017). According to Aziz (2022) the law and order variable is both positive and significant. Growth appears to be positively and significantly impacted by the coefficient of corruption. This outcome is consistent with Alfaro et al (2004).

The inflation variable is negative and significant in Table 5. This outcome is consistent with Onyeiwu (2003). Due to its negative and large coefficient, the exchange rate has a negative impact on growth. According to Aziz & Mishra this outcome (2013). Government consumption has a negative and substantial coefficient. This outcome is consistent with Aghion et al (2009).

Trade openness is important and advantageous Castro (2022); Malovic et al. concur with this finding (2002).

The positive and significant WTO membership coefficient. The WTO's goal is to facilitate smooth, open, equitable, and predictable commerce, which promotes trade activity and promotes economic progress in Arab economies. In line with Kostova this outcome (2020). The GFC has a negative and significant coefficient. FDI inflows to Arab nations decreased during the GFC by 15.5% in 2009 compared to 2008, 16.7% in 2010, and 32.5% in 2011 compared to 2010. Since falling oil prices led to deficits in several Arab nations, the crisis also had an impact on their economies.

Table 4: Determinants of GDP growth (Institutional quality)

Dependent	1	2	3	4	5	6	7
GDP	0.008 (0.001)	0.008 (0.966)	0.433* (0.000)	−0.351 (0.183)	0.145* (0.000	0.188* (0.000)	0.146 (0.376)
Domestic inv	0.131* (0.006)	0.081* (0.005)	0.046* (0.000)	0.018* (0.037)	0.017* (0.006)	0.009*** (0.085)	0.057* (0.001)
Human capital	−0.447 (0.206)	0.354 (0.332)	0.268 (0.145)	0.066** (0.034)	0.136 (0.348)	0.248*** (0.064)	−0.027 (0.958)
FDI inflows	1.952*** (0.067)	3.788*** (0.074)	0.542* (0.002	0.416 (0.489)	0.385** (0.079)	0.797* (0.000)	1.296* (0.000)
Doing business	0.556*** (0.064)	0.705** (0.013)					
FDI inflows × doing business		1.127*** (0.075)					
Economic freedom			1.054*** (0.076)	1.371*** (0.081)			

FDI inflows × economic freedom				1.586** 0.056			
Gov. stability					1.196** (0.013)		
Law and order						1.141* (0.001)	
Corruption							1.773* (0.001)
Observation	52	30	88	79	172	216	162
Wald Chi2	32.32* (0.000)	1,288.16* (0.000)	65.73* (0.000)	94.46* (0.000)	805.83* (0.000)	145.49* (0.000)	236.17* (0.000)
Sargan test	23.51 (0.984)	22.25 (0.326)	81.68 (0.106)	78.11 (0.128)	72.56 (0.300)	27.85 (0.223)	57.57 (0.644)
Arellano–Bond test AR (1)	−0.94 (0.352)	−1.87*** (0.060)	−1.56 (0.121)	−0.31 (0.763)	−1.74*** (0.083)	−1.91** (0.056)	−1.37 (0.176)
Arellano–Bond test AR (2)	1.03 (0.306)	1.19 (0.855)	1.55 (0.124)	1.12 (0.269)	−0.15 (0.887)	−0.76 (0.444)	0.27 (0.783)

*Estimation results. *, **, *** denote significance at the 1, 5 and 10%levels respectively for p-values.*

Table 5: Determinants of GDP growth (Economic determinants)

Dependent	1	2	3	4	5	6	7	8
GDP	0.106* (0.000)	0.082* (0.001)	0.202* (0.000)	0.126** (0.096)	0.236* (0.000)	0.118* (0.000)	0.132* (0.000)	0.061*** (0.094)
Domestic inv.	0.015** (0.017)	0.022*** (0.084)	0.012** (0.044)	0.052** (0.024)	0.004 (0.544)	0.013** (0.011)	0.011** (0.092)	0.026** (0.018)
Human capital	0.478* (0.006)	0.913* (0.000)	0.076 (0.725)	0.071 (0.807)	0.256 (0.136)	0.212 (0.205)	0.247** (0.085)	−0.362 (0.446)
FDI inflows	0.495* (0.000)		0.643* (0.000)		1.775* (0.005)	0.357* (0.005)	0.831** (0.000)	−0.086 (0.806)
Inf.		−0.407* (0.000)						
Exchange rate			−0.306* (0.000)					
Gov. Cons.				−0.274** (0.062)				
Trade openness					0.051** (0.051)			
WTO membership						2.969** (0.037)		
GFC							−1.541*** (0.076)	
Natural resources								0.203* (0.005)
Observation	216	200	216	227	181	216	216	201

Wald Chi2	187.38* (0.000)	103.39* (0.000)	130.47* (0.000)	52.14* (0.000)	135.17* (0.000)	121.82* (0.000)	290.99* (0.000)	230.42* (0.000)
Sargan test	28.47 (0.201)	46.26 (0.422)	27.63 (0.236)	50.06 (0.281)	56.65 (0.158)	39.56 (0.445)	30.66 (0.165)	55.47 (0.142)
Arellano–Bond test AR (1)	−1.47*** (0.065)	−1.95*** (0.053)	−2.18*** (0.032)	−1.92*** (0.056)	−1.72** (0.054)	−1.98** (0.048)	−1.99** (0.047)	−1.45 (0.131)
Arellano–Bond test AR (2)	−0.83 (0.414)	−0.79 (0.437)	−0.78 (0.438)	−0.44 (0.658)	0.36 (0.465)	−0.79 (0.431)	−0.78 (0.428)	−0.92 (0.375)

Estimation results. *, **, *** denote significance at the 1, 5 and 10%levels respectively for p-values

Table 6: Determinants of GDP growth (Financial development determinates)

Dependent	1	2	3	4	5
GDP	0.145*** (0.067)	0.167* (0.000)	0.660** (0.032)	0.447 (0.169)	0.143 (0.334)
Domestic inv.	0.017 (0.294)	0.010*** (0.076)	0.019** (0.032)	0.047** (0.046)	0.026** (0.031)
Human capital	0.216** (0.037)	0.164 (0.407)	1.274 (0.000)	0.008 (0.976)	0.494* (0.002)
FDI inflows	−0.171 (0.806)	0.921* (0.007)	−0.208 (0.208)	−0.665 (0.206)	−1.132 (0.108)
Liquid liabilities	0.636* (0.000)				
Bank size		0.202* (0.000)			
Bank credit			0.134*** (0.062)		
Stock market size				0.685** (0.027)	

Stock market liquidity					0.787* (0.005)
Observation	198	203	152	197	138
Wald Chi2	114.73* (0.000)	338.26* (0.000)	1,224.81* (0.000)	17.62* (0.000)	214.53* (0.000)
Sargan test	28.24 (0.250)	27.32 (0.242)	38.86 (0.764)	28.06 (0.976)	47.83 (0.676)
Arellano–Bond test AR (1)	−1.78*** (0.075)	−1.68*** (0.095)	−1.46 (0.141)	−1.37 (0.176)	−1.30 (0.196)
Arellano–Bond test AR (2)	1.63 (0.106)	−0.84 (0.408)	1.37 (0.166)	1.24 (0.217)	1.06 (0.287)

*Estimation results. *, **, *** denote significance at the 1, 5 and 10%levels respectively for p-values.*

These elements caused the Arab economy's growth to slow down. This outcome is consistent with Blotevogel et al. (2022). Growth is positively and significantly impacted by natural resources. Revenue from natural resources can be used to fund infrastructure improvements, industrial initiatives, and technological advancements that improve production efficiency. This finding contrasts Basu et al. (2003) but is comparable to that of Andersen et al. (2018). According to Table 6, growth appears to be positively and significantly impacted by financial development indices. Liquid liabilities are a positive and significant variable. This outcome is consistent with Beck & Levine (2005). The bank size factor significantly and favorably affects growth. This suggests that a developed banking industry has better capital allocation, which raises production efficiency. This outcome is comparable to Ghali (1999). The positive and large bank credit variable is present, in agreement with Nguyen et al. (2022). Growth is positively and significantly impacted by the stock market's size.

The stock market's size is a good indicator of its capacity to disseminate information about businesses, diversify risks, and improve capital allocation, all of which contribute to more efficient production. This discovery is comparable to that made by Aziz (2022). Liquidity on the stock market is a crucial and beneficial variable. Liquid stock markets give investors an easy way to get out, which can promote faster growth and more effective resource allocation. This outcome is consistent with De Vita et al. (2021).

Tables 4-6 present the results of the Arellano and Bond tests for serial correlation and the Sargan test for over identifying constraints. There is no second order autocorrelation in the residuals, according to the Arellano and Bond AR (2), which is negligible. The instruments are

valid because there is no correlation between them and the residuals, according to the Sargan test, which is insignificant.

Conclusion and policy implications

This study experimentally investigates the relationship between institutional quality characteristics and FDI inflows on the basis of the augmented production function. The analysis is carried out using panel data from a collection of Arab countries from 1994 to 2018 and two-step Sare /Chen GMM estimation.

The findings demonstrate the critical role that top-notch institutions play in fostering progress. A well-regulated business environment can lower risk and increase investment. The interaction between institutional quality characteristics and FDI inflows has a positive and significant impact on GDP, showing the indirect contribution of institutions to growth through the absorption of FDI spillovers. The empirical findings also show that factors affecting macroeconomic policy, such as trade openness and WTO membership, have a favorable and significant effect on growth. Growth is negatively and significantly impacted by the GFC dummy variable.

The findings of this study have a number of policy-making ramifications. High institutional quality has an indirect impact on economic growth by absorbing spillovers from FDI inflows and a direct impact by stabilizing the business climate. Arab economies must implement crucial changes to advance the quality of their institutions. Among these changes could be measures to strengthen the legal system, create a more effective judicial system, uphold the rule of law, promote transparency, and guarantee fair competition. The reforms must also focus on lowering barriers to entry for businesses, streamlining licensing procedures, and simplifying intricate legislation and bureaucratic processes. The court system in the Arab world needs to be reorganized to meet modern corporate standards for ease of use and turnaround time for legal claims. By democratizing their political systems, Arab economies must lower their political risks, which might help their economy develop.

Arab policymakers must develop their trade ties and expand free trade agreements in order to lower trade barriers and advance global economic integration. In order to increase their credibility, they should also maintain unrestricted access to global markets by securing their trade and investment reforms within a multilateral framework like the WTO. Natural resource prices were impacted by the GFC, thus Arab economies should implement alternative strategies to lower the risks associated with being overly dependent on the oil sector. Due to their strong reliance on the contribution of natural resources and their vulnerability to external shocks like oil prices, this may lessen their vulnerability.

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