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Determinants of Foreign Direct Investment in MENA Countries: An Empirical Analysis

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Abstract

This paper contributes to the literature on the determinants of foreign direct investment in the MENA region by providing empirical evidence on the relative importance of the manufacturing and services sectors to the non-GCC and GCC countries. Panel data analysis for fifteen MENA countries spanning the period from 1980 to 2003 provides evidence of the heterogeneous nature of the MENA region. The results show that FDI in the non-GCC nations is linked to the expansion of the manufacturing sector whereas for the GCC countries there is a strong association between inward FDI and the services sector. These results have policy implications since the drivers of FDI to the manufacturing sector are different from those to the services sector.

1. Introduction

Foreign Direct Investment (FDI) is perceived as an important source of investment financing particularly in developing countries. It also provides a conduit for technology transfer including know-how and technical skills. (Chan and Gemayel, 2004). It improves managerial knowledge and skills, increases efficiency and productivity and provides a wide array of goods and services to the economy. (Bwalya, 2006). The

transfer of resources and accompanying technology and know-how can provide an impetus to economic growth.

The Middle East and North Africa (MENA)[1] region overall has underperformed in attracting foreign direct investment in the past. Although net inflows as a percentage of GDP grew sixfold between 1985 and 1999 in most other regions, that of MENA stagnated. (Chan and Gemayel, 2004). The MENA region countries are not homogeneous. They have diverse economic structures. However, they have similar characteristics that deter FDI from taking place. These include political instability, restriction of FDI to a few sectors, preventing a majority ownership to foreigners and requiring a local partner in a joint venture and a relatively slow pace of privatisation. (Eid and Paua, 2003). Other factors contributing to the poor performance of the MENA countries in attracting FDI include heavy reliance on oil; weak economic base; high population growth and unemployment rates; dominance of the state in the economic sector; low level of integration with the world; underdeveloped financial and capital markets; underdeveloped institutions; and low rates of returns on human and physical capital (Bashir and Hassan, 2002; Makdisi, Fattah and Liman, 2002; as cited in Divarci , Hisarcklilar, Kayalica and Kayam, 2005). Investment risk instability is another factor that has been detrimental to attracting FDI to the MENA region. (Chan and Gemayel, 2004).

However, there has been an increase in the inflow of Foreign Direct Investment to the region during the last few years. This change is primarily due to the fact that a number of countries in the region have paid special attention to making themselves investor-friendly by making the business environment more open and stepping up structural and institutional reforms.

2. Review of Literature

The factors that determine foreign direct investment include growth of GDP (Addison and Hesmati, 2003; Hisarciklilar et al, 2006), population (Hisarciklilar et al, 2006), degree of openness (Onyeiwu, 2003) political stability (Mellahi 2003) infrastructure (Onyeiwu, 2003; Mellahi, 2003; Hisarciklilar et al, 2006).Other determinants include education, research and development, country risk and domestic investment (Moosa, 2006), and risk instability (Chan and Gemayel, 2004). It is interesting to note that there are a number of factors that determine both the growth of GDP in a country as well as the growth of FDI in a country.

Research has shown that the amount of FDI depends on a number of other factors. Emphasising the size of the domestic market a study by Hesmati & Addison 2003, shows that FDI seeking a base to produce for the domestic market in the host country is attracted to a country in which real income and therefore domestic purchasing power is growing. However, when analyzing locational drivers, Hisarciklilar et al (2006) concluded that the market does not comprise of the host economy but also regional trade and trade with the rest of the world. In a study on Oman, Mellahi et al., (2003) show that the market size is

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[1] See Appendix A for a list of MENA countries

among the least desirable factors for foreign investors. Countries may also decide to invest in countries in order to enjoy the low wage advantage. In a study on the FDI and Regional Trade Agreements Jaumotte, (2004), found a positive impact between FDI and Regional Trade Agreements. The creation of a Regional Trade Agreement (RTA), by enlarging the market size of individual countries, tends to stimulate the inflows of FDI. This is an important benefit which, by its dynamic nature may well outweigh the static costs of trade diversion. The study showed that the market size, size of population as well as the quality of population resulted in some countries in the RTA benefiting more than others. According to the study by Jaumotte countries that were financially stable tend to attract a larger share of FDI.

Krogstrup, S & Matar, L in a study on FDI, Absorptive Capacity and Growth in the Arab World- concluded that other than the GCC[2] countries and Lebanon and Tunisia, Arab countries are not likely to possess the absorptive capacity to gain from FDI. The four aspects of absorptive capacity examined by them were – technological gaps, educational levels, financial sector development and institutional development. This study was important in that it pointed out the fact that unless a country had the absorptive capacity- there was no economic rationale in implementing costly incentive schemes, such as tax holidays, investment subsidies, export credits and other measures, favoring FDI instead of domestically financed investment.

Review of literature on the determinants of FDI shows that there are a number of factors that determine the flow of FDI to a particular region. Studies undertaken in the MENA region emphasize the importance of competitiveness of the MENA region based on low wages (Iqbal and Nabli, 2004) However, for competitiveness to be sustainable overall trade policy and investment climate in the MENA region will have to be improved.

In order to understand the flow of FDI to the MENA region, this paper develops an empirical model using time series and cross sectional data for the countries belonging to the MENA region during the period 1980-2003. The paper attempts to explain the important factors on which flow of foreign direct investment in this region depends. Researchers and theorists have explained the determinants FDI based on a number of variables, however it is not possible to examine all the variables because of limitations of time and space. Therefore, only variables which were thought to be relevant to the region were included in the study. The contribution of this paper is to recognize the heterogeneous nature of MENA countries and include the share of manufacturing and services in the GDP as explanatory variables. The estimations were carried out for the MENA region as a whole and also for the GCC and non-GCC countries.

3. Methodology

Panel data for fifteen MENA countries for the period 1980 to 2003 was used to explain some of the determinants of FDI in this region. By combining time series of cross-section observations, panel data give "more informative data, more variability, less

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[2] See Appendix A for a list of the Gulf Cooperation Council (GCC) countries.

collinearity among variables, more degrees of freedom and more efficiency." (Gujarati 2003, p637).

The presence of negative values for the explanatory variable inflation precludes the logarithmic transformation of the models.

The fixed effects dynamic panel model is as follows:

$$y_{it} = \alpha_{i} + \sum_{k=1}^{k} X_{itk}\,\beta_{k} + \varepsilon_{it} \qquad\qquad i = 1, \ldots\ldots..N; \qquad\qquad t = 1, \ldots\ldots\ldots.T$$

where y_{it} represents the value of the dependent variable, inward FDI as a percentage of GDP, in cross section i (number of countries), T is the length of time series (1980 to 2003) and k the number of explanatory variables. The term α_{i} denotes unobserved country-specific effects which are assumed to be fixed over time and different across country i. X_{it} and β represent the vectors of explanatory variables and their parameters respectively. The subscript i indicates individual countries while t shows different time periods. ε_{it} represents the vector of the error component which is assumed to be independently distributed across i and over t with mean zero and variance σ^2.

The random effects dynamic panel model is:

$$y_{it} = \mu + \sum_{k=1}^{k} X_{itk}\,\beta_{k} + \upsilon_{it} \qquad\qquad i = 1, \ldots\ldots..N; \qquad\qquad t = 1, \ldots\ldots\ldots.T$$

where $\upsilon_{it} = \alpha_{i} + \varepsilon_{it}$ and α_{i} are assumed to be independently distributed across i, with mean zero and variance σ_{α}^2, and uncorrelated with X_{it}. The error term ε_{it} is assumed to be independently distributed across i and over t, with mean zero and variance σ^2.

After estimating the fixed effects model (FEM) and the random effects model (REM) the Hausman test was applied. The null hypothesis underlying the Hausman test is that the FEM and REM estimators do not differ substantially. (Gujarati 2003, pp651). The null hypothesis was accepted in all the model estimations with the conclusion that the random effects model is appropriate in all estimations.

4. Data
The panel set for this study includes 15 countries in the MENA region.[3] The ratio of FDI inflows to GDP are derived from the UNCTAD Handbook of Statistics On-line (United Nations Conference on Trade and Development, 2007). The openness index is from the PENN World Tables. The share of manufacturing and services in GDP is taken from the United Nations Statistics Division and the inflation rate as measured by the Consumer Price Index (CPI) from the World Development Indicators.

5. Findings and Discussion

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[3] See Appendix A

Although a number of models were estimated but the results of the two most significant models are reported.
Model 1
$$FDI_{it} = \mu + \beta_1 MFG + \beta_2 OPENK - \beta_3 INFL \qquad \text{(Equation 1)}$$

The dependent variable is inward FDI as a percentage of GDP. The explanatory variables in model 1 are manufacturing as a percentage of GDP, the openness index and inflation. The openness index is exports plus imports as a percentage of GDP. The above model was estimated for all 15 MENA countries, for non-GCC countries and for GCC[4] countries. The results are given in Table 1 below.

Table 1. Results of Model 1

	MENA Countries			NON-GCC Countries			GCC Countries		
	Estimated Coefficient	T-Ratio	P-Value	Estimated Coefficient	T-Ratio	P-Value	Estimated Coefficient	T-Ratio	P-Value
MFG	0.51654	2.896	0.004*	0.67180	3.210	0.001*	-0.29201	-0.5278	0.598
OPENK	0.13718	4.159	0.000*	0.14014	3.135	0.002*	0.79924	1.127	0.262
INFL	-0.64051	-2.486	0.013*	-0.22503	-1.146	0.253	-0.14636	-2.313	0.022**
Constant	-0.60618	-2.001	0.046**	-0.68108	-1.973	0.050**	0.30050	0.3751	0.708
R^2	0.0822			0.1121			0.0452		
Hausman Test	2.629665			8.886285			2.103164		

  * significant at 1% **significant at 5%

The coefficient for MFG (manufacturing's share of GDP) is positive and significant for the MENA region as a whole indicating that an expansion of the manufacturing sector will attract FDI. The same result holds for non-GCC countries. However, for the subset of GCC countries this coefficient is insignificant. This reflects the differences in the underlying economic structures and market sizes of some of the non-GCC countries and GCC countries. The coefficient for openness (OPENK) is positive and significant for the MENA countries and non-GCC countries but not for GCC countries. The relationship between FDI and openness is indeterminate (Rodriguez and Pallas, 2007). A positive sign indicates the importance of trade openness in attracting FDI. However, a negative coefficient would be indicative of "tariff-jumping" FDI whereby firms undertake investment in a country to avoid high tariff and non-tariff barriers (Onyeiwu, 2003). The coefficient for inflation (INFL) is negative and significant for the entire MENA region and the GCC countries but it is insignificant for the non-GCC countries. Macroeconomic stability as reflected by the inflation rate is essential for FDI to the GCC countries but not the non-GCC countries. The negative effect of inflation on FDI has been found to vary from weakly significant (Addison and Hesmati, 2003) to insignificant (Onyeiwu, 2003)

The results of model 1 indicated the heterogeneity in the MENA region. To explain the inflow of FDI another explanatory variable, the share of services in GDP has been added in equation 2.

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[4] See Appendix A for a list of GCC and non-GCC countries

Model 2

$$FDI_{it} = \mu + \beta_1\, OPENK - \beta_2\, INFL + \beta_3\, MFG + \beta_4 SERV \qquad \text{(Equation 2)}$$

The results of this regression analysis are given in Table 2. For the MENA region openness, inflation and services are significant. Openness and services have positive coefficients and inflation has a negative coefficient. However, manufacturing is positive but insignificant. There is a disjunction between the non-GCC and GCC countries. For the former group of countries the share of manufacturing in GDP is a significant determinant of FDI to the region. Concomitant to manufacturing is the positive and significant effect of openness on FDI to the Non GCC countries. For the GCC countries the only significant explanatory variable is the share of services in GDP. Inflation, manufacturing and openness are all insignificant in explaining FDI.

Table 2 Results of Model 2

	All MENA Countries			**NON-GCC Countries**			**GCC Countries**		
	Estimated Coefficient	T-Ratio	P-Value	Estimated Coefficient	T-Ratio	P-Value	Estimated Coefficient	T-Ratio	P-Value
OPENK	0.95431	2.887	0.004*	0.13657	2.975	0.003*	0.10444	1.651	0.101
INFL	-0.52262	-2.024	0.044**	-0.26035	-1.099	0.273	-0.72846	-1.319	0.189
MFG	0.21646	1.068	0.286	0.71276	3.029	0.003*	-0.51536	-1.015	0.312
SERV	0.41669	3.029	0.003*	-0.46728	-0.2871	0.774	0.90413	3.682	0.000*
Constant	-2.1424	-2.761	0.006*	0.40643	-0.4460	0.656	-4.2775	-3.118	0.002*
R^2	0.0718			0.1055			0.1245		
Hausman Test	8.115224			12.02383			2.388784		

* significant at 1% **significant at 5%

Other model specifications were used by including intercept and slope dummy variables for manufacturing exceeding 15% share of GDP. However, the results were not an improvement on the two selected models.

6. Conclusion

Countries in the MENA region differ in relative factor endowments. Some countries such as Egypt, Jordan, Morocco and Tunisia lack resources but have an abundant supply of labor. Some are endowed with both resources and labor such as Algeria, Iran and Syria. The GCC countries are endowed with oil but need to import labor. (Iqbal and Nabli, 2004). The results of the regression analysis reflect this diversity in economic structures and indicate the need for a disaggregated approach to analyzing the determinants of FDI in the MENA region. The explanatory power of the independent variables is sensitive to the inclusion of some countries. The association of inward FDI with openness and manufacturing is significant for the non-GCC countries but not for the GCC countries. The only significant explanatory variable for the GCC countries is services. This result provides an insight into the importance of the development of different sectors as pull factors for FDI.

The non-GCC countries such as Egypt and Syria have large markets and expanding manufacturing sectors providing incentives for FDI in the manufacturing sector.[5] In the GCC countries the expanding service sector is a significant determinant of FDI.[6] The drivers of FDI for firms seeking entry into the manufacturing sectors will include openness, labor productivity, market size, population and infrastructure. Firms wanting to enter host countries for the provision of services have limited entry strategies. They need to be physically present in the host country. FDI in services is likely to be market seeking and is not affected by trade openness. (Kolstad and Villanger, 2004).

The policy implications for the two groups of countries within the MENA region are different. The non-GCC countries need to ensure they attract FDI in the manufacturing sector through greater integration in the world economy since openness and trade linkages are important. These nations need to invest in human capital development to ensure the supply of labor with high productivity and low cost since labor cost advantages across countries matter for FDI into the manufacturing sector. (Alexandra, 2008).

For the GCC countries the driver for FDI is an expanding service sector. Since the service sector is less capital intensive it is easier for firms to adjust to their desired levels of investment (Alexandra, 2008). From a policy perspective the advantage is that government policy designed to attract investment in this sector will see an immediate response. However, the negative side is that a reversal of trend can also be as rapid with an outflow of FDI from the service sector. Policy makers need to be cognizant of this and ensure that these nations do not lose their attractiveness to firms. Another possibility is that within the GCC countries firms in the services sector may relocate from one country to another.

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[5] In Syria manufacturing share of total FDI in 2004 was 55% according to the ESCWA Report (2007).
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Appendix A

List of Middle East and North Africa (MENA) countries included in the data set:

Algeria
Bahrain
Egypt
Iran
Israel
Jordan
Kuwait
Malta
Morocco
Oman
Qatar
Saudi Arabia
Syria
Tunisia
United Arab Emirates

List of Gulf Cooperation Council (GCC) countries
Bahrain
Kuwait
Oman
Qatar
Saudi Arabia
United Arab Emirates

List of Non-GCC countries in the MENA region
Algeria
Egypt
Iran
Israel
Jordan
Malta
Morocco
Syria
Tunisia