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ABSTRACT

Institutions and Development in MENA Region: Evidence from the Manufacturing Sector

This paper examines the role of institutions (including civil law origin), financial deepening and degree of regime authority on growth rates in the Middle East and North Africa (MENA) region using panel data through a fixed effect model. The results reveal that English civil law origin and the establishment of the rule of law work with the development of financial institutions to increase economic growth in these economies; however, the democratization of the political institutions and foreign direct investment do not assist financial development in promoting economic growth. The findings emphasize the prominence of overcoming institutional weaknesses and establishing transparent public policy governing businesses as a pre-requisite for successful universal integration in developing countries.

JEL Classification: G2, O16, P48

Keywords: economic growth, institutional development, financial development, MENA region

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1. Introduction

The global environment remains challenging after the financial crisis of 2007-2009. The recessionary risks in the Eurozone, the bumpy road of the US growth to recovery and the slowdown in Asia, have all turned the attention to the Middle East and North Africa (MENA) countries in the hope of better understanding their role in the world economy. Data from the World Bank (2013) shows that the MENA region has generally realized lower annual growth rates in output compared to most other developing regions in the world. However, the MENA region is on the edge of a crossroads for innovation and entrepreneurship. Half of the MENA population is under the age of 25 years, which makes it the second youngest population in the world behind the Sub-Saharan Africa (Farzaneh, 2011). Furthermore, since heterogeneity is not random (i.e., caused by different resource endowments) in the MENA region, it becomes a very interesting economic area to study. The heterogeneity also makes it more challenging to estimate a causal effect on economic growth in MENA. This is amplified by the fact that many countries in this region are continuing to go through politico-economic change following the so-called 'Arab Spring' that began in 2011.

From the financing point of view, the region still faces control by banks, poor financial infrastructure, and liquidity and transparency issues. These constraints significantly deter the expansion of substitute means of financing in MENA. Moreover, there have been significant movements of capital and investments in impacted countries of MENA in the 'Arab Spring'. These carry potential effects on the regional economic growth. This begs for the development of transparent and robust financial systems in the region. In such times, the focus on financial deepening and the integration of the different financial centers into a regional investment and economic development strategy becomes of primary importance.

The prevailing literature has stressed the roles of the financial industry, the political and the legal institutions in promoting the economic development (Levine and Zervos, 1998; Blackburn and

Forgues-Puccio, 2010; Uzonwanne, 2014). According to this literature, the development of the banking industry and financial markets are favorable to the economic growth. This is mainly because the activity of the banks increases the deployment of savings, improves the efficiency of the resource allocation, and stimulates the technological innovation. Liberalization of financially repressed regimes argues to enhance private savings. On the contrary, when the development is financed by incurring public sector deficits, it has a limited ability to increase economic growth (Dornbusch and Reynoso, 1989). Huang and Lin (2009) re-examine the dynamic relationship between financial development and economic growth by means of the dataset in Beck *et al.* (2000). Applying a new threshold regression in combination with the instrumental variables approach, the former authors support a positive link between the financial development and economic growth. This creates an important effect on financial growth in the low-income countries.

An effective economic rationale for treating foreign capital favorably is that foreign direct investment (FDI) and portfolio inflows encourage technology transfers which accelerate overall economic growth in recipient countries. Results in de Mello (1999) suggest that FDI works with local conditions, such as financial development, to spur economic growth not independently of other growth determinants. The degree of complementarity between old and new technologies that was found in developing countries suggests that those economies may be less efficient in the use of new technologies embodied by FDI-related capital accumulation. FDI alone is not found to have an ambiguous effect on economic growth (Alfaro *et al.*, 2004; Carkovic and Levine, 2005). Better-developed financial systems improve capital allocation and stimulate growth (Beck *et al.*, 2000). By the same token, capital inflows to a country with a well-developed financial system may, therefore, produce substantial growth effects. Wang (2009) uses data from 12 Asian economies and finds evidence that FDI in the manufacturing sector has a significant and positive effect on economic growth in the host economies, while FDI inflows in non-manufacturing sectors do not play a

significant role in enhancing economic growth. Khamis *et al.* (2012) relate over 23% of total FDI stock in Saudi Arabia to European investors in 2010; they note that Asian financial institutions are procuring a larger number of investors to the MENA region.

Other factors have been addressed in the literature. First, Acemoglu and Robinson (2013) describe how sound economic policy should be based on a careful analysis of political economy and should swiftly remove any market failure. Second, Huang (2011) suggests that the quality of political institutions can also affect the level of financial development. This implies that the extent of the benefits from financial development also depends on the quality of governance. Hewko (2002) proposes that a foreign investor from a country with a practice of corruption and weak governance may not be as deterred, despite the flawed legal system, as compared to an investor from a country with a perfect legal system. Kobeissi (2005) demonstrates that a stable, fair, consistent and transparent judicial system increases FDI flows in the MENA region. Dang (2013) shows a positive association between institutions and FDI inflows. However, empirical studies that have considered these issues remain few. Third, democratic transitions are typically preceded by low financial development. Mulligan *et al.* (2004) and Yang (2011) find that democracies have unimportant effects on public policies. For instance, in many poor countries, the security of property and economic development came from policy choices made by dictators. Therefore, good dictators can promote growth, as evidenced recently in China. Fourth, La Porta *et al.* (1997) show that French civil law countries have the weakest investor protection and have least developed capital markets as compared with English law countries. By the same token, La Porta *et al.* (1998) examine the origin of a country's legal system and find this to be an important contributor to cross-country differences in financial development. Elmi and Ariani (2010) establish that rule of law has a positive impact on financial development in the MENA region. Finally, Acemoglu and Robinson

(2012) find that the interplay between inclusive political and economic institutions causes economic success (or the lack of it).

In this paper, we focus on the relationship between institutions and economic growth in the MENA region by providing evidence from the manufacturing sector. Determining the implications of the factors that influence economic growth of manufacturing firms in the MENA region is essential for policies intended to enhance industrial growth and international competitiveness. We contribute to the literature on the relationship between finance and economic growth in two aspects. First, we focus on the contribution of the institutional setting and its interaction with the financial development and how this affects economic growth of the manufacturing firms. Second, we explore the relationship between the role of institutions, the country origin and the economic growth. The results of this paper would assist policy-makers in understanding the finance-growth nexus at a time where political and social turmoil is observed in several Arab countries. The empirical specification is represented through a fixed effect model using a dataset, sourced from Orbis and provided by Bureau Van Dijk in 2010. It covers a sample of 12 MENA countries for the period 2007-2010. This database covers a comprehensive and comparable source of firm-level data containing annual report data of public and private companies worldwide.

The remainder of this paper is organized as follows. In section 2, we provide an overview of the MENA manufacturing sector. Section 3 describes the dataset and discusses the empirical strategy. In section 4, we present and discuss the empirical results. In section 5, we provide concluding remarks.

2. MENA manufacturing sector

MENA countries continue to score lower grades through various indicators of international competitiveness in export markets (from manufacturing firms) compared to other developing

countries (Ahmed, 2010; O'Sullivan *et al.*, 2011). As a result, considerable efforts have been exerted by policy-makers in the MENA region over the past few decades to help manufacturing firms to expand their activities beyond national borders (O'Sullivan *et al.*, 2011). This is because improving the export behavior of the manufacturing sector could eventually lead to higher industrial growth rates as exporters respond to the demand from foreign markets (Bernard and Jensen, 1999).

The value added of the manufacturing sector in the MENA region (measured as a percentage of GDP) has slightly decreased from 12.2% in 1990 to 10.8% in 2007 to 9.8% in 2009 according to the World Bank database. It is remarkable that the overall MENA region's manufactured exports as a share of merchandise exports is considerably lower than that of other regions. Exports of manufactured products of the MENA region represented 24.5% of total merchandise exports in 2009. Exports from Tunisia and Morocco are manufactured products and are greatly concentrated in the EU market, whereas Mauritania's exports are primarily destined to BRIC (Brazil, Russia, India, China) countries, mainly China, which receives more than 40% of the country's exports (mostly iron ore). In Morocco, 93% of all industrial firms are SMEs and make up 38% of industrial output; they attract 33% of investment, account for 30% of exports and 46% of all jobs (OECD, 2005). Lebanon and Djibouti's exports, on the other hand, mostly target other MENA markets. Over the last decade, goods exports in the region have targeted less the European Union and more the MENA and the BRIC regions. The corresponding country-level statistics reveal significant variations between MENA countries, particularly between oil-rich and other MENA countries. For example, the percentage of exports of manufactured products from total merchandise exports was 1.6% for Algeria and 8.1% for Saudi Arabia compared to 43.8% for Egypt and 72.5% for Lebanon.

The MENA region has higher levels of FDI per capita than most other countries; the regional average for 2009 was US \$637, exceeding the world's amount of US \$163 and the G20's with an amount of US \$149 and even the developed countries' (US \$553). However, FDI to export

oriented sectors remains inadequate; this indicates that these sectors are not as competitive and as attractive as non-tradable products, for instance, telecommunications, tourism and construction (see Organisation of Economic Cooperation and Development (OECD), 2011).

Fakih and Ghazalian (2014) examine the factors influencing the export behaviour of manufacturing firms located in the MENA region. They show that private foreign ownership, ICT use, and firm size exert significant positive effects on the probability of exporting and on export intensity in MENA countries. On the other hand, government ownership and the relative labour compositions of firms in terms of skilled workers and non-production workers tend to exert negative effects on firms' propensity to export. The results also underscore enhancing effects of national economic development levels on firms' export performance

Small and medium enterprises (SMEs) play a major role in the support of innovation and employment, and specifically in the industrial sector. Several SMEs support organizations have been established in the MENA region. This fact reflects a growing recognition of the SMEs importance in the Arab economy. Therefore, the focus on these organizations should be a part of any serious attempt to understand their potential role in the economic growth in the MENA region. About half of the SMEs in the past decade sought banks or other loans, while 42% relied on their personal resources (Al-Yahya and Airey, 2013). This fact provides an important insight into the lack of necessary financial development in these countries to handle SMEs development, the backbone of the industrial sector in these developing economies. It also underscores a potential role for private equity firms, through venture capital and buyouts, in financing SMEs in the region.

Finally, Glaeser *et al.* (2004) argue that the existence of weak institutions, in general, stifles economic growth and results in under-exploited production resources. At the same time, institutions are greatly tenacious because history, which includes colonial English and French mandates, forms community choices (La Porta *et al.*, 1997). Given the diverse history in MENA, does its industrial

sector fit in the above Glaeser description? And if so, what factors would be helpful to release the locked potential of manufacturing firms in this region?

3. Data and methodology

3.1. Data

This paper uses a dataset sourced from Orbis that is provided by Bureau Van Dijk. This dataset consists of a combination of firm-related and macroeconomic variables, extending over the period 2007-2010. It covers a comprehensive and comparable source of firm-level data containing annual report data of public and private companies worldwide. The relevant data used in this paper cover 1,532 manufacturing firms located in 12 Arab countries in the MENA region (Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Saudi Arabia, Syrian Arab Republic, Tunisia, and Yemen). It should be noted that one of the many advantages of using this survey, is that the questions are identical through firms across all countries.

The dependent variable is *RGG*, the real annual growth rate of gross domestic product (GDP) per capita, using year 2000 as the base year. The explanatory variables include four categories. First, firm variables (controls) that include the following dummy variables: *SMEs*, *PUB*, or publicly listed firms, and *JNT* or joint-stock companies. Such a company issues stock that can be traded on the secondary market but it holds its stockholders liable for the company debts. Second, macroeconomic variables include: *GDPPC*, which is the real GDP per capita using year 2000 as the base year, *FDI* or foreign direct investment net inflows defined as a percent of GDP, *LIF* or life expectancy at birth which is measured in total years, and *TEL* or telephone lines per 100 people. Third, financial variables include: *FIN* or the ratio of the financial industry to GDP, and *PCR* or public credit registry coverage of adults as a percentage of adults, which reports the total number of individuals and firms listed with current repayment history, unpaid debts, and outstanding credit.

Fourth, public governance variables, which measure constraints on government, include: *RUL* or rule of law as percentile rank, and *POL*, or Polity4, an index of democracy and limits of executive power (Jagers and Marshall, 2000). It is called combined polity score, calculated by taking the democracy score minus the autocracy score. The democracy and autocracy scores are derived from the six authority characteristics (regulation, competitiveness and openness of executive recruitment; operational independence of chief executive or executive constraints; and regulation and competition of participation). Based on these criteria, each country is assigned democracy and autocracy scores ranging from 0 to 10, accordingly, the Polity4 ranges from -10 to 10 with higher values representing more democratic regimes. Lastly, we consider *ENG* or English law, a dummy variable taking a value of 1 for all countries in the MENA database except for four French law countries (Lebanon, Morocco, Syrian Arab Republic, and Tunisia).

Table 1 summarizes the variables used in the empirical analysis. The heterogeneity is emphasized by noticing the wide range of the *RGG* and *GDPPC* variables. *FDI*, *FIN*, *PCR*, *RUL* and *POL* also vary considerably between these countries. Firm-level variables reveal that on average, half of the industrial companies in this industry are SMEs, 28% are publicly listed and 32% are joint stock companies, 7.16% is the net inflow of FDI; all of these variables have high standard deviations. Remarkably, the low percent (28%) of publicly listed companies suggests that relatively underdeveloped stock markets of the MENA countries make them a less attractive venue for listing industrial firms; the latter would probably prefer to list outside the region if they were given the chance. Financial variables show that 8.25% is the ratio of financial industry to GDP, and a surprisingly low 2.24% is the ratio of adults with public credit registry in manufacturing firms. Both financial variables are uniformly low in the industry with a clustered distribution around the mean, leaving a lot of room for financial development to take place in the future. The average percentile rank for rule of law is about 58% but with a high standard deviation; this places the

industry at better than half-way with respect to this measure. It is important to note that the average for *POL* is a negative 6.3, indicating a very low rating on the democracy scale.

Table 2 breaks down some key variables by country. Yemen, Bahrain and Kuwait are shown to possess the highest index of SMEs among their industrial firms. Saudi Arabia has the lowest democracy index in this sample, whereas, Lebanon has the highest democracy index score. Bahrain, Morocco and Tunisia have the highest percent of listed and joint-stock industrial companies. This reflects export-oriented industrialization policies in these countries during the last decade with an effort to increase the access of industrial firms to the financial markets. Table 3 presents the correlation matrix between all the variables. We find that *FDI* correlates positively with *RGG*; moreover, firms in lower income per capita countries tend to benefit their economies more from *FDI* inflows. We observe that industrial *SMEs* are positively correlated with GDP per capita, probably due to an appreciation of the importance of these firms for the dynamism and growth of the private industrial sector and a concerted effort in these richer countries to encourage the growth of small and medium firms. The financial variables are generally positively correlated with economic growth and GDP per capita, consistent with the strong relationship between these variables and growth in developing countries (Huang and Lin, 2009). The public governance variables show that, while *RUL* correlates positively with income per capita, in agreement with Kobeissi (2005), it correlates negatively with economic growth. This could indicate that while anti-corruption policies are present, they still should be crafted to support further legal protection of rights that would be consistent with economic growth. We also find that *POL* correlates positively with growth but negatively with income per capita. Since *POL* has an average of negative 6.3 in MENA, this means that the current political system is associated with a higher economic growth (this is mostly seen in Gulf Cooperation Council countries like Saudi Arabia, Kuwait, Oman and Bahrain). It is observed that gaining more democracy in the region is likely to increase economic

growth but not likely to help income per capita. This may underline the role of democracy in the MENA growth rates.

3.2. Methodology and hypotheses

The primary objective of this study is to examine the role of the above variables in understating the determinants of economic growth in the MENA region. The structure of panel data allows us to follow firm j ($j=1, \dots, J$) located in country c ($c=1, \dots, C$) across time t ($t=1, \dots, T$). The benchmark specification can be represented as:

$$\begin{aligned} RGG_{ct} = & \alpha_0 + \alpha_1 SME_{jt} + \alpha_2 PUB_{jt} + \alpha_3 JNT_{jt} + \alpha_4 GDPPC_{ct} + \alpha_5 FDI_{ct} + \alpha_6 LIF_{ct} \\ & + \alpha_7 TEL_{ct} + \alpha_8 FIN_{ct} + \alpha_9 PCR_{ct} + \alpha_{10} RUL_{ct} + \alpha_{11} POL_{ct} + \varepsilon_{ct} \end{aligned} \quad (1)$$

where, ε_{ct} is the stochastic error term. This benchmark specification can be estimated by using fixed effects model or random effects model to treat the country effects that are not captured by the independent variables. In the fixed effects model, we assume that country effects such as colonial and internal conflicts history, corruption levels, quality of public administration, etc. are (nuisances) captured by including “country dummies” to account for unexplained variation. Under the fixed effects model, no assumptions are made about these country effects. Here, we are interested in comparing the scores on the dependent variable (annual growth rate) among the levels of the factor (country dummies); this is realized through an empirical specification which involves differences between means.

However, in the random effects model, these factors are assumed to follow a probability distribution specification with a known mean and variance. Thus, in this model, the variance of unexplained factors is estimated, while in the fixed model the same variance is assumed to be distributed with infinite value. The random effect model does not encompass specific differences in means; rather, it expresses the degree to which the random factor accounts for variance in the

dependent variable. One disadvantage when using random effects model is the bias problem in which country effects must not be correlated with the independent variables that are included in the model rendering random effects estimators inconsistent.

In this paper, we suspect the existence of a correlation between unexplained factors and the independent variables. For example, the variable *LIF* could be correlated with these factors when the dependent variable is the growth rate (e.g., Barro 1997). To confirm the appropriate model, we rely on the Hausman test. The null hypothesis for the Hausman test is that the random effects model is consistent. Thus, if the *p*-value is significant then we can proceed with the fixed effects model.

We also estimate an alternative specification in which the financial sector interacts with some macroeconomic and corporate governance variables as follows:

$$\begin{aligned}
 RGG_{ct} = & \alpha_0 + \alpha_1 SME_{jt} + \alpha_2 PUB_{jt} + \alpha_3 JNT_{jt} + \alpha_4 FDI_{ct} + \alpha_5 LIF_{ct} \\
 & + \alpha_6 TEL_{ct} + \alpha_7 FIN_{ct} + \alpha_8 PCR_{ct} + \alpha_9 RUL_{ct} + \alpha_{10} POL_{ct} \\
 & + \alpha_{11} FIN_{ct} * POL_{ct} + \alpha_{12} FIN_{ct} * RUL_{ct} + \alpha_{13} FIN_{ct} * FDI_{ct} + \alpha_{14} FIN_{ct} * ENG_{ct} + \varepsilon_{ct}
 \end{aligned} \tag{2}$$

The first hypothesis that we are testing is the importance of the level of *FDI* in the manufacturing sector, and checks whether *FDI* contributes positively to GDP growth. We suggest that the size of the *FDI* in the manufacturing firm positively affects the economic growth. The reasoning is that when *FDI* is injected into manufacturing firms, it helps them innovate and employ more youth. Hence, this provides necessary technical resources and experience through the learning curve that would help spur economic growth in the country as a whole.

The second hypothesis touches on the relation between the financial variables (size of the financial industry and public credit registry of adults) and the GDP growth. It indicates that financial variables lead to more financial deepening, which in turn promotes growth. The third hypothesis connects the rule of law and degree of democracy positively with GDP growth. We

propose that political pluralism and public governance have beneficial effects on businesses and overall economic activity.

The last hypothesis is a composite one; it deals with the interaction of financial variables in the manufacturing sector with some macro and public governance variables, and how they affect the GDP growth. It examines whether rule of law, democracy, foreign direct investment and English law origin benefit from the existence of the financial variables in the manufacturing sector in order to promote economic growth.

4. Results and policy implications

The empirical analysis examines the determinants of annual growth rates in these countries located in the MENA region. The dependent variable in all our specifications is the annual growth rate. The independent variables are divided among the firm-level (controls), macroeconomic, financial, and public governance variables. The controls also include the country fixed effects. Indeed, the panel nature of our data allows us to control for the unobserved country specific factors through country fixed effects.

Table 4 reports the estimated coefficients of the fixed effects model presented in equation (1). The Hausman test results reported in Table 4 show that all the p -values are below 0.05. Thus, the null hypothesis that the random effects estimators are consistent is rejected indicating that the fixed effect model is more efficient than the random effect model when studying the contribution of institutional and financial development to growth. This helps us to avoid the inconsistent estimators associated with random effects models. The results of F-statistic also reject the null hypothesis that pooled least squares is the correct model in favor of the fixed effects model. The results of this test show significant statistics in all specifications. We also use the adjusted R-squared, the log-likelihood and the Akaike information criterion (AIC) as goodness-of-fit indicators. Accordingly,

high adjusted R-squared and log-likelihood values in conjunction with lower values on the AIC indicate a good-fitting model when comparing all specifications in columns 1 to 4.

Column (1) presents the results from an empirical specification that includes firm characteristic variables and macroeconomic variables. The results reveal that all macro variables have a positive and statistically significant effect on economic growth. Specifically, the results suggest that FDI, life expectancy, and the existence of telephone lines are positively correlated with economic growth. The estimated coefficient value of FDI equals 0.345 significant at the 1 percent level indicating that a 1 percent increase in the FDI flows leads to a 0.345 percent change in the growth. This is consistent with the findings of several previous empirical studies (e.g., Borensztein *et al.*, 1998; Xu, 2000; Wang, 2009). The results of the life expectancy and telephone lines variables imply estimated coefficients of 0.332 and 0.055, respectively. These macroeconomic indicators of quality of healthcare and telecommunication industry, when lagging behind, become hurdles in inclusive socio-economic growth of countries; they are found to be robust in increasing economic growth (Igyor, 1996; Todaro and Smith, 2011). This is in line with some recent empirical studies from the MENA region showing that there exists a strong positive relationship between the use of information and communication technology (ICT) and economic growth in the long run (see for example the case of Qatar in Darrat and Al-Sowaidi, 2010 and the case of Lebanon in Abosedra and Fakh, 2014).

Column (2) keeps the firm-level variables but adds financial variables covering the ratio of the financial industry to GDP (*FIN*) and public credit registry coverage of adults (*PCR*). The estimated coefficients on these variables are positive and statistically significant with the level of *PCR* being slightly more important than the level of *FIN*. It indicates that an increase of 1 percent in the ratio of financial deepening and the coverage of public credit registry leads to an increase in the economic growth by 0.193 and 0.242 percent, respectively. These results can be related to the

well-established literature that examined the effects of financial health of the country on economic growth (e.g., Levine and Zervos, 1998; Quartey and Prah, 2008; Abu-Bader and Abu-Qarn, 2008) and are in line with some previous empirical findings from the MENA region (Darrat and Al-Sowaidi, 2010; Abosedra and Fakh, 2014). They underline the role of national financial development levels in promoting economic growth where financial development is a necessary precondition for economic growth (e.g., Katircioglu *et al.*, 2007; Awojobi, 2013). This aspect of literature has primarily focused on the the ‘supply-leading’ hypothesis stating that a sound and efficient financial system can enhance the overall level of economic activities and improve efficiency.

In column (3), we control for firm-level variables and we introduce public governance variables covering the rule of law as percentile rank (*RUL*) and the index of democracy and limits of executive power (*POL*). The results indicate that public governance variables are also positively affecting growth, with the level of *POL* taking primary importance over the level of *RUL*. These results seem to suggest that enforcing the rule of law and public governance mechanisms play an effective role in supporting economic growth (Beck *et al.*, 2000; Allen *et al.*, 2005) in developing countries (Yao and Yueh, 2009).

In column (4), the full model, which includes all variables, is estimated. The results of all socio-economic, financial inclusion and public governance variables are robust and still positive and significant with the exception of FDI variable. Indeed, it is found that FDI now exerts a negative effect on economic growth. This result indicates that FDI plays an ambiguous role in contributing to economic growth. These mixed results on FDI have been debated in the FDI-Growth literature depending on the capacity of FDI in the host country to absorb the foreign technology and investment (Obwona, 2001). By the same line, Smarzynska (2004) argues that international firms may focus their activities in the highly productive sector leading less industrious firms to decrease

their activities and to exit that sector. Finally, Cobham (2001) notes that the crowding out of domestic firms leading to a contraction in the size of the industry and, possibly, to a reduction in the employment levels. This ambiguous effect forces us to think of studying the interaction of FDI with some financial variables. The reasoning behind this interaction is to check how the FDI works with financial markets in affecting the economic growth. Finally, when looking at the likelihood levels from different empirical specifications, we notice that the full model in column (4) has the largest explanatory power. Additionally, this model scores the highest R-square and the lowest AIC values.

Table 5 shows the results derived from estimating equation (2) to study the possible interplay of the financial variables with *FDI* and some public governance variables. We run the Hausman test and found that all the *p*-values are below 0.05. Thus, the null hypothesis that the random effects estimators are consistent is rejected indicating that the fixed effect model is more efficient than the random effect model with the interaction terms. The results of F-statistic also reject the null hypothesis that pooled least squares is the correct model in favor of the fixed effects model. We also use the adjusted R-squared, the log-likelihood and the Akaike information criterion (AIC) as goodness-of-fit indicators. It should be noted that the model controls for the same firm variables in all our specifications in Table 5.

The interaction of *FIN* and *POL* is displayed in column (1) of the table. We find that the term *FIN*POL* is negative and significant. This result can be explained by the fact that democracy (as measured by Polity4) in financially developed MENA manufacturing companies does not promote economic growth. That is, countries with benevolent dictators result in a better yield of financial development on economic growth in the industrial sector. This result is in line with research by Mulligan *et al.* (2004) and Yang (2011). In column (2) of Table 5, the sign of the interaction term *FIN*RUL* is positive and significant, suggesting that *FIN* in industrial companies complements rule of law to expand the growth in MENA countries as expected from the theory and

empirical literature (Elmi and Ariani, 2010). Surprisingly, we find that *FDI* has a negative growth effect on industrial companies in MENA countries, as can be seen from the sign of the *FIN*FDI* term in column (3) of Table 5. Possibly, these countries, currently not sufficiently financially developed, do not completely benefit from *FDI* inflows. This result is not in line with the Alfaro *et al.* (2004) findings. Alfaro *et al.* (2004) investigate the interaction term between *FDI* and financial markets and find a significant and positive relationship when domestic investment is added to the independent variables, thus suggesting a positive externality effect of *FDI*. In contrast, in column (4) of Table 5, MENA English law countries are found to have higher financial development as evidenced by the significant positive sign of *FIN*ENG* term. This effect on growth is in line with the work of La Porta *et al.* (1997). It is worth mentioning that the specification presented in column (3) of Table 5 shows the best goodness-of-fit compared to the results of column (4) as shown by the adjusted R-squared, the log-likelihood and the AIC values.

The above results naturally suggest that specific institutional reform policies can be important for policy makers in attempting to accelerate economic growth. Namely, since the variable *ENG* interacts positively with financial development, then legal reforms, such as emulating English law in the French law countries, promise to benefit for the MENA manufacturing sector. First, *FDI* is being blocked from transferring knowledge to this sector because of low financial development in MENA. Second, SMEs would be able to diversify their capital structure further if listing on the regional stock markets were an attractive proposition. Instead of meeting external finance needs through taking private bank loans, and having to possess many guarantees for such loans, they would be able to raise capital in the local equity markets.

The positive effect of *RUL* on *FIN* also suggests that improvement in legal systems granting more property rights, are also needed to go hand in hand with the financial development, in order to increase growth. Moreover, since the variable *POL* was not found to add to *FIN*, this proposes that

political reforms in the region aiming to decrease authoritarianism and limiting executive power, may not be crucial to allow industrial companies in MENA countries to boost economic growth. Therefore, the focus should be multifaceted on first liberalizing financial markets, and second enhancing the role of institutions to re-enforce the confidence in the MENA economies; these reforms would then help to lift the industrial sector up, thus positively affecting the economic growth in the region.

5. Concluding remarks

The hypothesis that institutional development is a necessary pre-condition for economic growth has been studied extensively in the literature for several decades. This paper investigates the role of institutions (including civil law origin), financial deepening and degree of regime authority on growth rates in the MENA region using panel data and a sample of manufacturing firms for the period 2007-2010. Indeed, the manufacturing sector in the MENA region is currently characterized by low grades through various indicators of international competitiveness compared to other developing countries.

The empirical investigation comes up with three conclusions. First, we find that the level of FDI in manufacturing firms increases economic growth. This conclusion is aligned with the general theory where FDI helps facilitate employment of youth and uses entrepreneurial talent to benefit economic growth. However, when we run the full model, the effect of FDI becomes negative indicating the ambiguous outcome of this variable. Second, the results show that there is a positive and significant relationship between financial variables (size of the financial industry and public credit registry of adults), and the GDP growth. Third, the results reveal that governance and institutions have an important role in promoting economic growth; for instance, countries, where the rule of law is more prevalent, can witness a larger benefit from financial development on their

manufacturing sector. Furthermore, origin of civil law affects the economic growth from a colonial history background; English civil law enhances the effect of financial development. This may further suggest that reforms in French law countries can potentially benefit their financial markets. Therefore, policies aiming at improving the efficiency of the financial institutions and the enforcement of laws should persist over a prolonged period of time, in order to have a powerful impact on the growth of the MENA economies. Our results seem to suggest that, the deferral impacts of FDI on economic growth could reduce the interest in developing the financial sector or the enforcement of laws as they would, seem less important for economic growth. This is to say that steps to further improve the financial and governance institutions should continue over an extended period of time to have their desirable impacts in terms of higher long-run growth. Policymakers should also pursue their efforts to undertake financial reforms that improve the quality and the transparency of financial transactions. This is important because countries without sufficiently developed financial markets, cannot benefit from FDI to the fullest extent. Therefore, in the current stage of financial development, the industrial sector witnesses less importance of the FDI as a vehicle for cross-border knowledge transfer in MENA companies. It would be of interest for future research on the role of FDI in the MENA region to investigate how country effects interact with FDI.

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Table 1: Summary statistics

	Mean	Standard Deviation	Minimum	Maximum
Growth rate (RGG)	3.220	2.360	-4.817	11.491
GDP per capita (GDPPC)	16475.920	12263.960	495.000	36330.000
Small and medium firms (SME)	0.497	0.500	0.000	1.000
Publicly listed firms (PUB)	0.281	0.450	0.000	1.000
Joint-stock firms (JNT)	0.322	0.467	0.000	1.000
Inflows foreign direct investment (FDI)	7.174	4.994	-0.004	14.760
Life expectancy (LIF)	74.846	3.232	57.838	78.100
Telephone lines per 100 people (TEL)	21.045	9.423	0.854	33.949
Ratio of the financial industry to GDP (FIN)	8.249	5.403	1.300	34.550
Public credit registry coverage of adults (PCR)	2.235	3.294	0.000	23.400
Rule of law as percentile rank (RUL)	57.882	13.540	0.476	80.660
Index of democracy and limits of executive power (POL)	-6.311	3.215	-10.000	7.000
<i>Number of observations</i>		1,532		

Table 2: GDP per capita, Index of regime authority, SMEs, publicly listed firms, and joint stock of industrial firms, by country

	RGDP	POL	SME	PUB	JNT
Bahrain	15373.760	-7	0.555	0.703	0.888
Egypt	1702.848	-3	0.139	0.367	0.565
Iraq	686.3371		0.229	0.166	0.166
Jordan	2391.871	-3	0.692	0.482	0.520
Kuwait	23011.69	-7	0.537	0.417	0.436
Lebanon	5548.636	7	0.270	0.067	0.108
Morocco	1651.245	-6	0.233	0.850	0.833
Oman	9836.795	-8	0.645	0.700	0.736
Saudi Arabia	9874.298	-10	0.402	0.402	0.430
Syrian Arab Republic	1338.921	-7	0.268	0.037	0.046
Tunisia	2666.038	-4	0.000	0.882	0.941
Yemen	559.9517	-2	0.941	0.000	0.000
<i>Number of observations</i>			1,532		

Table 3: Correlation matrix

	RGG	GDPPC	SME	PUB	JNT	FDI	LIF	TEL	FIN	PCR	RUL	POL
RGG	1											
GDPPC	-0.565***	1										
SME	0.006	0.130***	1									
PUB	0.021	0.084	-0.016	1								
JNT	0.066	0.025	-0.046	0.862***	1							
FDI	0.700***	-0.745***	0.061	0.054	0.0868*	1						
LIF	-0.347***	0.837***	0.214***	0.105**	0.0230	-0.581***	1					
TEL	-0.467***	0.702***	-0.102**	-0.074	-0.0785	-0.681***	0.571***	1				
FIN	0.262***	0.333***	-0.003	-0.079	-0.0915*	0.0052	0.260***	0.450***	1			
PCR	0.400***	-0.093*	0.056	0.106**	0.104**	0.177***	0.050	-0.362***	0.019	1		
RUL	-0.194***	0.583***	0.282***	0.278***	0.241***	-0.150***	0.633***	0.090*	-0.136***	0.007	1	
POL	0.725***	-0.456***	-0.082	-0.117***	-0.0750	0.585***	-0.454***	-0.288***	0.616***	0.117***	-0.480***	1

Notes: Correlation coefficients with Bonferroni-adjusted significance levels. *=10%; **=5%; ***=1%.

Table 4: Estimated effects of institutional and financial development on growth (fixed effects model)

	(1)	(2)	(3)	(4)
GDPPC	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.001 (0.000)
FDI	0.345 (0.000)			-0.321 (0.000)
LIF	0.332 (0.000)			0.023 (0.354)
TEL	0.055 (0.000)			0.036 (0.096)
FIN		0.193 (0.000)		0.254 (0.000)
PCR		0.242 (0.000)		0.225 (0.000)
RUL			0.074 (0.000)	0.166 (0.000)
POL			0.467 (0.000)	0.220 (0.000)
Constant	-22.955 (0.000)	2.517 (0.000)	2.995 (0.000)	-2.850 (0.062)
<i>Number of observations</i>	1,532	1,532	1,532	1,532
<i>Countries</i>	12	12	12	12
Adjusted R-squared	0.551	0.621	0.727	0.865
Log-likelihood	-2718.742	-2584.896	-2239.964	-1749.673
Akaike information criterion (AIC)	5453.485	5183.793	4493.929	3523.346
F-statistic	244.140 (0.000)	373.320 (0.000)	595.400 (0.000)	776.590 (0.000)
Hausman test (χ^2)	3.590 (0.073)	24.470 (0.000)	53.510 (0.000)	89.350 (0.000)

Notes: We control for firm variables in all columns. Figures in parentheses are the p -values.

Table 5: Estimated effects of institutional and financial development on growth (fixed effects model) with interaction variables

	(1)	(2)	(3)	(4)
FDI	0.092 (0.000)	0.097 (0.000)	1.074 (0.000)	0.151 (0.000)
LIF	0.130 (0.000)	0.137 (0.000)	-0.033 (0.036)	-1.126 (0.000)
TEL	0.082 (0.000)	0.151 (0.000)	0.127 (0.000)	0.166 (0.000)
FIN	0.155 (0.000)	-0.312 (0.000)	1.282 (0.000)	-0.296 (0.000)
PCR	0.332 (0.000)	0.370 (0.000)	0.487 (0.000)	0.470 (0.000)
RUL	0.023 (0.000)	-0.024 (0.000)	-0.059 (0.000)	0.249 (0.000)
POL	0.414 (0.000)	0.341 (0.000)	-0.370 (0.000)	0.500 (0.000)
FIN*POL	-0.026 (0.000)			
FIN*RUL		0.009 (0.000)		
FIN*FDI			-0.089 (0.000)	
FIN*ENG				0.489 (0.000)
Constant	-7.546 (0.000)	-6.376 (0.000)	-5.474 (0.000)	80.324 (0.000)
<i>Number of observations</i>	1,532	1,532	1,532	1,532
<i>Countries</i>	12	12	12	12
Adjusted R-squared	0.925	0.932	0.946	0.936
Log-likelihood	-1354.906	-1292.749	-1143.956	-1251.816
Akaike information criterion (AIC)	2735.814	2611.498	2313.914	2531.633
F-statistic	1379.720 (0.000)	1526.170 (0.000)	1937.970 (0.000)	1503.830 (0.000)
Hausman test (χ^2)	86.760 (0.000)	116.030 (0.000)	168.580 (0.000)	137.540 (0.000)

Notes: We control for firm variables in all columns. Figures in parentheses are the p -values.