

**ANOTHER LOOK AT THE DETERMINANTS OF FOREIGN DIRECT  
INVESTMENT IN MENA COUNTRIES:  
AN EMPIRICAL INVESTIGATION**

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The paper is concerned with the analysis of the main determinants of foreign direct investment in MENA countries. The estimation is run on the determinants of FDI in our sample which consist of 36 countries. 12 of these countries were in MENA countries and another 24 were the major recipients of FDI in their respective regions in developing countries. By employing a panel data methodology the study investigates whether the determinants of FDI are similar to the other FDI receiving developing countries. The study reveals that the key determinants of FDI inflows in MENA countries are the size of the host economy, the government size, natural resources and the institutional variables. The paper concludes that, countries that are receiving fewer foreign investments could make themselves more attractive to potential foreign investors. So, the policy makers in the MENA region should remove all barriers to trade, develop their financial system and build appropriate institutions.

*Keywords:* Foreign Direct Investment, Panel Data, Fixed Effects, MENA

*JEL classification:* C33, F21, F23, F43

## 1. INTRODUCTION

Increased globalisation over the last two decades has led to strong growth of international business activity and FDI. The continuous international capital inflows to developing countries, and especially Foreign Direct Investment (FDI) is expected to contribute to increasing efficiency and productivity, and to further growth opportunities in recipient countries such as technology transfer, export development, job and skill creation, and the upgrading of management knowledge and skills.

However, from the perspective of the MENA<sup>1</sup> countries, given their low savings

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rates and access to international capital markets, their capacity to invest is limited unless it is supplemented by other external finance such as FDI. Attracting FDI has been a widely recommended policy to developing countries because of the believe that FDI brings with it several positive externalities as mentioned earlier such as productivity gains and technology transfers. Moreover, foreign investments, particularly in Greenfield projects, can become valuable channels for the transfer of technology, knowledge and modern practices (R. Frindlay, 1978; Wang and Blomstom, 1992: ).

However, comparing the distribution of FDI inflows across developing regions, the MENA region has attracted only small proportion of the global stock of FDI (UNCTAD, 2003). Moreover, the existing literature on FDI inflows seems to match the pattern of distributions of these flows. This could partially explain the scarcity of studies dealing with FDI inflows directed to MENA region, as compared with Asia and Latin America (see for example studies by Choi, 1995; Poon, and Thompson, 1998; and Zhang, 2001).

The poor performance of the MENA countries in attracting FDI raises the following questions: what factors are responsible for this and what can policy makers in these countries do improve the flow of FDI to their countries? To examine these questions we need to examine the main drivers of FDI.

Previous studies of macroeconomic and political determinants of foreign direct investment in developing countries (e.g., Amirahamdi, 1994; Adji *et al.*, 1995; Jun *et al.*, 1996, and UNCTAD, 1995) have failed to provide explanations for the poor performance of FDI inflows in MENA countries, compared to other developing regions of the world. This study tries again to re-answer these questions.

These questions are important for several reasons. One, since the trend of FDI flow to developing countries in general has been rising the share of FDI flows to MENA region has been on a relative decline as compared to many other developing economies or emerging countries such as EU new members or big rapid growth Asian economies, such as China and India. Second, FDI is said to be one of the contributing factor to economic growth in the developing countries of East Asia and Latin America (Whiteside 1989; Dunning, 1994; OECD, 1998).

Third, since the mid-1980's, an increasing number of MENA countries have been implemented reforms susceptible of improving the fundamental determinants of return on investment. These reforms includes reducing the political risk, improving their investment laws, establishing a reliable legal and regulatory environment, opening up to

<sup>1</sup> MENA Countries refers to Middle East and North Africa. The MENA region discussed in this paper comprises Arab Countries in North Africa (Algeria, Egypt, Morocco and Tunisia) and West Asia (Jordan, Syria, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and UAE). With population of nearly 400 million and a notable strategic position between the North and the South, the MENA region constitutes a distinct region of the developing world. Despite obvious differences within and between its countries, MENA region is cemented by a number of common characteristics related to its distinctive climate, ecology, history, language and culture, which permeate its social fabric, development aspirations and quest for a meaningful future.

international trade, and freeing repatriation of funds and capital. In addition, investment promotion agencies in the region have been active in providing information about different investment opportunities (Said M and Linda M, 2007). However, despite these ongoing reforms, MENA's share of the total FDI flows to developing countries has been miserably low. The appropriate question is "why?"

In order to analyse those questions panel-data technique was used to explore the main drivers of FDI inflows in MENA countries. The time period ranges from 1975 to 2006, with balance coverage for the individual samples. This study contributes to current research in various ways. It is the first comprehensive study of FDI in MENA region, linking together the analysis of the internal as well as the external determinants of FDI. In addition, the paper examines the role of institutions and financial development factors that have not been adequately explored in the current literature (see Onyeiwu, S., 2003; Chan, K.K., and E.R. Gemayel, 2004; Korgstup, S., and Matter, L., 2005; and Kamaly, 2002)<sup>2</sup>.

The rest of the paper is structured as follows. Section 2 includes FDI flows trends and performance in MENA countries. Section 3 outlines a model specification and econometric methodology. Section 4, contains the main findings of the study, their analyses and assessments, and the final section offers some concluding remarks in the light of the previous analysis.

## 2. FDI FLOWS IN MENA COUNTRIES: SOME STYLIZED FACTS

### 2.1. MENA Countries Experience in Attracting FDI

If one analyzes the historical FDI inflows to MENA countries there are some interesting features to be discovered. Regional inflows recently increased, but have not kept pace with global FDI inflows. According to Table 1 below, the global FDI inflows grew from an average of US\$200 billion in the period 1989-1995 to US\$127 trillion in 2000, which is an increase of 535 percent. Looking only at developing countries the increase remained high at 307 percent. During the same period, however FDI inflows to MENA only increased at a rate of 71 percent and by the year 2000 the region's share in terms of the world was only 0.4 percent. Although from 1985 to 2000 the net FDI flows to the region positively increased as FDI stock rose from US\$39.2 billion in 1985 to US\$85.3 billion in 2000.

<sup>2</sup> Kamaly (2002) found economic growth and the lagged value of FDI/GDP as the only significant determinants of FDI flows to the MENA region using a dynamic panel model which covered the period 1990-1999. He did not consider the institutional factors that affect FDI flows to the region.

**Table 1.** Regional Average FDI Inflows for the Period 1989-2000 (in millions of US\$)

Group	1989-1994	1996	1997	1999	2000
World	200,145	384,910	477,918	1,075,049	1,270,764
Developed countries	137,124	219,688	271,378	829,818	1,005,178
Developing countries	59,578	152,493	187,352	222,010	240,167
MENA Region	2918	3334	6973	2617	4995
MENA Region/World	1.46%	0.87%	1.46%	0.24%	0.39%

Source: UNCTAD (2001); World Investment Report (2001): Promoting Linkages, New York, Geneva.

Although the FDI/GDP ratio in the MENA region increased to 1.27 percent in 1998, it has been declining ever since, and has remained below 1 percent. Notice from Table 2 that Sub-Saharan Africa (SSA), which is often regarded as one of the poorest regions in the world, attracted substantially more FDI than the MENA region during the past decade. Despite the MENA region being home to some of the richest oil-producing countries in the world and almost two decades of implementation of structural adjustment, it continues to attract abysmal flows of FDI compared to SSA that received about 10 times more FDI than MENA in 1999.

**Table 2.** Net FDI Inflows as a Percentage of GDP in Developing Countries

	1996	1998	1999	2001	2002
MENA	0.35	1.27	0.25	0.79	0.34
Sub-Saharan Africa	1.57	2.01	2.47	4.40	2.19
South Asia	0.68	0.64	0.53	0.66	0.76
East Asia & Pacific	-	4.1		2.88	3.17
Latin America & Caribbean	2.28	3.5	5.02	3.63	2.47

Source: World Development Indicators (2007).

The MENA countries' capability to attract FDI was not spread equally. As Table 3 shows the MENA countries can be classified into seven groups according to the levels of FDI inflows. It is also observed from the table that the FDI inflows directed to MENA countries are highly concentrated in a few countries. Saudi Arabia, Egypt, United Arab Emirates attract more than five milliard FDI inflows. On the opposite extreme side Djoubiti, Palestinian Territory, Mauritania, Yemen attracts the lowest amounts of FDI inflows in the region in 2006. Concerning FDI outflows from MENA countries, Table 3

also, shows that 2 countries experience FDI outflows for more than 2 milliard dollar annually while the rest of countries have very low levels of FDI outflows.

**Table 3.** MENA Countries: Distribution of FDI Flows among Economies, (2006, billion dollars)

Range	Inflows	Outflows
Equal or over 5	Saudi Arabia, Egypt, United Arab Emirates	Kuwait
3-4.9	Sudan, Tunisia, Jordan	-
2-2.9	Morocco, Bahrain, Lebanon	United Arab Emirates
1-1.9	Algeria, Libya, Qatar	-
0.5-0.9	Oman, Syrian Arab Republic	Bahrain, Saudi Arabia
0.1-0.4	Iraq Kuwait	Morocco, Oman
Equal or less than 0.1	Djoubiti, Palestinian Territory, Mauritania, Yemen	Lebanon, Algeria, Egypt, Libya, Sudan, Tunisia, Qatar

*Source:* UNCTAD, FDI/TNC database ([www.unctad.org/fdistatistics](http://www.unctad.org/fdistatistics)) and annex Table B.1.

*Note:* Economies are listed according to the magnitude of FDI.

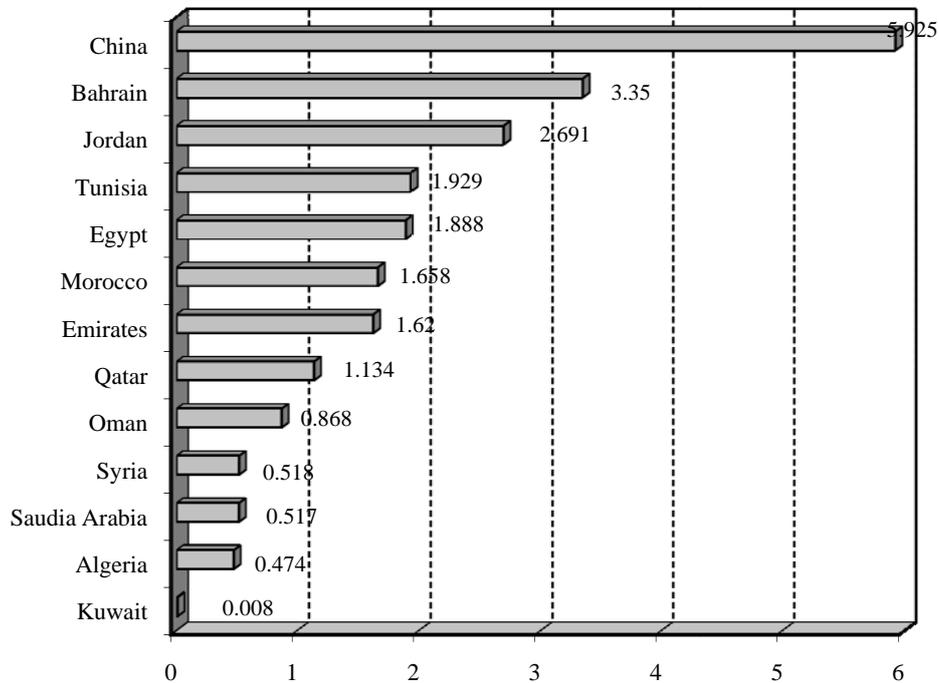
## 2.2. Are MENA Countries Successful in Attracting FDI?

To answer this question, we need to look at the measures of the FDI performance in MENA countries, and this can be done by using the UNCTAD performance and Potential index and then to see the business climate in the region as shown below.

### 2.2.1. FDI Inward Performance Index

To gauge the performance of the countries in the region, we compare them by using the FDI inward performance and Potential index reported in UNCTAD (2004).<sup>3</sup> Using FDI inward performance index, it is observed that, for the periods 1985-2006, Bahrain, Jordan, and Tunisia were at the top of MENA countries in attracting FDI, while Kuwait and Algeria were not very successful in attracting FDI during this period (see Figure 1).

<sup>3</sup> To measure the performance we use the Inward FDI Performance Index, which is a measure of the extent to which a host country receives inward FDI relative to its economic size. It is calculated as the ratio of a country's share in global FDI inflows to its share in global GDP. A value greater than one means that the country/region in question attracts more of the world total FDI flows than that region/country share of world output.



Source: UNCTAD, World Investment Report, Various Issues.

**Figure 1.** FDI Inward Performance Index for MENA Countries, 1995-2006.

### 2.2.2. FDI Inward Potential Index

With regard to the inward FDI Potential index,<sup>4</sup> the performance of the MENA countries was uneven in terms of world ranking as shown in Table 4 below. While some countries made some advances, others either receded or remained in a relatively stable position between 2000-2002, and 2003-2005. Morocco, Tunisia, Syria, and Algeria, for

<sup>4</sup> To measure Potential we use the inward FDI Potential Index which is based on 12 economic and structural variables measured by their respective scores on a range of 1-0. It is unweighted average of 12 economic and structural variables for scores on the following: GDP per capita, the rate of growth of real GDP, the share of exports in GDP, telecoms infrastructure (the average no. of telephone lines per 1,000 inhabitants, and mobile phones per 1,000 inhabitants), commercial energy use per capita, share of R&D expenditures in gross national income, share of tertiary level students in the population, country risk, export of natural resources as a percentage of the world total, imports of parts and components of electronic and automobiles as a percentages of the world total, exports of services as a percentage of the world total and inward FDI stock as a percentage of the world total.

example, moved upwards in the potential ranking index in 2000-2002 compared with 2000-2005, whereas Jordan, Egypt and Lebanon moved downwards in their potential ranking.

**Table 4.** Inward FDI Potential Index for Some Selected MENA Countries

Economy	2000-2002 Score(0-1)	Rank	2003-2005 Score(0-1)	Rank
Jordan	0.256	45	0.204	59
Morocco	0.157	93	0.144	92
Tunisia	0.182	71	0.190	68
Egypt	0.182	70	0.166	81
Lebanon	0.205	60	0.178	75
Syria	0.146	100	0.144	93
Algeria	0.176	76	0.203	61

Source: UNCTAD, World Investment Report (2004).

### 2.2.3. Institutional and Business Environment in MENA Countries

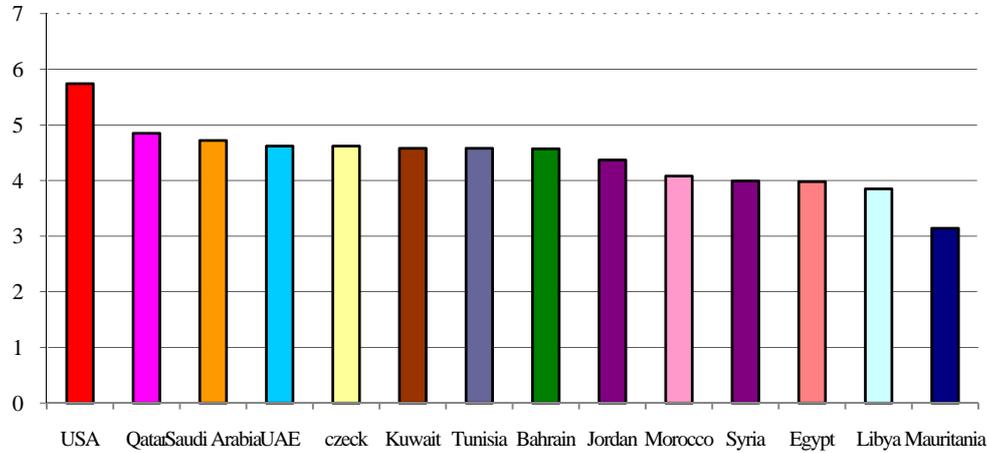
Empirical analysis shows that the regulatory framework and the bureaucratic system affecting the business climate have a direct influence on FDI. For instance, a study conducted by the World Bank (2003) across 69 countries shows that the time spent by managers dealing with bureaucracy to obtain licences and permits is associated with lower levels of FDI, after controlling for market size, human capital and macroeconomic stability. Regarding the climate business in MENA, Table 5 reports some business climate indicators for MENA and other developed countries. It follows that the Arab countries, especially the lowest ranking among them, need to make a greater efforts to simplify project start-up measures and, in particular to reduce bureaucracy. With regard to the number of procedures required to set up a project in the Arab countries, Morocco ranks first with just five procedures, followed by Lebanon, which requires six procedures. The time required to complete the procedures is long in most Arab countries except for Morocco and Tunisia, which have succeeded in shortening it to some extent. With regard to the enforcement of contracts, Morocco and Tunisia lead the Arab countries in reducing the number of procedures to a level equivalent to, or less than, that of such developed countries as Canada and United States of America. The figures show that some Arab countries still impose complex administrative and judicial procedures and lack transparency in law enforcement, which prompt some investors to resort to extrajudicial means to solve their problems more speedily, even if the cost involved are higher. That has an adverse impact on the investment climate and hence undermines the efforts of a country to increase its share of global investment flows, which have become the most important development-funding source for developing countries (ESCWA, 2007).

**Table 5.** Business Environment in MENA Countries, 2005

Country	Business Facilitation Index		Challenges to Project Establishment			Contract Enforcement	
	World Ranking	Arab Ranking	Number of Procedures	Time Taken (days)	Cost (as percentage of per capita income)	Number of Procedures	Time Taken (days)
<b>Diversified MENA Countries</b>							
Egypt	165	12	10	34	104.9	55	410
Jordan	73	5	11	36	45.9	43	342
Lebanon	87	7	6	46	110.6	39	721
Syria	135	11	12	47	34.5	47	672
Algeria	123	10	14	26	25.3	49	407
Morocco	117	9	5	11	12	17	240
Tunisia	77	6	9	14	10	14	27
Yemen	101	8	12	63	240.2	37	360
<b>GCC Countries</b>							
Kuwait	40	2	13	35	2.2	51	390
Oman	52	3	9	34	4.8	41	455
Saudia Arabia	35	1	13	64	68.5	44	360
UAE	68	4	12	54	44.3	53	614
<b>Selected Developed Countries</b>							
Australia	9	2	2	1.9	11	157	1
Canada	4	2	3	0.9	17	346	1
USA	3	5	5	0.5	17	250	2

Source: Economic and Social Commission for Western Asia (ESCWA), (2007) and World Bank, Doing Business Report (2006)

The competitiveness of most MENA countries covered by the Global Competitiveness Index (GCI) shows a robust upward trend. Record oil prices coupled with sound policies over the past few years have buoyed economic growth across the Middle East and North Africa region. Business environment reforms, investment in infrastructure, and targeted diversification are now paying off in many countries through higher competitiveness rankings. The rising energy prices have benefited not only the hydrocarbon exporters, but have also generated spillover effects throughout the entire region through increasing intraregional FDI. However, while the Gulf economies tend to improve in the rankings this year, all North African countries lose positions. As shown in Figure 2 below, the most competitive among Gulf countries are Qatar, Saudi Arabia, and United Arab Emirates. Tunisia tops the rankings among the North African countries, preceding Bahrain by a narrow margin.



Source: WEF, Global Competitiveness Report 2007-2008.

**Figure 2.** Global Competitiveness Index 2007-2008<sup>5</sup>

### 3. MODEL SPECIFICATION AND ECONOMETRIC METHODOLOGY

#### 3.1. The Model

As the objective of this paper is to examine the main determinants of FDI in MENA countries, a simple econometric framework is adopted. To examine the basic determinants of FDI, the following model will be estimated

$$FDI_{it} = f(LnGDP_{it}, FDev_{it}, Inst_{it}, Policy_{it}, Z_{it}), \quad (1)$$

where  $FDI_{it}$  refers to foreign direct investment as a share of GDP;  $LnGDP$  measure of market size;  $FDev_{it}$  is a measure of financial development;  $Inst_{it}$  it is a measure of institutional development;  $Policy_{it}$  represent measures of macroeconomic policies;  $Z_{it}$  is a set of other exogenous control variables. However, the Appendix describes in details the data used in the empirical analysis.

<sup>5</sup> Global Competitiveness Index is a measure summarizing the quality of the main aspects of a country's business climate (contracts and law, corruption, ICT infrastructure, access to credit, innovation and the efficiency of public spending). The index ranges from 1 (worst) to 7 (best).

### 3.2. Econometric Methodology

To analyze the determinants and the role of FDI in the economic growth of our sample countries we employ both fixed and random panel data techniques. In fact the use of panel data allows not only to control for unobserved (cross-sectionally) heterogeneity but also to investigate dynamic relations.<sup>6</sup> Moreover, Equation 1 and 2 above, represent a simple panel regression model that facilitate the discussion of unobserved heterogeneity issues and they are derived from the general framework as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \varepsilon_{it}, \quad (2)$$

and

$$\varepsilon_{it} = \alpha_i + \mu_{it}, \quad (3)$$

or

$$Y_{it} = \beta_i + \beta_1 X_{it} + \mu_{it}, \quad (4)$$

where,  $\beta_i = \beta_0 + \alpha_i$ . That is, this simple model allows the panel error term ( $\varepsilon_{it}$ ) to have two components: an individual-specific, time-invariant component,  $\alpha_i$  - the source on “unobserved heterogeneity”; and a time-varying idiosyncratic component,  $\mu_{it}$ . In discussion of this model, we maintain the assumption that the time-varying error term ( $\mu_{it}$ ) satisfies all the desirable statistical properties (in particular,  $\mu_{it}$  will be assumed to be uncorrelated with  $X_{it}$ ), and concentrate attention on the relationship between  $\alpha_i$  and  $X_{it}$ .

Model (4) is a “heterogeneous intercepts” model: generally,  $\beta_1$  is the parameter of interest and  $\alpha_i$  (or  $\beta_i$ ) are nuisance parameters. However, the OLS estimator may fail the Gauss-Markov theorem in two ways: First, if the  $\alpha_{i's}$  are not all zero (i.e., there is heterogeneity), but  $\alpha_i$  is uncorrelated with  $X_{it}$ : in this case, OLS will provide consistent estimation of  $\beta_1$ , but the standard error will be biased leading to invalid inference. Second, as well as heterogeneity existing, is correlated with  $X_{it}$ : in this case, OLS estimation will be biased. These two cases essentially distinguish what are called

<sup>6</sup> Obviously cross-sectional data provides only a snapshot of the point-in-time distribution of outcome across the sample, and will not inform on the dynamic/adjustments; in contrast, repeated observations on the same individuals will help inform the dynamics.

“random effects” and “fixed effects” approaches respectively.

However, Panel data analysis requires choosing the appropriate specification between fixed and random effects models. The fixed effects model assumes that  $u_i$  are fixed, time-invariant parameters, and the  $X_{it}$  are independent of the  $v_{it}$  for all  $i$  and  $t$ . When  $N$  is large, the fixed effects model involves too many individual dummies, which may aggravate the problem of multicollinearity among the regressors. The fixed effects ( $FE$ ) least square, also known as least squares dummy variables ( $LSDV$ ), suffers therefore from a large loss of degrees of freedom. Moreover, the  $FE$  cannot estimate the effect of any unobservable variable like entrepreneurial or managerial skills, religion, culture or government authorities’ ability to manage a country and attract FDI. Nevertheless, the issue of too many parameters in the  $FE$  model and its corollary problem of loss of degrees of freedom can be avoided if the  $u_i$  is assumed to be random (Balgati, 2003). That is the random effects ( $RE$ ) model where  $X_{it}$  are assumed independent of the  $u_i$  and  $v_{it}$ , for all  $i$  and  $t$ . The  $RE$  however, is appropriate only when the random process is conducted from a large population. Moreover, Greene (2003) suggests that the  $RE$  approach may suffer from the inconsistency due to omitted variables because of the treatment of the individual effects as uncorrelated with the other regressors. Finally to determine which of the two alternative models (fixed versus random effects) should be chosen, we use Hausman’s (1978) specification test.

#### 4. EMPIRICAL RESULTS

Table 6 shows the results of the panel regression. In the first specification, we tested for the main determinants of FDI in the whole sample of countries. The regression includes both internal and external factors, but with special emphasis on the financial, institutional and the market size variables. Both the financial and the market size variable exhibit positive sign in most of the specifications. The coefficient of the variable,  $\ln(\text{GDP})$  (i.e., the size of the market) accurately reflects theoretical expectations. The significance of the variable even in log form confirms that the relationship between FDI and Market size is not a simple linear relationship, but one in which the benefit from expanding the market size is increasing but at a decreasing rate. With regards to the other internal factors (i.e., infrastructure, natural resources, market potential and growth expectations) they are all significant and have their expected positive sign.

**Table 6.** Fixed Effects Panel Least Squares Estimation of the Determinants of FDI  
(All Countries, Full Sample), 1975-2006, First Specification  
Dependent Variable: FDI/GDP

	Equation (1)	Equation (2)	Equation (3)	Equation (4)
<b>Domestic Factors:</b>				
Market Size: $\ln(\text{GDP})$	122.03* (0.004)	98.15* (0.058)	56.17*** (0.011)	59.12*** (0.000)
<b>Financial Development Variable:</b>				
FINDEX	2.100*** (0.001)	0.051*** (0.000)	0.041 (0.712)	0.581** (0.026)
<b>Institutional Quality variables:</b>				
Investment Profile			0.027*** (0.002)	1.781* (0.071)
Corruption			-0.028*** (0.008)	-0.076** (0.011)
<b>Policy Variables:</b>				
Inflation Rate: INF	-0.004*** (0.006)	-0.067** (0.081)		
Government Spending: GOV			-2.21*** (0.005)	
<b>Other Variables:</b>				
Infrastructure: TELL	0.132 (0.802)			
Natural Resources: $\ln(\text{FuelEX})$		0.046*** (0.001)		
Market Potential: POPG			0.005*** (0.002)	
Growth Expectations: GDPGR				0.033* (0.075)
<b>External Factors:</b>				
Global Liquidity: GLQGR	-0.45 (0.989)			
Trade openness : LOPN		12.43** (0.025)		
No of Countries	24	24	24	24
Adjusted- $R^2$	0.42	0.56	0.42	0.61

Notes: Probability values are in the brackets (\*\*\*) significant at 1 percent level; \*\* significant at 5 percent level; and \*significant at 10 percent level). Financial market depth is measured by Financial Development Index (FINDEX).  $\ln(\text{FuelEX})$  is the log value of fuel export as (% of merchandize exports); LOPN is the log value of trade openness. In the case of Institutions the sample is limited to the period from 1984 to 2003.

**Table 7.** Fixed Effects Panel Least Squares Estimation of the Determinants of FDI (MENA Countries), 1975-2006, Second Specification  
Dependent Variable: FDI/GDP

	Equation (1)	Equation (2)	Equation (3)	Equation (4)
<b>Domestic Factors:</b>				
Market Size: $\ln(\text{GDP})$	122.03* (0.004)	98.15* (0.058)	56.17*** (0.011)	59.12*** (0.000)
<b>Financial Development Variable:</b>				
FINDEX	(0.315) 0.121	(0.000) 0.022	(0.012) 0.037	(0.012) 0.053
<b>Institutional Quality variables:</b>				
Investment Profile			2.02* (0.072)	1.781** (0.009)
Corruption			-0.512*** (0.000)	-0.512*** (0.009)
<b>Policy Variables:</b>				
Inflation Rate: INF	-0.0324* (0.071)			
Government Spending: GOV		-0.31*** (0.003)	-2.21*** (0.005)	
<b>Other Variables:</b>				
Infrastructure: TELL	-0.002 (0.006)			
Natural Resources: $\ln(\text{FuelEX})$		0.006* (0.072)		
Market Potential: POPG			-0.005 (0.876)	
Growth Expectations: GDPGR				0.121*** (0.000)
<b>External Factors:</b>				
Global Liquidity: GLQGR	-0.45 (0.989)			
Trade openness : LOPN		0.434 (0.678)		
No of Countries	12	12	12	12
Adjusted- R2	0.52	0.56	0.67	0.61

Notes: Probability values are in the brackets (\*\*\*) significant at 1 percent level; \*\* significant at 5 percent level; and \*significant at 10 percent level). Financial market depth is measured by Financial Development Index (FINDEX).  $\ln(\text{FuelEX})$  is the log value of fuel export as (% of merchandize exports); LOPN is the log value of trade openness. In the case of Institutions the sample is limited to the period from 1984 to 2003.

The result is also strong and significant for the most of the determinants of FDI in our sub-sample MENA countries Table 7. The market size and institutional variables are both significant and carry their expected positive signs. But the financial development variable shows no significant effect on all specifications. As expected, FDI increase as economic growth -one of the control variables- strengthens, a result that holds across all country groupings in the two samples. GDP growth, which is the indicator of the market prospects, is positive across all specifications in MENA sample. The infrastructure index, which is one of the major determinants of FDI in developing countries, is statistically insignificant across all specifications. This reveals that infrastructure in MENA countries is not well developed to attract FDI inflows to the region. Another major factor that determines FDI inflows into MENA countries is natural resources.<sup>7</sup> This result may reflect the fact that much of the FDI flows to MENA countries goes to natural-resource economies.<sup>8</sup>

## 5. CONCLUSIONS AND POLICY IMPLICATIONS

The paper is concerned with the analysis of the main determinants of foreign direct investment in MENA countries. The estimation is run for both MENA and developing countries on the determinants of FDI over the period 1975-2006. Unlike other previous studies (e.g., Onyeiwu, S., 2003; Chan *et al.*, 2004; Hisarciklilar, M., Kayalica, O., and S.S., 2006; and Kamaly, 2002) on the determinants of FDI in MENA we test for the internal as well as the external factors. After conducting both random and fixed test, we choose fixed test methodology and that according to Hausman test. The econometric strategy used is to investigate whether the determinants of FDI are similar to that of other FDI receiving developing countries. The study reveals that the key determinants of FDI inflows in MENA countries are the size of the host economy, the government size, natural resources and the institutional variables. The external factors represented by global liquidity and trade variables show any significant effect on the determinants of FDI in MENA countries. The paper concludes that, countries that are receiving fewer foreign investments could make themselves more attractive to potential foreign investors. So, the policy makers in the MENA region should remove all barriers to trade, develop their financial system and build appropriate institutions.

The results have several policy implications. First, it suggest that, to attract FDI flows the policy makers in the MENA region should remove all barriers to trade, develop their financial systems, reduce the level of corruption, improve policy environment, and build

<sup>7</sup> According to literature survey, about 30% of FDI to developing countries are directed to countries that are oil and gas exporters and another 12% of FDI to countries that are rich in mineral resources.

<sup>8</sup> Over 80 percent of FDI in the region is concentrated in the following resource-rich countries: Saudi Arabia, Egypt, Tunisia, Bahrain and Morocco (Eid and Papua, 2003).

appropriate institutions. Secondly, policies aimed at reducing the size of the government through privatization and reducing macroeconomic instability are important and should not be overlooked.

## **Appendix**

### **A. List of Countries**

Sample (1): MENA Countries: Algeria, Egypt, Jordan, Morocco, Syria, Tunisia, Bahrain, Kuwait, Oman, Qatar, Saudi Arab and, UAE.

Sample (2): Developing Countries; (a) East Asia & Pacific-China, Malaysia, Papua New Guinea, Philippines, and Thailand (b) Latin America and Caribbean-Argentina, Bolivia, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, and El Salvador (c) South Asia-Bangladesh, Pakistan, and Sri Lanka (d) Sub-Saharan Africa-Botswana, Cameroon, Cote I'voire, Kenya, Nigeria, South Africa, and Sudan.

### **B. Data Sources and Description**

The panel data set used for this analysis covers 12 MENA and 24 other FDI receiving countries and runs from 1975-2006. The database has been built using a number of different sources. The main source was the World Development Indicators (WDI) database, compiled by the World Bank (2007), unless other indicated. All values used in the analysis are expressed in US dollars in real terms. Next, we describe the data used in the empirical analysis, specifically the measures of institutions, financial market development, economic growth, and a number of controlling variables typically used in growth regression.

*Foreign Direct Investment:* There are several sources for data on FDI. An important source is the IMF publication "International Financial Statistics (IFS)", (2000), which reports the Balance of Payments statistics on FDI. Net FDI inflows, reported in the IFS, measure the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. Gross FDI figures reflect the sum of the absolute value of inflows and outflows accounted in the balance of payments financial accounts. Our model focuses on the inflows to the economy; therefore, we prefer using the net inflow as a share of GDP. IMF International Financial Statistics CD-ROM 2007 and World Development Indicators (WDI), World Bank (2007).

*Measures of Financial Development:* We have introduced a new variable, Financial Sector Development Index (FINDEX) to examine whether it provides a better measure of financial sector development. The FINDEX is constructed by using the weighted average of liquid liabilities, credit to private sector and credit by banks to the private

sector.

$$FINDEX_{it} = \frac{1}{m} \sum_{j=1}^m \left( \frac{F_{j,it}}{F_j} \right).$$

(Source: World Development Indicators (WDI), World Bank (2007))

*Measures of Institutions Quality:* A number of studies have used indexes published under ICRG and BERI to assess the impact of institutional quality on key macroeconomic variables such as investment, productivity, and economic growth. Keefer and Knack (1995) used an index compiled from ICRG and BERI. Demirguc-Kunt and Detragiache (1998) have used five variables from ICRG and WCR indices as a proxy for estimating the extent to which the quality of institutions affects financial liberalization and the probability of a banking crisis. The variables used are the rule of law, bureaucratic delay, the quality of contract enforcement, the quality of bureaucracy, and the degree of corruption. They found all of the variables to be significant, except bureaucratic delay, in reducing the probability of a banking crisis for panel data from 53 countries.

For our analysis we have taken two variables from ICRG<sup>10</sup> to measure as a proxy the institutional quality, these are: level of corruption<sup>11</sup> in government and investment profile.<sup>12</sup>

*Measures of Market size:* Market size (GDP) is measured by the log value of Gross Domestic Product of each country in US Dollars (2002). The larger the host economy, meaning the larger the market of the country, the more FDI is expected. Thus a positive association between FDI and GDP is expected. (Source: World Development Indicators (WDI), World Bank (2007))

*Policy Measures:* A number of macroeconomic policy measures have been considered in the literature to investigate the importance of policies in explaining

<sup>9</sup> From ICRG Keefer and Knack (1995, 1997) included variables: level of corruption in government, quality of bureaucracy, rule of law, expropriation risk, and repudiation of contracts by government and from BERI, infrastructure quality, bureaucratic delay, contract enforceability and nationalization potential indices to assess the impact of quality of institutions on investment and economic growth.

<sup>10</sup> The ICRG data is available continuously from 1984 onwards.

<sup>11</sup> Corruption: A 0-6 index where lower scores indicate that "high government officials are likely to demand special payments and those illegal payments are generally expected throughout lower levels of government in the form of bribes connected with import and export licenses, exchange controls, tax assessment, police protection, or loans."

<sup>12</sup> Investment profile, includes assessment in contract viability/expropriation, profits repatriation, and payment delays.

cross-country differences in economic performance. Following this literature, measures used in our analysis include.

*Inflation:* Inflation change is commonly used as an indicator of macroeconomic instability. High inflation distorts economic activity and reduces investment in productive enterprises, thus reducing economic growth. Therefore, a negative relationship between inflation rate and FDI flows is hypothesized. This study uses change in inflation rate (CPI). (*Source:* World Development Indicators (WDI), World Bank (2007))

*Government Size:* It is measured as the average of government expenditure as a ratio to GDP. Like inflation, government expenditure is also used as a measure of macroeconomic instability. (*Source:* World Development Indicators (WDI), World Bank (2007))

*Global Liquidity:* Changes in the sum of money supply (M1) and official reserve in the euro area, Japan, and the United States, a common general proxy for global liquidity. (*Source:* IMF International Financial Statistics, CD-ROM, 2007)

*Trade openness:* A country's trade policies may increase the incentives to invest in the country if these policies increase the profitability of investment. Foreign investors may be attracted to a country with an export-oriented strategy (i.e., an open trade policy) if the government provides incentives to produce export goods. However, if a country adopts an import-substitution strategy, foreign investors may also be attracted if they can produce and sell their products in the domestic markets under government protection. Thus, the more open a country's trade policy the more it is likely to attract foreign capital investors. So, openness is measured as the sum of imports and exports as a percentage of nominal GDP (Levine *et al.*, 2000). (*Source:* World Development Indicators (WDI), World Bank (2007))

### **C. Additional Variables**

An additional set of explanatory variables is often used either as part of the standard framework or to test for the robustness of the results, and several of these variables are also included in our current sample, as follows.

*Measure of Infrastructure Quality:* The availability of quality of infrastructure is an important determinant of FDI. When developing countries compete for FDI, the country that is best prepared to address infrastructure bottlenecks will secure a greater amount of FDI. The previous literature shows the positive impact of infrastructure facilities on FDI inflows (Wheeler and Mody, 1992; Kumar *et al.*, 1994; Asiedu, 2002). In this paper I use the telephone line main subscribers as per 1000 person as a proxy for Infrastructure quality. (*Source:* World Development Indicators (WDI), World Bank (2007))

*Natural Resources:* Studies on FDI flows to developing countries consistently show that natural resource availability is very important for attracting FDI (Jenkins and Thomas, 2002; Morisset, 2000). For instance, oil-rich Angola received the largest volume of FDI in Africa in 1998, despite its classification as the most unstable country in the region (UNCTAD, 1998). Natural resource availability also explains why Egypt, Morocco, and Tunisia accounted for much of the flow of FDI to the MENA region in 1999 (UNCTAD, 2000). In this study I use fuel exports as a share of merchandise export as a proxy for Natural Resources. (*Source:* World Development Indicators (WDI), World Bank (2007))

*Market Potential:* A country's population may also proxy domestic market potential. That is, the larger the population the higher the market potential, and the more likely for foreign investors to invest in that market. Thus, some MENA countries may be attractive to foreign investors because of its large potential market, even if its present purchasing power is still low. Thus, a positive relationship is hypothesized. (*Source:* World Development Indicators (WDI), World Bank (2007))

*Growth Expectations:* Adaptive expectation for growth measured as real GDP growth rate in the previous year. (*Source:* World Development Indicators (WDI), World Bank (2007))

## REFERENCES

- Adji, S.S. (1995), "The Effects of Macroeconomic and Political Factors on Capital Flows to Developing Countries," PhD Dissertation, Claremont Graduate School.
- Amirahmadi, H., and W. Wu (1994), "Foreign Direct Investment in Developing Countries," *The Journal of Developing Areas*, 28, 2, 167-190.
- Asiedu, E. (2002), "On the Determinants of Foreign Direct Investment Developing Countries: Is Africa Different?" *World Development*, 30(1), 107-119.
- Baltagi, B.H. (2003), *Econometrics Analysis of Panel Data*, Chichester, England, John Wiley & Sons LTD.
- Chan, K.K., and E.R. Gemayel (2004), "Risk Instability and the Pattern of Foreign Direct Investment in the Middle East and North Africa Region," IMF Working Paper, 04/139, 1-20.
- Choi, I. (1995), "Export-Oriented Foreign Direct Investment in East Asia and Latin America: Determinants of Locations," PhD Dissertation, Colombia, South Carolina: University of South Carolina.

- Demirguc-Kunt, A., and E. Detragiache (1998). "The Determinants of Banking Crises in Developed and Developing Countries," IMF Working Paper, 106.
- Dunning, J.H. (1994), "Re-evaluating the Benefit of Foreign Direct Investment," *Transitional Corporations*, 3(1), 23-51.
- Economic and Social Commission for Western Asia (ESCWA) (2007), "Report on Foreign Direct Investment Inflows in the ESCWA Regions," United Nations, New York, 13-38.
- Eid, F., and F. Paua (2003), "Foreign Direct Investment in the Arab World: The Changing Investment Landscape," *Arab Competitiveness Report*, World Economic Forum, 108-119.
- Findlay, R. (1978), "Some Aspects of Technology Transfer and Foreign Direct Investment," *American Economic Review*, 68, 275- 279.
- Green, W. (2003), *Econometrics Analysis*, 5<sup>th</sup> Edition, Prentice Hall.
- Hausman, J.A. (1978), "Specification Tests in Econometrics," *Econometrica*, 46(6), 1251-1271.
- Hisarciklilar, M., O. Kayalica, and S.S. Kayam (2006), "Locational Drivers of FDI in MENA Countries: A Spatial Attempt," Munich Personal RePEc Archive (MPRA) Paper. Institution: Istanbul Technical University Faculty of Management, ID Code 2085, pp.1-20.
- International Monetary Fund (2007), *International Financial Statistics Yearbook 2007*, Washington D.C.: IMF.
- Jenkins C., and L. Thomas (2002), "Foreign Direct Investment in Southern Africa: Determinants, Characteristics and Implications for Economic Growth and Poverty Alleviation," Working Paper, Oxford: Center for the Study of African Economies, Oxford University.
- Jun *et al.* (1996), "The Determinants of Foreign Direct Investment in Developing Countries," 5(2), 67-105.
- Kamaley, A. (2002), "Evaluation of FDI Flows into the MENA Region," *Economic Department*, the American University in Cairo.
- Keefer, P., and S. Knack (1995), "Institutions and Economic Performance: Cross-Country Tests Using alternative Institutional Measures," *Economics and Politics*, 7(3), 207-227.
- \_\_\_\_\_ (1997), "Why Don't Poor Countries Catch Up? A Cross National Test of Institutional Explanation," *Economic Inquiry*, 35(3), 590-602.
- Korgstup, S., and L. Matter (2005), "Foreign Direct Investment, Absorptive Capacity and Growth in the Arab World," HEI Working Paper, 02/2005, Graduate Institute of International Studies, Geneva, 1-23.
- Kumar, N., and N.S. Siddharthan (1994), "Technology, Firm Size and Export Behaviour in Developing Countries: The Case of Indian Enterprises," *The Journal of Development Studies*, 31(2), 289-309.
- Levine R., N. Loayza, and T. Beck (2000), "Financial Intermediation and Growth: Causality and Causes," *Journal of Monetary Economics*, 46, 31-77.

- Moosa, I.A., and B.A. Cardak (2005), "The Determinants of Foreign Direct Investment in MENA Countries: An Extreme Bound Analysis," The 12 Annual Conference of the Economic Research Forum, Cairo, Economic Research Forum, 1-13.
- Morisset, P. (2000), "Foreign Direct Investment to Africa: Policies also Matter," *Transnational Corporation*, 9(2), 107-125.
- Onyeiwu, S. (2003), "Analysis of FDI Flows to Developing Countries: Is MENA Different?" ERF 10 Annual Conference, Marrakesh, Morocco, 1-22.
- Organization of Economic Cooperation and Development (OECD) (1998), "Foreign Direct Investment and Economic Development: Lessons of Six Emerging Economies," Paris: OECD.
- Poon, J., and E. Thompson (1995), "Foreign Direct Investment and Economic Growth: Evidence from Asia and Latin America," *Journal of Economic Development*, 23(2), 141-160.
- Said, M., and M. Linda (2007), "Foreign Direct Investment in the Middle East and North Africa Region," *Journal of Global Business Advancement*, 1(1).
- United Nations Conference on Trade and Development (UNCTAD) (1995), *World Investment Report*, Geneva and New York: United States.
- \_\_\_\_\_ (1998), *World Investment Report 1998: Trends and Determinants*, New York and Geneva: United Nations.
- \_\_\_\_\_ (2000), *World Investment Report 2000: Cross-border Mergers and Acquisitions and Development*, New York and Geneva: United Nations.
- \_\_\_\_\_ (2001), *World Investment Report 2001: Promoting Linkages*, New York and Geneva: United Nations.
- \_\_\_\_\_ (2003), *World Investment Report, FDI Policies for Development: National and International Perspectives*, Geneva: United Nations.
- \_\_\_\_\_ (2004), *World Investment Report, the Shift towards Services*, Geneva: United Nations.
- Wang, J.Y., and M. Blomström (1992), "Foreign Investment and Technology Transfer: A Simple Model," *European Economic Review*, 36, 137-155.
- Wheeler, D., and A. Mody (1992), "International Investment Location Decisions: The Case of US Firms," *Journal of International Economics*, 33.
- Whiteside, A.W. (1989), *Industrialisation and Investment Incentives in Southern Africa*, Pietermaritzburg, University of Natal Press.
- World Bank (2003), *Trade, Investment and Development in the Middle East and North Africa: Engaging with the World*, World Bank, Washington, D.C.
- \_\_\_\_\_ (2006), *Doing Business Report*, www.doingbusiness.com.
- \_\_\_\_\_ (2007), *World Development Indicators, 2007*, World Bank, Washington, D.C.
- Zhang, K.H. (2001), "Does Foreign Direct Investment Promotes Economic Growth? Evidence from East Asia and Latin America," *Contemporary Economic Policy*, 19, 175-185.

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