IMPACT OF DIFFERENT MEASURES OF ECONOMIC FREEDOM ON FDI AND ECONOMIC DEVELOPMENT IN THE MENA REGION

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Abstract: *Our study investigates the relationship between foreign direct investment (FDI), economic freedom, and economic growth in ten Middle Eastern and North African (MENA) countries using panel data that covers the period of 2004 to 2008. We utilize ten different measures of economic freedom in our estimation which reveals that not all of the indices for economic freedom have a significant impact. When investigating economic growth, we find that three out of the ten economic freedom indices have a significant positive impact on economic development: property rights, trade freedom, and monetary freedom. When investigating FDI, we find that four out of ten factors are important for increasing inflow of FDI in MENA countries: property rights, trade freedom, monetary freedom, and financial freedom . The results from this study also reveal compelling evidence of a positive impact of FDI on the economic development of the MENA region during the period of our study. Overall, our empirical investigation reveals that MENA countries will benefit from policies of economic freedom in attracting FDI leading to economic development.*

Keywords: GDP, FDI, Economic Freedom Indices, MENA countries

JEL Classification: E22, E24, F43 and F47

Field: Financial Economics

I. INTRODUCTION

Over the past few decades, foreign direct investments (FDI) have played an important role in the growth plan of many developing countries. Developing countries treat FDI as a source to overcome deficiencies in domestic investment as well as a source to learn and use the improved technologies of developed nations. According to the *United Nations Conference on Trade and Development* (UNCTAD) (2010), developing countries witnessed an increase in FDI inflow of 11.5% during the 2007-2008 year, whereas FDI inflow in developed nations decreased by 29.4% during the same time period.[1] The increased inflow of FDI in developing nations emphasizes the important role FDI is still playing in these economies. Researchers such as Zang (2001), Sun and Parikh (2001), Barrell and Pain (1997), Hsiao and

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Mei-cha Hsiao (2006), Hansin and Rand (2006), and others have found a positive relationship between FDI and economic development.

Although the overall FDI inflow is increasing in developing nations, some developing countries are lagging behind in FDI inflow. UNCTAD (2010) reveals that, from the 2000 to 2008 period, Latin American countries experienced the highest increase in FDI inflow (86%), and followed by China (68%). During the same time period, FDI inflow in Middle East and North African (MENA) countries increased only by 17%. This relatively low FDI inflow has attracted researchers' interest in investigating the role of FDI in the MENA region. However, the studies investigating the role of FDI in this region show mixed results. At the micro level, Sadik and Bolbol (2001) investigated six MENA countries, including Morocco. They found that FDI did not manifest in spillover on the total factor productivity over and above those of other types of domestic capital formation. Haddat and Harrison (1993), on the other hand, found FDI to have a higher positive impact on the total factor productivity. At the macro level, Al-Iriani and Al-Shamsi (2007), using a heterogeneous panel analysis for six MENA countries, found a bi-directional causality between FDI and GDP. Their results imply that higher FDI will promote economic growth, and higher economic growth will also attract more FDI. However, Krogstrup and Matar (2005), by analyzing the available research on the impact of FDI on the economic development of Arab countries, concluded that average Arab countries currently do not stand to gain from FDI. The lack of absorptive capacity is offered as a possible reason for the inability of FDI to promote economic development in these countries. The four different measures of absorptive capacities included in their study are (1) the technology gap, (2) the level of workforce education, (3) financial development and (4) institutional quality. Institutional quality, one of the proposed reasons for the low absorptive capacity of FDI in Arab countries, has received much attention in economic growth literature since the 1990's. From Adam Smith to current economists, many scholars believe that better institutional quality is a precondition for economic growth. In 1976, Adam Smith in his "Wealth of Nations" stated "[w]hen institutions protect the liberty of individuals, greater prosperity results for all." Current economist Brue et at (2010) reflects a similar sentiment when he asserts that "[a] country with an efficient court system, honest government officials, and a stable constitution will enjoy a higher standard of living than a country with a poor court system, corrupt officials, and frequent revolutions and coups."

Previous literature shows that, in addition to economic growth, FDI inflow in host countries is influenced by institutional quality. A country's trade policy, property rights protection, political stability, and financial services are very important in attracting FDI. Better institutional qualities in the host country translate into a more attractive investment climate to an investor when deciding to invest in a foreign country. Research on the impact of institutional quality on

economic growth and FDI reveals that this non-traditional factor is important in explaining economic growth and the inflow of FDI in developing nations. The cross-country analysis of Knack and Keefer (1995) reveals that long-run economic growth is significantly correlated with different measures of institutional quality. Additionally, the research of Gastanga et al (1998), Lee and Mansfied (1996), Eleni A. Kaditi (2010), Estrin and Mayer (2008) and others conclude FDI is also positively correlated with institutional quality.

Insofar as region specific studies are concerned, Kandil (2009), by using micro foundations in the transmission channel between institutional quality and economic growth, found that positive institutional quality significantly increases the economic growth of MENA countries.[2] With respect to FDI, an early study by Kamlay (2002), using a dynamic model for the period 1990 to 1999, found institutional quality has no significant impact on FDI inflow in MENA. However, using a fixed effect model for panel data that covers the period of 1975 to 1999, Onyeiwu (2004) found that FDI in MENA is significantly related to institutional quality. Other researchers such as Chan and Gemayel (2004), Kobeissi (2005) and Caetano and Calerio (2009) also found a positive impact of institutional quality on FDI inflow in MENA.

In recent years, MENA countries went through significant institutional changes. The Euro-Mediterranean Partnership Agreement, together with the progressive elimination of the trade barrier and liberalization of the investment regulatory policies in the region revives the need to fully understand the role institutional quality plays in promoting economic growth and/or attracting FDI in the MENA region. This study aims to fill the gap in the available research by providing a detailed investigation of the relationship between FDI, economic freedom, and economic growth in the MENA region with relatively recent available data.

Many of the studies mentioned used different measures of institutional quality as their independent variable. We, on the other hand, will use economic freedom as our independent variable. Given that a country with better institutional quality and regulatory reform experiences more economic freedom, using an economic freedom index is justified as an explanatory variable to study the impact of institutional quality on economic development as well as also on FDI.

Considering the studies discussed above and the premises expounded, our study investigates the relationship between economic growth, FDI, and economic freedom for ten MENA countries: Bahrain, Jordan, Kuwait, Syrian Republic, Egypt, Algeria, Morocco, Lebanon, Saudi Arabia and Tunisia. The paper is organized as follows: Section II discusses the FDI and economic freedom in the MENA region, while section III presents the Data sources and the methodology. Empirical results are discussed in section IV and finally, section V concludes the paper.

II. FDI AND ECONOMIC FREEDOM IN THE MENA

In today's global economy, FDI is generally accepted as a major catalyst for development. For the country attracting the investment, and depending on the type of FDI, FDI can provide a source of new technologies, capital, processes, products, and business practice and management skills. Additionally, FDI may create new employment opportunities, and aid in enhancing social and environmental standards in the host country. For investors, FDI provides new markets and marketing channels, cheaper production facilities, transfers of technology and knowledge, and access to human capital, this in addition to the various incentives offered by potential host countries to induce the investment.

While the majority of FDI flows to developed nations, over recent decades, more developing nations have attracted FDI. Inflows of FDI, in this context, have proven to contribute to host countries' economic development and modernization, income growth and employment. Studies, such as Onyeiwu (2004), have found that despite the fact that developing nations, in recent years, have been attracting higher inflows of FDI, the MENA region has consistently failed to draw FDI at the levels of their contemporaries in other regions. The MENA region continues to attract comparatively poor flows of FDI regardless of the fact that it is home to some of the richest oil-producing countries in the world. Conventional economic theory would posit that the MENA region should be attracting considerably more FDI considering the proximity to one of the global economy's core regions, relatively low unit labor costs and abundance of resources. Yet, the MENA region has been trapped in a slow growth and high unemployment situation since the early 1980s (Iqbal and Nabli (2004)). According to Onyeiwu (2004) three distinctive features about FDI flows to the MENA region are clear. First, a few countries such as Saudi Arabia, Egypt, Tunisia, Bahrain, and Morocco receive the bulk of FDI to the region, with Saudi Arabia normally receiving the lion's share. See also OECD (2010). Second, petroleum-related (particularly hydrocarbons), and other natural resource seeking investments account for a preponderance of FDI in the region. Non-petroleum FDI (flowing to countries such as Bahrain, Egypt, Morocco, Tunisia, and Lebanon) is directed to tourism, banking, telecommunications, manufacturing, and construction (Onyeiwu citing Eid and Paua, p.111). Third, the abysmal flow of FDI to MENA countries reflects a historical trend.

Excluding the GCC, the MENA region received net inflows of FDI equaling somewhat more than 1 per cent of the $158 billion to all developing countries, about $2.2 billion in 2000, and one-sixth of their share based on the GDP of all developing countries (Iqbal and Nabli (2004)). Studies, such as Onyeiwu (2004), recognize that common determinants of FDI flows to developing countries are not significant for FDI flows to MENA countries; and, highlight that if the values of all the determinants of FDI flows were the same for all developing countries, a MENA country is more likely to receive substantially less FDI than a non-MENA country. One significant

factor is trade performance. On average, trade protection in the MENA region is the highest in the developing world; and, trade barriers in the region have been the slowest to come down (Srinivasan (2002). Moreover, there have been instances of reversals of policy regarding trade openness in the 1990's (Iqbal and Nabli (2004)). The protective nature of MENA economies manifests in the fact that trade flows to the region have declined dramatically for the past 20 years (Onyeiwu (2004). This is true throughout the region, and in spite of the fact that the MENA region is fairly diverse in terms of country characteristics. Egypt, Jordan, Lebanon, Morocco, and Tunisia are resource-poor with abundant labor; Algeria, Iran, Syria, and Yemen are resource-rich with abundant labor; and, the GCC countries are labor importing and resource-rich (Iqbal and Nabli (2004)). In fact, non-oil exports from the region are significantly smaller than those from other regions with similar populations and resource endowments (Iqbal and Nabli (2004)). Other factors which have negatively affected trade performance in the MENA region are exchange rate misalignments, deep trade gap and over-regulation (Iqbal and Nabli (2004).

Likewise, corruption is another factor in the suboptimal flow of FDI to the region. Results from Onyeiwu (2004) suggested that generally corrupt and bureaucratic countries tend to attract larger volumes of FDI than less corrupt countries. Conversely, in MENA countries corruption and bureaucracy reduces flow of FDI (Onyeiwu (2004)). According to Onyeiwu (2004), this may be attributable to the relative size of the governments in the MENA region as compared to non-MENA countries, as large governments create opportunities for misuse of funds by government officials, rent-seeking and other forms of corruption. The geopolitical situation in the region is also a significant factor to consider. Onyeiwu (2008), using logit regression, found that the ability of a country to attract levels of FDI commensurate with its potential decreases as political risks increase. Thus, the more stable and democratic a country is, the higher its probability of attracting optimal levels of FDI (Onyeiwu (2008)). Chan and Gemayel (2004) found that instability has a much stronger impact on FDI than risk itself, this being particularly relevant for the MENA region as the MENA region is the home to frequent conflict and militarization. In fact, according to Iqbal and Nabli (2004), MENA boasts some "14 years of civil conflict affecting 8 major countries and some 15 years of cross-border regional and international conflicts affecting 14 countries." Given the extent and duration of conflict in the MENA region, research suggests strong contemporaneous negative spillover effects of conflict on neighbors, with such effects as high as those of the nation in conflict (Iqbal and Nabli (2004)). [3]

Similarly, it is well documented that FDI in the MENA region has not been proportional to the size of MENA economies when compared to other developing nations. For instance, since the mid-1980s, FDI as a percentage of GDP in MENA has hovered between 0.5 per cent and 0.75 per cent, while in Asia it has been over 1 per cent (Bisat (1996)). In the 1990's the FDI as a percentage of GDP for the MENA

region was 1.76 per cent, while East Asia and Latin America was 2.28 per cent and 2 per cent, respectively (Onyeiwu (2004)). The MENA region's GDP totaled $591.6 billion in 1999, almost twice SSA's (Sub Saharan Africa) at $320 billion; additionally, per capita Gross National Investment (GNI) in the MENA region was $2000 in 1999, which amounted to over four times that of SSA at $490 (Onyeiwu (2008)). Paradoxically, SSA received five times more FDI than the MENA region in 1999 (World Bank, 2002). This suggests that GDP may not be as insignificant a determinant of FDI in the MENA region, another noticeable difference between the MENA and other developing regions.[4]

Onyeiwu (2004) believes that variables, such as the rate of return on investment (RRI), infrastructures, economic growth, and inflation are not important factors for flows of FDI in MENA countries. Likewise, the regions general lack of investment in human capital, knowledge and technology are not also mportant in attracting optimal FDI flows to the MENA region, unlike in other developing countries (Onyeiwu (2008)). Kane (2007) argues that based on a population-weighted average the people of the Middle East/North Africa region have the least economic freedom in the world. Liberalization of trade and investment policies, easing of restrictions on foreign investment and acquisition, and the deregulation and privatization of industries, are part and parcel of advances in economic freedom. According to the Heritage Foundation, "Eeconomic freedom is the fundamental right of every human to control his or her own labor and property. In an economically free society, individuals are free to work, produce, consume, and invest in any way they please, with that freedom both protected by the state and unconstrained by the state. In economically free societies, governments allow labor, capital and goods to move freely, and refrain from coercion or constraint of liberty beyond the extent necessary to protect and maintain liberty itself."

Traditional market related factors such as wage costs, infrastructure or macroeconomic policy, are becoming less dominate as FDI to the developing world shifts from market and resource seeking investments, to more efficiency seeking investments; and, less traditional determinants, such as institutions or economic freedom, may have become more important. Becchetti and Hassan (2004). Thus, the existence of clear and predictable economic policies can be powerful instruments in attracting FDI flows (Drabek and Payne (2001)). Considering the history and present situation in the region, as discussed above, we turn to examining the interrelation of FDI, economic freedom and economic development in the MENA in the following sections.

III. DATA AND METHODOLOGY

We investigate the relationship between FDI, economic freedom (EF), and economic growth by applying the following modified form of Cobb-Douglas production function.[5] The variables are in natural logs.

$$logGDP = a_0 + a_1\, logDI + a_2\, logFDI + a_3\, EF + e \qquad (1)$$

Where, **GDP** = gross domestic product, **DI** = gross domestic capital formation, **FDI** = foreign direct investment, **EF** = index for economic freedom, and **e** = error term.

The equation (1) has some unique characteristics. First, in addition to domestic investment, we included a FDI and EF variable. Theoretical justification of inclusion of these two variables in the equation has been discussed in the Introduction. Most of the variables in our equation are in natural logarithm form. As such, the co-efficient represents the impact of each independent variable on economic growth. Following previous economic growth literature, we also included variables representing human capital and technology in our final estimation.[6]

The indices for the EF variable in our equation utilizes eleven different measures of economic freedom: (1) overall economic freedom score (OSC), (2) property rights score (PRSC), (3) business freedom score (BSC), (4) investment freedom score (IFSC), (5) government freedom score (GFS), (6) fiscal freedom score (FISC), (7) financial freedom score (FFSC), (8) monetary freedom score (MFSC), (9) labor freedom score (LFSC), (10) trade freedom score (TSC), and (11) freedom from corruption score (FCSC). These indices are collected from the "Index of Economic Freedom," an annual guide published by the *Wall Street Journal* and *The Heritage Foundation*. Each index is measured on a scale from 0 to 100. Higher scores indicate that the country enjoys higher economic freedom in each category listed above. For example, a higher value for BSC indicates that the country's institutions offer more freedom for conducting business than institutions within a country that has a lower BSC score.

Of the eleven indices provided in the "Index for Economic Freedom" and listed above, the overall economic freedom score (OSC) is a composite score calculated using the ten other indices (2 through 11), giving each index equal weight. A higher value for OSC indicates the target country has a higher overall economic freedom than a country with a lower OSC score. Countries around the world are divided into the following categories based on OSC: category 1 – free, with OSC between 100-80; category 2 – mostly free, with OSC between 79.9-70; category 3 – moderately free, with OSC between 69.9-60; category 4 – mostly not free, with OSC between 69.9-50; and category 5 – repressed, with OSC between 49.9-0. According to the 2011 "Index for Economic Freedom," Hong Kong has the highest OSC of 89.7, and North Korea has the lowest OSC of 1.0. The United States has an OSC of 77.8. [7]

The definitions of all the variables, including the EF variable, are given in Appendix A.

As mentioned in the introduction, institutional quality can affect both economic growth and FDI. We, therefore, extended our analysis by estimating another version of equation 1, where our dependent variable is FDI.[8]

The data used for this study comes from World Development report and "Index of Economic Freedom" data provided by the Wall Street Journal and the Heritage Foundation.[9] The data collected covers the period 2004-2008 for the 10 MENA countries included in this study. Since we are interested in investigating the most current information regarding the relationship between economic growth, FDI and economic freedom, we used only 5 observations from each MENA country. In addition, as it is impossible to obtain significant t-ratios and F- statistics for such small observations if we run regressions for each country; we, therefore, pooled the data from each MENA country into a panel. Pooling the data refers to stacking the data for each country, one on top of the other. However, panel data may suffer from the problem of hetroskedasticity and autocorrelation. One way to solve this problem is to use a fixed effect model instead of ordinary least squares. In a fixed effect model, country dummies and time-series dummies are used to capture systematic differences among panel observations to solve the above mentioned problem with panel data. Fixed effect models control for the omitted variables that are assumed to be more or less constant over the time period.[10]

IV. EMPIRICAL RESULTS

The average GDP and FDI of the counties we investigated for the periods 2004-2008 are 88.8 billion and 3.98 billion, respectively. However, the countries we investigated are quite different in terms of the variables we studied. For example, in 2008, the GDP of Saudi Arabia was close to $475 billion followed by Egypt which had a GDP of $163 billion. The data also reveals that flow of FDI is highest in Saudi Arabia ($39.5 billion in 2008) followed by Egypt. This information indicates that the relationship between FDI and GDP may be positive.

Likewise, the average Overall Economic Freedom index (OSC) in our data is 59.42. Bahrain has the highest OSC index of 75.1, while Syria has the lowest OSC index of 40.6. Looking at the FDI inflow, we find that Syria also has lower FDI inflow compare to other MENA countries. Also, the OSC indices for the countries under investigation mostly show an upward trend. Differences in the economic freedom index between the countries as well as differences in the index between the years we investigated give us the opportunity to study how the economic freedom index affects GDP and FDI.[11]

We begin our empirical investigation by estimating equation 1 using the fixed effect model. Statistical results are shown in table 1. We estimated eleven different versions of equation 1 using one of the EF variables in each estimate. The results from all eleven estimates shows both FDI and DI have a significant positive impact on economic growth (i.e. the coefficients for FDI are all significant at the 1% level, whereas coefficients of FDI are significant either at the 1%, 5% or 10% level). However, we find that, although our technology variable (INT) and human capital variable (TSCH) have the correct positive sign, the impact of these two variables is

Table 1
Dependent Variable: Log of GDP

Independent Variables	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11
	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
LOG(FDI)	0.807251***	0.827917***	0.853128***	0.879751***	0.896570***	0.807202***	0.774783***	0.894645***	0.891078***	0.893176***	0.887866***
	(8.527557)	(9.371018)	(10.35539)	(10.36834)	(10.79171)	(7.932987)	(9.630996)	(10.97118)	(10.72093)	(10.8524)	(11.05107)
LOG(DI)	1.252435**	1.774395***	1.657706***	1.379892**	1.509314**	1.441967**	1.243244**	1.332376**	1.610230**	1.513168**	1.159771*
	(2.240045)	(3.135755)	(3.022222)	(2.357373)	(2.477844)	(2.628163)	(2.514392)	(2.173216)	(2.416633)	(2.667583)	(1.889808)
INT	0.014107	0.003377	0.003933	0.012248	0.009413	0.017983	0.023079	0.011199	0.008676	0.009649	0.010793
	(0.713311)	(0.170024)	(0.198828)	(0.588826)	(0.454693)	(0.864706)	(1.268018)	(0.545188)	(0.423878)	(0.471602)	(0.539905)
TSCH	0.054771	0.046619	0.028992	0.061404	0.056711	0.076971	0.00687	0.070954	0.061154	0.053439	0.035509
	(1.202186)	(1.012467)	(0.595702)	(1.294176)	(1.074907)	(1.60332)	(0.155511)	(1.388879)	(1.267387)	(1.073118)	(0.710573)
OSC	0.047697*										
	(1.672093)										
TSC		0.012916*									
		(1.672720)									
PSC			0.039432*								
			(1.690441)								
BSC				0.007852							
				(0.672676)							
IFSC					-0.000786						
					(-0.071655)						
FFSC						0.019015					
						(1.394513)					
MFSC							0.058481***				
							(3.188431)				
FISC								0.007506			
								(0.649274)			
GSSC									-0.004824		
									(-0.330303)		
FCSC										0.002972	
										(0.327987)	
LFSC											0.031985
											(1.233909)
ADJUSTED R-SQUARE	0.86	0.86	0.86	0.85	0.85	0.86	0.89	0.85	0.85	0.85	0.86
D-W Statistic	2.36	2.17	2.32	2.34	2.36	2.37	2.55	2.36	2.35	2.38	2.4
No. of observations	50	50	50	50	50	50	50	50	50	50	50

t-statistics are given in the parenthesis
All regressions include both country and time dummy variables.
***, **,* represent significant at 1%, 5% and 10% level., respectively

found to be insignificant, which is contrary to the theory. The presence of multicollinearity among the variables in our regression may be the plausible reason for this result.

Related to the EF variable, our findings show that overall economic freedom (OSC) has a significant positive impact on economic growth at the 10% level, which implies as MENA countries move towards more economic freedom, they will also enjoy a higher standard of living. Similar results were found by Kandil (2009) who used micro foundation to study the impact of institutional qualities on the economic growth of MENA. However, we find that all indices of economic freedom are not equally important. Three out of the ten indices are found to have a significant positive impact on economic development: (1) trade freedom (TSC significant at the 10% level), (2) property rights (PSC significant at the 10% level), and (3) monetary freedom (MFSC significant at the 1% level). This is noteworthy as it indicates that MENA countries with higher protection of private property, more trade freedom, and a higher level of macroeconomic stability (i.e. higher MFSC) will enjoy a higher standard of living. Other EF variable measures are found to have an insignificant impact on economic growth.

As mentioned earlier, in addition to investigating the impact of the EF variable on economic growth, we also explored the extent to which economic freedoms indirectly affect economic growth by increasing FDI inflow. In previous studies, we find that most of the research examined the impact of institutional quality on FDI, assuming that an increase in FDI will lead to economic development, which may or may not be true. In table 2, we provide the results of our investigation of the relationship between FDI and economic freedom.

Table 2 shows that the overall economic freedom (OSC) has a significant positive impact on FDI (i.e. significant at the 1 % level). Our results support the findings of Caetano and Calerio (2009) who also found positive impacts of overall economic freedom on FDI inflow in MENA using a fuzzy logic clustering. However, once again, we find that all the indices of economic freedom are not equally important in attracting FDI. Only four out of the ten indices used to calculate the overall economic freedom index (OSC) are found to be important for increasing inflow of FDI in the MENA region: (1) trade freedom (TSC significant at the 1% level), (2) property rights (PSC significant at the 10% level), (3) monetary freedom (MFSC significant at the 1% level), and (4) financial freedom (FFSC) significant at the 1% level). These results imply that a country with higher property rights and a higher degree of trade, monetary, and financial freedom will attract more inflow of FDI, which, in turn, will promote economic growth in the MENA region. The six other indices of economic freedom are found to have an insignificant impact on attracting FDI.

Table 2
Dependent Variable: Log of FDI

Independent Variables	-1 Coefficient	-2 Coefficient	-3 Coefficient	-4 Coefficient	-5 Coefficient	-6 Coefficient	-7 Coefficient	-8 Coefficient	-9 Coefficient	-10 Coefficient	-11 Coefficient
LAG_GDP	1.14E-11 (1.590172)	1.19E-11 (1.539435)	7.65E-12 (0.897034)	1.22E-11 (1.589855)	9.38E-12 (1.060147)	8.20E-12 (1.192279)	1.01E-11 (1.161046)	8.93E-12 (1.050864)	1.30E-11 (1.380963)	9.76E-12 (1.106173)	9.48E-12 (1.086941)
LOG(DI)	1.837257* (1.744459)	4.104465*** (4.643078)	4.471768*** (4.646551)	2.610820** (2.504956)	4.435488*** (3.896536)	2.373097*** (2.595062)	5.046355*** (4.440005)	3.571170*** (3.190848)	4.293454*** (4.278979)	4.089143*** (3.323824)	3.911355*** (3.328577)
INT	0.054741 (1.507675)	0.022226 (0.557893)	0.032195 (0.734531)	0.067985* (1.740275)	0.048297 (1.070032)	0.069834* (1.98756)	0.043977 (0.997613)	0.059153 (1.359159)	0.053599 (1.209438)	0.049489 (1.110008)	0.040999 (0.914542)
TSCH	0.144631* (1.711236)	0.138748 (1.508645)	0.128452 (1.173482)	0.075310 (0.771581)	0.212089* (1.928438)	0.217405*** (2.734229)	0.225183** (2.219831)	0.209266** (2.132426)	0.182625* (1.754929)	0.187997* (1.710574)	0.248486** (2.259226)
OSC	0.173297*** (3.944122)										
TSC		0.042293*** (3.080494)									
PSC			0.080999* (1.654433)								
MFSC				0.113855*** (3.208169)							
FISC					0.001376 (0.054101)						
FFSC						0.082659*** (4.418518)					
GSSC							-0.032137 (-1.035320)				
BSC								0.037453 (1.580052)			
FCSC									0.021052 (1.004139)		
LFSC										0.030275 (0.524391)	
IFSC											0.020542 (0.879315)
No. of Observations	50	50	50	50	50	50	50	50	50	50	50
Adjusted R-Squared	.76	.73	.67	.73	.64	.78	.65	.67	.65	.64	.65
D-W Statistic	1.71	1.74	1.64	1.73	1.59	2.03	1.79	1.49	1.69	1.59	1.62

t-statistics are given in the parenthesis
All regressions include both country and time dummy variables.
***, **, * represent significant at 1%, 5% and 10% level.

Table 1a
Descriptive Statistics

	GDP($)	DI($)	FDI($)	TSCH (%)	INT per 100	OSC	FFSC	FISC	GSSC	IFSC	LFSC	MFSC	PSC	TSC	BSC	FCSC
Mean	8.88E+10	1.86E+10	3.98E+09	26.7	18.38	59.422	83.716	45.6	67.764	45	61.238	80.638	43.3	61.04	65.906	40.58
Median	5.57E+10	9.62E+09	1.85E+09	29	17	58.45	82.85	40	69.4	50	61.85	80.9	50	63.3	70	35
Maximum	4.75E+11	9.32E+10	3.95E+10	52	52	75.1	99.9	90	80.3	70	85.3	91.9	70	81	85	70
Minimum	1.12E+10	2.72E+09	-3.34E+08	10	4	40.6	62.7	10	42.2	30	31.4	66.2	30	15	39.8	10
Std. Dev.	1.03E+11	1.95E+10	6.94E+09	11.00139	9.808139	7.115269	13.41568	21.961	8.599947	14.17817	15.01773	5.849015	11.8928	16.61246	10.95001	13.0495
Skewness	2.157657	2.032288	3.491156	0.122651	0.95018	-0.053999	-0.12822	0.39746	-0.74943	0.368893	-0.23089	-0.51326	0.198741	-1.19713	-0.31586	0.110011
Observations	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50

Note: The entire economic freedom indexes are measured on a scale from 0 to 100.

Table 2 also shows that a higher level of human capital is significant in attracting FDI. In eight out of the eleven estimations, we find a positive significant impact of the human capital variable (TSCH) on FDI. For the technology variable (INT), we find a positive and significant effect of only one of the eleven equations we estimated. Domestic investments are found to have a significant positive impact at the 1 % level in all our estimates, indicating that domestic investment and FDI are complementary. However, the lag of GDP, which is a measure of market size, is found to have insignificant impact on attracting FDI.

V. CONCLUSIONS

Using panel data for ten MENA countries covering the period 2004-2008, this study investigated the relationship between FDI, economic freedom, and economic growth. The relatively low inflow of FDI in MENA region raises the question of whether or not theses regions are in a position to gain from FDI. Our empirical investigation shows that FDI has had a significant positive impact on the economic development of the MENA region in recent years. Our investigation further reveals that promoting economic freedom in the MENA region will not only promote economic progress, but will attract inflow of FDI as well. Our findings are interesting in that not all the measures of economic freedom are found to be equally important. We find that MENA countries with a higher protection of private property, free trade, and macro-economic stability (i.e. monetary freedom) enjoy higher economic growth. In order to attract FDI, we find that the indices of economic freedom in terms of property rights, trade freedom, monetary freedom, and financial freedom (i.e. less government control on the banking sector) are important factors. We also find evidence that a higher level of human capital will attract FDI inflow in MENA region, however, technological improvement does not have an important role , in attracting FDI in this region. The empirical results of this study imply that economic freedom should be a policy tool in the MENA region for both economic growth as well as to attract FDI. Therefore, MENA region governments should adopt policies towards providing a higher level of trade freedom, monetary freedom, financial freedom, higher protection to personal property as well as higher level of education to attract FDI and promote economic development.

APPENDIX A: Definitions of the variables

GDP	Gross Domestic Product
GDP_1	Lag of Gross Domestic Product
DI	Gross Domestic Capital Formation
FDI	Inflow of Foreign Direct Investment
INT	Internet use per hundred population
TSCH	Schooling Enrollment, Tertiary (% of Gross)
OSC	Overall Score of Economic Freedom
BSC	Business Freedom Score
TSC	Trade Freedom Score
MFSC	Monetary Freedom Score
IFSC	Investment Freedom Score
FFSC	Financial Freedom Score
FISC	Fiscal Freedom Score
GSSC	Government Spending Score
LFSC	Labor Freedom Score
PRS	Property Right Score
FCSC	Freedom from Corruption Score

APPENDIX B
A brief description of the ten indices used to calculate OSC are as follows:
[Explanation of how each of the Indices is given at http://www.heritage.org/index/ranking]

- Business freedom is the quantitative measure of the ability to start, operate, and close a business that represents the overall burden of the regulations, as well as the efficiency of the government, in the regulatory process.

- Trade freedom is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services.

- Fiscal freedom is a measure of the tax burden imposed by the government. It includes the direct tax burden in terms of the top tax burden on individuals and corporate incomes, and the overall amount of tax revenue as a percentage of GDP.

- Government spending considers the level of government expenditures as a percentage of GDP. Government expenditures, including consumption and transfers, account for the entire score. Ideally, the state should have absolute minimum expenditure.

- Monetary freedom combines price stability with an assessment of price controls. Both Inflation and price control distort market activities. Price stability without macroeconomic intervention is the ideal state for the free market.

- Investment freedom assesses free flow of investment capital. In a country with a higher index of investment freedom, the individuals and firms would be allowed to move their resources into and out of specific activities, both internally and across the country's borders, without restriction.

- Financial freedom is a measure of banking efficiency, as well as a measure of independence from government control and interference in the financial sector.
- Property rights component is an assessment of the ability of the individuals to accumulate private property, secured by clear laws that are fully enforced by the state.
- Freedom from corruption focuses on corruption in the business environment, including governmental, legal, judicial, and administrative corruption.
- Labor freedom is a composite score that measure the ability of the workers and the employers to interact with each other, without the interference of the state.

NOTES

1. However, during the 2008-2009 periods, all the economies mentioned experienced a decline in FDI inflow from the preceding year due to the global recession.

2. The six different indicators of institutional quality used by Kandil are: voice of accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption.

3. Here we note that our model does not contain a specific variable measuring political instability as the "Index of Economic Freedom" data does not include such a variable. However, we assume that a country with lower level of political instability will enjoy higher level of economic freedom. Therefore, our model will capture the effect of political instability indirectly through its impact on economic freedom. In our words, if we find higher level of economic freedom attracts FDI, this result will also imply lower level of political instability will attract FDI.

4. Although we find a positive relationship between FDI and GDP in the region, FDI as a percentage of GDP in non-MENA developing regions such as the LAC, SEA and even the SSA, is greater.

5. Equation 1 is used as a modified form of the Cobb-Douglas production function where the labor variable has been dropped due to data limitation and some other variables are added in accordance with previous economic growth literature.

6. Some of the variables usually found in previous growth literature such as government spending, trade freedom, inflation are not included in our regressions due to the fact that the EF variables (for example the government spending score, trade freedom score, and monetary freedom score) we used are expected to capture the effect of those independent variables.

7. A brief description of the ten indices used to calculate OSC are given in the appendix B.

8. In our equation, where the log of FDI is our dependent variable, we included one extra independent variable. The latter independent variable is lag of GDP, which measures the market size. Previous research shows that market size is important in attracting FDI [see Chakrabarti (2001), and Estrin and Mayer (2008)].

9. Here we like to note that institutional quality indices used to investigate the empirical relationship among the variables in economic growth literature are sometimes questioned due to the qualitative nature of these variables. For example, Kaufmann et al (2007) Kaufmann and Kraay (2007) found that there are explicit margins of error in the measurement of institutional indices when investigating the Worldwide Governance

Indicators (WGI). However, Kaufmann et al (2007) also stated that although the indices have a margin of error, the WGI still permit meaningful cross-country comparisons as well as monitoring progress over time. Notwithstanding, as most of the indices provided by the Heritage foundation are quantitative instead of qualitative in nature, our investigations are less likely to suffer from the problems mentioned by the above authors.

10. However, the drawback of the fixed effect model is that if the panel data has too many cross-sectional units of observations, the fixed effect model will require too many dummy variables, which in turn will reduce the number of degrees of freedom for an adequate powerful statistical test (see Yafee (2003)). Since we have only ten cross-sectional units covering only five year periods, the fixed effect model is the logical choice for our investigation.

11. Descriptive statistics of the variables in our study are provided in Table 1A.

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