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# Foreign Direct Investment, Financial Markets and Growth Dynamics in MENA Oil Producing Countries: A Panel Investigation

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## Abstract

The objective of this paper is to examine whether foreign direct investments (FDI) in extractive sector enhances growth, using data from seven MENA oil producing countries; namely Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, Saudi Arabia and Iran over the period 1980 to 2004. We employ fixed effects estimation technique to estimate the coefficients of our models. The main findings are: First, the effect of FDI is very small, and it can have positive spillovers in the host countries if there are adequate absorptive capacities – well developed financial markets and human capital. Second, the financial markets are inadequate to spur growth and enhance the role of FDI in the growth process in MENA oil producing countries. The paper opines that policy focus should be towards improving the absorptive capacities, as growth should evolve internally, not externally.

**JEL Classification:** O16, F43

**Keywords:** Foreign direct investment, extractive sector, financial markets, growth and MENA region

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## 1 Introduction

The growth performance of the MENA (Middle East and North Africa) region over the past decades has been mixed and characterized by a higher degree of volatility despite abundant natural resources and the inflows of foreign direct investment to the region. This growth pattern in the region is linked to several characteristics which include amongst others, the over dependence on oil, weak economic base, high population growth and unemployment rates, low rates of returns on investment in physical and human capital (Makdis *et al.*, 2000) and underdeveloped financial market institutions, and on wider front by fluctuations in the world oil market. Therefore changes in the world oil market will mean changes in economic growth. That is a decline in the prices of oil and gases will lead to decline in the growth of MENA oil producing countries and consequently to low savings and domestic investments.

Foreign direct investment (FDI) has come to be regarded as a means to achieve economic development in its own right, with expected positive spillovers over and above those associated with domestically financed investments. The pace of economic development in South East Asia in recent decades has for example often been attributed – at least in part – to openness to and inflows of foreign direct investment. On this background, it is important to ask whether or not MENA countries might be missing out, and should include financial incentives to attract FDI as part of a development strategy. Implementing costly financial incentives obviously only makes sense if the expected positive externalities associated with the particular type of FDI that the financial incentive is aimed at outweigh the cost of the incentive. However, while it is possible to make a relatively good estimate of the cost of a financial incentive, assessing and quantifying potential positive externalities of FDI is problematic, at best, in oil producing countries. The findings of the empirical literature aiming at identifying the impact of FDI on growth mainly show that there is no universal answer to the question of how FDI impacts growth in its host country. In a recent study Akinlo (2004) finds that FDI in extractive sector in Nigeria does not support growth. This, he attributes to heavy capital outlay, a little employment and repatriation of profits leading to low capital accumulation. The impact of FDI depends on a multitude of factors, such as the level of technology used in domestic production in the host country, the level of education of the host country workforce, the level of financial sector and institutional development, etc. All these factors and more contribute to whether the host country in question can “absorb” and hence benefit from FDI. And this multitude of factors is impossible to capture in a single economic model or regression analysis. The empirical debate on this topic is, moreover, in its infancy, and is thus fragmented and thin. It has nevertheless led to some tentative conclusions which can provide an overall framework for thinking about the benefits of FDI as a means to development; this may provide useful information for the formulation of a general strategy with respect to foreign direct investment in MENA countries and in particular oil producing countries.

Against this background, we formulated the following questions to investigate the role of FDI in extractive sector in the growth process of the MENA oil producing countries. 1) Do foreign direct investments in extractive sector enhance growth or not? In other words does FDI in extractive sector have greater knowledge spillover? The country’s capacity to take advantage of these externalities might be limited by lack of well-developed local financial markets and human capital. This leads to the second question. 2) What are the

growth effects of different forms of financial systems? 3) Is financial market necessary for FDI in extractive sector to be beneficial to growth?

These are the focal objectives of this study and analyzing them is a first step toward identifying what needs to be done to make growth more sustainable in MENA oil producing countries. Literature on the impact of mineral based FDI on growth is scanty. The only studies that attempt to address this issue are that of Akinlo (2004), and Onwuka and Baharumshah (2005) who show that FDI in extractive sector is not growth enhancing as much as manufacturing FDI. In the manufacturing sector, there is a multitude of studies but however there is no conclusive statement on the role of FDI in enhancing growth. The contribution of this paper to empirical literature is of twofold. Firstly it sheds some light on the ongoing debate whether FDI in extractive sector enhances growth. It has been a subject of debate that economies with mineral deposits perform poorly in growth process. Studying MENA oil producing countries will provide more useful information on the link between FDI in extractive sector and growth. Secondly on the policy front, it gives an insight to policymakers of what is wrong and the likely direction to follow and where emphasis should be laid.

The paper is organized as follows. The next section gives an overview of MENA oil producing economies. Section three discusses the theoretical and empirical evidence of the effect of FDI on growth as well channels through which FDI can influence growth. Section four gives the model used to investigate hypothesis that FDI in extractive sector enhances growth. Section five discusses the empirical results, while section six gives the policy implications of the empirical findings. Seventh section gives the concluding remark.

## **2 An Overview of Selected MENA Economies**

Most of the selected MENA countries for analysis are characterized by dependency on one commodity exports – crude oil, for revenue accumulation. Manufacturing and other activities are of small scale (see Table 1). The oil and gas contribution to GDP is well above 40%; only Saudi Arabia is below this figure in 2004, suggesting that it is diversifying its economy. The growth in the region is highly volatile and also varies among the countries. The average growth rate ranges from (-6.7%) in Qatar between the period of 1980 and 1989, to maximum of 9.89% for Bahrain between the period 2000 and 2004. Real per capita GDP is very high. The low income country among the group is Iran, with the average per capita GDP of \$2355.51 in 2000 - 2004 and the high income country is Qatar with real average per capita income of \$30,868 in the same period.

Table 1: Some Economic Indicators of Selected MENA Oil Producing Countries

Countries	GDP Growth rate (%)			Inflation (%)			GDP per capita (US\$)			Current Account (% GDP)		
	1980 - 1989	1990 - 1999	2000 - 2004	1980 - 1989	1990 - 1999	2000 - 2004	1980 - 1989	1990 - 1999	2000 - 2004	1980 - 1989	1990 - 1999	2000 - 2004
Bahrain	1.42	4.61	9.89	2.3	0.79	0.82	8612	9462	13364	25.51	-45.2	37.71
Kuwait	-2.6	1.7	6.44	3.6	3.1	1.414	13381.7	13838.8	17067.4	32.01	-10.7	26.55
Oman	8	4.7	4.64	-5.5	1.1	-0.44	6147.9	7571	8781	4.42	-4.39	3.78
Qatar	-6.7	7.2	5.92	3.8	3.1	2.52	20838.9	19422.1	30868			
S. Arabia	-6.6	2.7	9.00	0.07	1.3	-0.18	11156.3	9018.2	9607	-3.42	-7.02	3.21
UAE		5.78	7.06			2.96	32298.5	23504.6	21365.4			
Iran	-3.2	2.8	4.13	3.7	36.6	141.6	3176.3	3918.87	2355.51	-0.737	1.68	12.51

  

Countries	GFCF (%GDP)			Crude petroleum and Gas (%of GDP)				
	1980 - 1989	1990 - 1999	2000 - 2004	2000	2001	2002	2003	2004
Bahrain	27.8	15.58	26.32	27.9	24.5	24.4	24.7	23.3
Kuwait	18.02	17.91	9.68	49	43.9	38.1	42.1	47.6
Oman	24.13	16.22	14.28	48.7	42.6	41.9	41.2	42.3
Qatar		30.03		60.4	57	56.8	60.4	62.2
S. Arabia	20.53	19.5	17.94	36.8	33.2	33.1	36.2	41.9
UAE	50.02	50.07	60.78	33.6	29.5	26.6	28.6	32.5
Iran	17.35	22.18	28.2					

Source: World Development Indicator, Gulf Investment Corporation

The inflation rate is generally low except in Iran, where it reaches 141.1 % on average between 2000 – 2004 periods. Iran's economy is marked by a bloated, inefficient state sector, over reliance on oil, and state policies that create major distortions throughout. Most economic activity is controlled by the state. Private sector activity is typically small-scale - workshops, farming, and services leading to high inflation and unemployment rate. Current account positions vary. While Bahrain, Kuwait and Oman recorded current account surplus in 1980s, Saudi Arabia and Iran had current account deficit. In 1990s most of the economies recorded current account deficit, except Iran. As these countries depend on oil export for greater part their revenue generation, the deficit resulted from low oil price in later part of 1990s. However there is a great improvement in current account positions of the most economies in 2000s. Relatively high oil prices in recent years have enabled these countries to improve the current account positions.

Table 2: Distribution of Foreign Direct Investment Inflows, 1990 - 2004

	1990 - 95	1996	1997	1998	1999	2000	2001	2002	2003	
Panel A: Regional FDI inflows, 1990 - 2003, billions of US Dollars										
World	225.32	386.14	478.08	690.9	1,086.75	1,387.95	817.57	678.75	559.58	
Africa	4.32	5.84	10.74	9.11	11.59	8.73	19.62	11.78	15.03	
Latin America and the Caribbean	22.26	52.86	74.3	82.49	107.41	97.54	88.14	51.36	49.72	
Asia	47.32	93.33	105.83	102.2	112.59	146.07	111.85	94.38	10.12	
South, East, and South east Asia	44.56	87.84	96.34	92.14	109.12	142.68	102.23	86.33	96.92	
Central and Eastern Europe	6.01	13.55	19.11	24.31	26.52	27.51	26.37	31.23	20.97	
Arab Countries	2.8	3.6	7.37	9.67	3.28	4.33	10.76	5.87	8.33	
Developing Countries	74.29	152.69	191.02	194.1	231.88	252.46	219.72	157.61	172.03	
Developing Countries / World (%)	32.97	39.54	39.96	28.09	21.34	18.19	26.87	23.22	30.74	
Arab Countries/ World (%)	1.24	0.93	1.54	1.4	0.3	0.31	1.32	0.86	1.49	
Arab/ Developing countries (%)	3.77	2.36	3.86	4.98	1.41	1.71	4.9	3.72	4.84	
Panel B: Selected MENA Countries millions of US Dollars, 1990 - 2004										
Bahrain	278.15	2048.20	329.26	179.52	453.72	363.56	80.40	217.02	516.70	865.30
Kuwait	-17.39	26.00	53.00	24.00	35.00	39.00	61.00	548.00	482.00	500.00
Oman	10.34	347.00	20.00	59.00	72.27	16.30	-147.00	7.00	-67.11	-20.00
Qatar	96.20	59.82	65.03	101.44	39.01	83.20	390.10	26.00	528.00	-18.20
Saudi Arabia	64.08	338.87	418.33	347.30	113.25	251.60	295.52	623.92	624.92	679.00
UAE	362.50	64.00	57.00	94.00	123.00	183.00	504.00	453.00	778.46	1867.50
Iran	150.58	300.52	232.43	257.66	-984.94	-514.56	1184.32	1306.69	29.88	840.00

Sources: World Development Indicators Database

Since the early 1980s world FDI flows have grown rapidly. During 1990 – 1999, global FDI increased at an average rate of 15.7% a year, while in the period 2000 – 2003 it decreased by 5.17%. In quantitative terms, the average value of global FDI between 1990 and 1995 is \$225.32 billions and it increased to \$1,387.95 billions in 2000 and decreased to \$559.58 billions in 2003 (see Table 2). As FDI flows have grown in volume they have also become more widely dispersed among the host countries. The share of developing countries in the global FDI varies over time. It is 32.97% in during the period 1990 – 1995, 18.19% in 2000 and 30.74% in 2003.

Among the developing countries the distribution of FDI is uneven. The share of Arab countries in World FDI inflows is very small. Between 1990 and 1995 it had 1.24% of the World FDI inflows. It fell to 0.31% in 2000 and rose slightly to 1.49% in 2003. Although generally the FDI inflows to developing countries is low, compared to World FDI inflows. It is not surprising then that FDI did not make an impact on economic growth of the developing countries. The panel B takes a look at the FDI inflows in the countries under investigation. The FDI inflows are moreover small. The percentage of FDI in gross fixed capital formation is less than 0.05%. The greater proportion of gross fixed capital formation is domestically financed.

While FDI represents investment in production facilities, its significance for developing countries is much greater. Not only can FDI add to investible resources and capital formation but perhaps more importantly it is also a means of transferring production technology, skills, innovative capacity, organisational and managerial practices between locations, as well as accessing international marketing network. These benefits can be harvested if the environment is conducive and there is enough absorptive capacity with a link between foreign affiliates and domestic firms. It suffices to say that FDI in extractive sector may not have much of these benefits as domestic firms may not have any link with the foreign affiliates; knowledge acquired will not be utilized elsewhere and oil drilling involves a huge capital outlay which locals would not be able to provide. Hence lack of spillovers often found in most recent empirical research seems to be valid, considering the relative proportion of FDI in gross fixed capital formation

### **3 Literature Review**

#### **3.1 Theory of FDI and Growth**

Foreign direct investment can affect growth and development directly by contributing to gross fixed capital formation, and through several indirect channels which constitute the externalities associated with FDI. Krogstrup and Matar (2005) numerate the channels through which FDI affect growth. These channels can be grouped into two – direct and indirect channels. The direct channel does not favor FDI over other types of investment and would not in and of itself justify costly incentives for attracting FDI without providing the same incentives to domestic direct and foreign portfolio investment. Through the indirect channels, however, FDI is often argued to additionally affect various parts of the host economy, and in turn spur growth. This indirect channel is categorized into three – crowding channel, the linkage channel, and human capital channel.

In the crowding channel, FDI by a multinational corporation may trigger an additional need for financing which could be sought in domestic capital markets in order to complement the initial foreign direct investment. The potential additional domestic portfolio financing can be a positive externality leading to crowding in but may also have negative financial crowding out effects on domestic investments when the supply of domestic financial resources are scarce. Along the same lines, when FDI brings in a product already produced in the local market, the foreign affiliate enters into a competitive position with domestic industry and may crowd out some of the demand for local investment. Notwithstanding issues of efficiency and competition, this will in isolation have a negative impact on domestic gross fixed capital formation. The reverse case of crowding in can also be true in case the FDI introduces a new product into the

host economy and creates a demand for locally produced intermediate goods which did not exist before. Finally, in the case of scarcity of skilled labor in the host country, FDI may also draw skilled labor away from domestic industries, which will then lead to a negative impact on domestically owned economic activities, in turn inducing additional negative crowding-out effects on local investment. Whether the crowding channel leads to a positive or a negative spillover cannot be determined a priori; empirical investigation is essential.

However, in the linkages channel FDI may play an important role in transferring new technology to the host economy, which in turn may lead to higher productivity and growth. This positive spillover in principle comes about through outsourcing and or through interaction of the multinational corporation with local suppliers, costumers and by imitation of technological know-how by local competing producers. Since a multinational will be interested in protecting its competitive edge among firms in the same industry, but has an interest in improving the efficiency and product quality of upstream suppliers, the linkages channel should be expected to work through backward linkages in particular, rather than through horizontal technology transfers or even forward linkages (see Javorcik, 2004).

In the case of human capital channel FDI can have a positive impact on human capital development through the training and transfer of skills, managerial know-how and expertise to local employees and staff of upstream suppliers. A potential fourth channel often discussed is the market opening channel. Multinational corporations may give host economies access to new markets through its established trade relations. Increased exposure to global markets may, in the best of cases, give incentives to increase efficiency and competitiveness in host-economy exporting industries.

The overall impact of FDI on the host economy depends on the relative quantitative importance of these potential spillovers. For the unambiguously positive linkages and human capital channels to work, a certain level of “absorptive capacity” of the host country in terms of level of technology of the host economy, educational level of the work force, level of infrastructure, financial and institutional development, etc., is now generally considered necessary. For example, a lack of financial development will prevent domestic and foreign firms from gaining financial resources for the desired technological upgrading which may be triggered by the linkages channel (see Sadik and Bolbol, 2003). Well functioning financial markets on the other hand will allow an efficient allocation of technology enhancing investments, lowers transaction cost, ensures that capital is allocated to the projects with highest returns, allows firms to achieve economies of scale and captures the spillover effects. Lack of financial markets can constrain potential entrepreneurs and the potential of FDI spillover to create backward linkages (Alfaro *et al.* (2004). Strong and sustainable economic base can only be assured if the nationals participate in the downstream industries of extractive sector. Moreover, lack of sufficient schooling of the domestic work force may hinder the smooth transfer of skills from a multinational to the employees of downstream suppliers triggered by the human capital channel. The gap may simply be too wide to bridge. Thus, in lack of sufficient levels of absorptive capacity, and in cases where the crowding channel is negative, FDI may have a negative impact on growth in the host country. But if the level of absorptive capacity is sufficient for FDI to have positive spillovers through the linkages and skills channels, these latter channels may outweigh the crowding channel and lead to a positive impact of FDI on growth. In consequence, the benefit of attracting FDI to MENA countries cannot be determined by theory alone, but ultimately becomes an empirical question.

### 3.2 Empirical Evidence

There are several empirical studies examining the impact of FDI on host economies. These studies can be divided into two overall categories: those looking for an overall, or unconditional, linear effect of FDI on growth by including FDI flows in growth, technology or productivity regressions; and the studies which assume that the impact of FDI on growth is non-linear and depends on absorptive capacity. These studies most often interact the FDI term with some selected component of absorptive capacity namely the technology gap vis-à-vis some benchmark developed country, the level of skills and education of the workforce, the development of the financial sector, and finally, the institutional development of the host country. While unconditional studies of the effect of FDI on growth have been done for MENA panels, there has to our knowledge not been any purely MENA oil producing country study that conditions the effect of FDI on absorptive capacity so far. Hence we base our review below on the results of broader developing country panel studies.

Studies which have estimated the unconditional effect of FDI on growth find ambiguous and not very stable results. Some studies find zero or even negative correlations between FDI and growth, while other studies find a significantly positive relationship. An example of the former type of study is van Pottelsberghe de la Potterie and Lichtenberg (2001) who conduct a panel regression analysis of growth in a broad panel of developing and developed countries. More interesting in the Arab world context is the study by Sadik and Bolbol (2001), who investigate the effect of FDI through technology spillovers on overall total factor productivity for Egypt, Jordan, Morocco, Oman, Saudi Arabia and Tunisia over a 20-year period. They find that FDI has not had any manifest positive spillovers on technology and productivity over and above those of other types of capital formation. On the contrary, there are some indications that the effect of FDI on total factor productivity (TFP) has been lower than domestic investments in some of the countries over the period studied; this suggests that a negative crowding out effect dominates.

Other studies find a positive unconditional effect of FDI on growth. Examples include and Blomström *et al.* (1994), Li and Liu (2005), and Haddad and Harrison (1993). The latter study uses industry level survey data on Moroccan firms to link the productivity of Moroccan firms with the firm specific degree of foreign ownership as well as the degree of foreign ownership of the sector to which the firm belongs. They find a higher overall level of productivity of firms with higher degree of foreign ownership, and also find that firms in sectors with a higher ratio of foreign ownership have higher levels of productivity, independently of the firm specific degree of foreign ownership. However, these results might just reflect that foreign direct investment flows to sectors and firms with higher overall productivity. Haddad and Harrison (1993) note that it is not possible to show that the presence of foreign direct investment should have accelerated the growth rate, and not just the level, of productivity in domestically owned firms in sectors with higher degree of foreign ownership. In a more recent study, Akinlo, (2004) using Nigerian annual data, 1970-2001, shows that foreign direct investments in extractive sector do not have significant impact on the economic growth. This he attributes to heavy capital outlay, little employment opportunities and profits repatriation leading to less capital accumulation and consequently low investment and economic growth.

In all, the results of the literature are ambiguous, and this ambiguity has recently been argued to be due to a misspecification of the estimating equation. More specifically, the relationship between FDI and growth is likely to be non-linear due to the role played by



absorptive capacity in determining the sign and size of the impact. Many developing countries may in fact not have reached the necessary levels of absorptive capacity. And indeed, as we will see below, some studies have found that FDI affects growth only when a certain level of absorptive capacity is reached.

UNCTAD (1999) examines the impact of FDI on growth in developing countries, and finds that FDI is only significantly positive when entered in interaction with the number of years of schooling. Lu and Liu (2005) also find the effect interaction between years of schooling and FDI on growth to be positive, adding to an overall positive direct effect. Borensztein *et al.* (1998) find more detailed results along the same lines. They study the growth effects of FDI inflows in a panel of developing countries and show that FDI does indeed contribute to economic growth over and above other forms of capital formation, but only when the effect is made conditional on the level of human capital development of the host country in question. More specifically, Borensztein *et al.* (1998) and others find that FDI has a positive impact on growth when the average years of secondary schooling of the male population above 25 years of age exceeds the threshold of 0.52. A priori we expect the FDI to have a positive effect on growth as the MENA oil producing countries under investigation surpass this threshold of educational attainment. Unfortunately it is contrary to expectation; it is neither positive nor significant.

Other studies have found indications that FDI may have a positive effect on growth when the host country's financial market development has reached a certain degree of development. An example is Durham (2004), who studies the impact of FDI on growth in a broad panel of countries, investigating the interaction between FDI and a list of factors suspected of determining the level of absorptive capacity. The two factors which come out significant are financial sector development and institutional development. We return to the latter below. Regarding the former, Durham measures financial market development by total stock market capitalization relative to GDP. Four Arab countries are included in the study, namely Algeria, Egypt, Jordan and Tunisia. According to his results, only Jordan scores high enough on stock market capitalization to potentially benefit from FDI though sufficiently developed financial markets. Since the four above mentioned Arab countries have some of the highest stock market capitalizations of the Arab world, this means that according to this measure, no other Arab countries would have surpassed the threshold for sufficient financial market development to benefit from FDI. The financial sectors of Arab countries are highly bank based, so this conclusion is to be expected when using a market based measure of financial market development. The conclusion changes when bank based financial sector development measures are used. For example, Hermes and Lensink (2003), also conducting a broad country panel study, find that a certain degree of host country development of the financial system, measured as domestic credit to the private sector provided by the banking sector, is an important prerequisite for FDI to have a positive effect on the host economy. Their results imply that domestic credit provided by the banking system should exceed 12 percent of GDP for the host country to be able to absorb the potential technology diffusion of FDI. Sadik and Bolbol (2003) carry out a similar analysis using only Arab countries in their panel data set, but investigating the implications of 4 different measures of financial sector development. They find that when the banking sector credit to the private sector is above 13 percent of GDP, FDI will start benefiting the host economy. However Bolbol *et al.* (2005) shows that the bank-based indicators of financial development have negative effect on total factor productivity (TFP) and market-based positive effect, using Egyptian annual data, 1974 to 2002. Pagano (1993) using simple endogenous growth model shows

that steady growth rate depends positively on the percentage of saving diverted to investment. This means that a channel through which financial depth affect growth is through converting savings to investment. Arnold and Walz (2000) in their theoretical exposition distinguish two types of financial systems – bank-dominated and financial market dominated systems and show that the effects of financial systems involve learning-by-doing in banking. While on the empirical side Alfaro *et al.* (2004) show that lack of financial markets can adversely limit the potential of FDI and benefits of long term flows may not be realized in the absence of functioning financial markets.

There are other factors that affect the FDI spillovers and thus its effect on growth. Among these is institutional development. Durham (2004), investigates this and he additionally interacts the FDI term with institutional proxies namely an index for the regulation of business, an index for the protection of property rights and an index of corruption. The two former are found to significantly influence the impact of FDI on growth. More specifically, the business regulation index, which is discrete in nature and ranges from 1 to 4, is found to have a threshold value of just over 3, which implies that only four out of 32 countries in the sample pass the threshold. The property rights index is also discrete and takes on values from 1 to 5. This index is found to have a threshold value of just over 3, implying that 11 out of the 32 countries pass the threshold. The implications of these findings for whether Arab countries can expect to gain from FDI are not straightforward, due to lack of reliable data. However we do not pay much attention to this variable in our study but rather we concentrate on the two channels – financial development and human capital. We include security risk – the perception of MENA countries by international investors.

#### 4 Model and Estimation Technique

The objective of this study is to examine the impact of extractive FDI, financial markets and the channel through FDI may be beneficial to growth in MENA oil producing countries. For this purpose we follow the model of Alfaro *et al.* (2004), which is similar to Mankiw *et al.* (1992) model derived based on assumption that countries are unlikely to be at their steady states and therefore transitional dynamics are more important. Our preferred models are as follows:

$$Gy_{it} = \beta_0 + \beta_1 \log(y_i) + \beta_2 FDI_{it} + \beta_3 CTR_{it} + v_t \quad (1)$$

$$Gy_{it} = \alpha_0 + \alpha_1 \log(y_i) + \alpha_2 FDI_{it} + \alpha_3 (FDI \times FD)_{it} + \alpha_4 FD_{it} + \alpha_5 CTR_{it} + v_t \quad (2)$$

Where  $Gy_{it}$  is the GDP per capita growth rate of country  $i$ ,  $FDI$  is the ratio of FDI to GDP,  $CTR$  is the control variables like trade openness, human capital proxied by average years of schooling (SCH), inflation rate, insecurity and exchange rate,  $FD$  is financial intermediation measures (liquid liabilities over GDP (LLY), Commercial-central banks assets ratio (BTOT), private sector credit over GDP (PRIVCR) and Bank credit (BCR), market capitalization (MC) is ratio of stock turnover to GDP and  $FDI \times FD$  is the interaction term between FDI and financial indicators.

The implications of the relations in Esq. 1 and 2 as they relate to  $\beta_2$ ,  $\alpha_2$ ,  $\alpha_3$  and  $\alpha_4$  are as: If  $\beta_2 > 0$  then FDI in extractive sector has a positive effect on growth. While if  $\alpha_2 > 0$  and  $\alpha_3 > 0$ , then the FDI has a positive effect on growth through its interaction with financial development which is an enabling condition and the interaction simply implies that effect is higher with the enabling conditions.  $\alpha_2 > 0$  and  $\alpha_4 > 0$  then the FDI in extractive sector and financial development have independent positive effect on growth. Therefore there is need for well-developed financial market to create enabling conditions for economic growth.

In estimating the models above, we pool all the data and employ fixed-effect estimation technique with the assumption that slope coefficients are the same. That is the variables in our models affect the countries in similar fashion. As the data may be not stationary we test for stationarity for the data using IPS (Im, Pesaran and Shin) procedures. We estimate the coefficients of the models using fixed-effect technique and data from seven MENA oil producing countries, namely Saudi Arabia, Bahrain, Iran, Kuwait, Oman, Qatar and United Arab Emirates covering the period, 1980 – 2004. The sources of data are shown in Table A1 in Appendix.

## 5 Empirical Results

### 5.1 Panel Unit Root Test

Testing for stationarity has become a conventional in econometrics analysis involving panel data as it is in time series. We begin our investigation by examining the time properties of our data set using IPS (Im, Persaran and Shin, 1997, 2003). The results of the stationarity test of our panel data set are not presented here due to space constraint but can be produced on request. With the exception of initial GDP per capita, population growth rate, ratio of commercial banks domestic assets to central bank plus commercial bank domestic assets and exchange rate, other variables are stationary in their level, at 5% significance level. However, all the data series are stationary in their first differences.

### 5.2 Growth and FDI

In this section we examine the effect of FDI in extractive sector on economic growth in MENA oil producing countries. To begin with, we look at the direct effect of FDI on economic growth. For this purpose we estimate equation (1) and the results are reported in Table 3. Column (1) shows the results for a selection of control variables that include initial income per capita, inflation rate, population growth, exchange rate changes, and openness. For a sample of seven countries of MENA region, it is clear that FDI in extractive sector adversely affects the economic growth than we expect a priori.

Table 3: Growth and Foreign direct investment

Variables	Dependent variable: per capita growth rate	
	1	2
Log (Initial GDP)	0.00044 (0.0334)	0.00076 (0.067)
FDI	-0.2607 (-2.911)	-0.2662 (-2.941)
Inflation rate	-0.0160 (-0.571)	-0.0091 (-0.324)
Exchange rate changes	-0.9619 (-22.350)	-0.9612 (-21.940)
Schooling	0.0313 (1.871)	0.0270 (1.8141)
OPEN	0.00036 (47.965)	0.00036 (45.817)
Population growth rate	-1.0724 (-1.699)	-0.9979 (-1.566)
Kuwait war		0.0324 (0.648)
Security Risk		-0.0475 (-0.987)
R-squared	0.77	0.77
Durbin-Watson stat	1.88	1.91
F-statistics (specific effects)	0.0713 (0.799)	0.1352 (0.714)
Observations	175	175

Notes: All the regressions have specific effect coefficients (not reported here) but their joint significance test is reported. *t*-values in parenthesis are white heteroskedastic consistent. FDI is the ratio of foreign direct investment to GDP; schooling variable is average years of schooling for the population aged 15 years and above; population variable is the growth of the population; exchange rate changes is the change in nominal exchange rate; OPEN variable is the ratio of exports + imports to GDP; inflation is the change in consumer price index; Kuwait war is a dummy variable that takes the value one in 1990 and 1991 and otherwise zero; security risk is investment risk as perceived by investors.

In column 2 we expand the control variables to include the Kuwait war of 1991 (measured by dummy variable that takes the value of one in 1990 and 1991 otherwise zero value) and security risk (measured by the Institutional investors' ratings of investment risk). FDI still contributes relatively small to growth. This summarizes the problem that exists in the literature: whereas on theoretical grounds there is strong basis for expecting FDI to have a positive role in growth process, the empirical evidence is fragile, to say the least, especially in countries based on the mineral extraction for greater part of its GDP. This ambiguous effect of FDI forms part of motivation for this research. On the other hand, the coefficients of openness and average years of schooling carry positive signs and are significant. Their effect is in consonant with theory and most empirical evidence in the literature. Security risk is of great concern in the Middle East. However, its coefficient has a negative sign but not significant. Security is essential for FDI role in enhancing growth in MENA oil producing countries. Exchange rate changes affect growth adversely as it has negative coefficient and it is highly significant. This adverse effect might be attributed

to the Dutch disease syndrome. Although the disease is generally associated with a natural resource discovery, it can occur from any development that results in a large inflow of foreign currency including a sharp surge in natural resource price, foreign assistance and foreign direct investment. The increased supply of foreign currency would drive up the value of the domestic currency, which also implies an appreciation in the real exchange rate through a rise in the nominal exchange rate. The real exchange rate appreciation weakens the competitiveness of the country's exports and hence causes its traditional export sector to shrink. Since the gratification of wealth is not found in mere possession or in lavish expenditure, but in its wise application, a proper and articulated exchange policy is vital to improve FDI inflows to other sectors other than the extractive sector.

Next we examine if the role of FDI on growth could be enhanced through financial markets and human capital (SCH). To achieve this, we interact FDI with financial markets and use this as a regressor to test for significance of financial markets in enhancing the positive externalities associated with FDI flows. To ensure that the interaction term does not proxy for FDI or the level of development of financial markets, both of the variables were included in the regression independently as depicted in equation (2). The results of this exercise are reported in Table 4.

As shown in Table 4 the interaction term turns out to be positive in all columns except in column (2) where it is negative and significant. Each regression uses a different indicator for financial market development and the samples are the same across the columns, except in column (6) – MC that has 56 observations. Column (7) uses SCH and PRIVCR. The main result is that the interaction term is insignificant at least at 10% level for the entire range of financial market indicators used, except for (FDI x LLY) and (FDI x BTOT) that are significant at the 5% level and the coefficient of (FDI x BTOT) is negative. The interaction with PRIVCR, MC, M2 and BCR are not significant. On the other hand the financial market indicators by themselves have negative signs except MC (stock turnover over GDP) that has a positive sign and is significant at 1% level. Alfaro *et al.* (2004) attributes this to the interaction term capturing an important allocation function that the financial sector performs. In all, the financial markets in MENA oil producing countries are underdeveloped. FDI is consistently negative and is significant in all the regressions. What does this mean to us? One can rightly say that FDI inflows in the MENA oil producing countries are small compare to the need of these countries to support the growth process. With underdeveloped financial markets and small inflows of FDI the interaction between them will not yield much desired benefits. Thus, as theory suggests, in lack of sufficient level of absorptive capacity, and in cases where the crowding channel is negative, FDI may have a negative impact on growth in the host country.

Table 4: Growth and FDI – the role of financial markets and human capital; Dependent variable: per capita growth rate

Variables	(1) LLY	(2) BTOT	(3) PRIVCR	(4) BCR	(5) M2	(6) MC	(7) SCH & PRIVCR
	0.00671	-0.0060	-0.00005	-0.0011	-0.00026	0.0146	-0.0027
Log (Initial GDP)	(0.377)	(-0.378)	(-0.003)	(-0.097)	(-0.026)	(0.904)	(-0.172)
	-0.2718	-0.2848	-0.2890	-0.2781	-0.2679	0.0331	-0.2496
FDI	(-3.127)	(-4.161)	(-2.741)	(-3.516)	(-3.196)	(0.152)	(-4.339)
	-0.0442	-0.06508	-0.0285	-0.0586	-0.0491	-0.0786	-0.04435
Inflation rate	(-1.404)	(-1.093)	(-0.524)	(-1.389)	(-1.184)	(-2.121)	(-1.150)
	-0.9642	-0.9702	-0.9688	-0.9654	-0.964	-0.9240	-0.96117
Exchange rate changes	(-23.600)	(-28.082)	(-26.452)	(-24.462)	(-23.571)	(-57.492)	(-22.299)
	0.0298	0.0115	0.0205	0.0260	0.0201	-0.0688	0.0171
Schooling	(1.444)	(0.582)	(0.670)	(1.781)	(1.561)	(-1.779)	(0.611)
	0.00035	0.00035	0.00036	0.00035	0.00035	-0.0855	0.00036
OPEN	(53.654)	(48.506)	(47.983)	(46.246)	(48.978)	(-0.547)	(47.079)
	-1.0969	-0.8183	-1.0162	-1.0476	-0.97359	-0.7550	-0.8741
Population growth rate	(-2.986)	(-1.808)	(-3.137)	(-2.922)	(-2.249)	(-3.661)	(-2.221)
	-0.0426	-0.0438	-0.04571	-0.0490	-0.0512	-0.00085	-0.0557
Security Risk	(-0.900)	(-0.908)	(-0.978)	(-0.975)	(-1.041)	(-0.0165)	(-1.280)
	-0.0350	0.1907	-0.0009	-0.0385	-0.0316	0.1061	0.00026
Financial markets	(-1.403)	(0.993)	(-0.287)	(-0.892)	(-0.622)	(3.482)	(0.092)
	0.0849	-4.5594	0.0348	0.0750	0.0792	0.1184	
FDI x Financial markets	(2.143)	(-2.149)	(0.689)	(1.442)	(1.448)	(1.458)	
							-1.7040
FDI x schooling							(-1.554)
R-squared	0.767	0.753	0.768	0.762	0.762	0.455	0.754
D-W	1.936	1.960	1.979	1.910	1.903	2.882	1.927
	1.5219	0.0030	0.3649	0.6973	0.3181		0.0245
F-statistic (specific effects)	(0.2192)	(0.9563)	(0.5467)	(0.3857)	(0.5735)	10.6341 (0.0018)	(0.8758)
	1.0105	4.7371	0.4720	0.4824	0.7277	6.8071	2.3543
F-statistic (Financial markets and interaction)	(0.3163)	(0.0310)	(0.4931)	(0.4883)	(0.3949)	(0.0114)	(0.1270)
	4.5200	5.0109	9.1888		4.4948	0.6136	
F-statistic (FDI and interaction)	(0.0351)	(0.0266)	(0.0028)	5.7122 (0.0180))	(0.0356)	(0.4365)	2.96095 (0.0872)
Observations	175	175	175		175	56	175

Notes: t-values in parenthesis are heteroskedastic consistent. The financial market variable changes with each column and are all logarithms of the actual values. F-statistics test the joint significance of coefficients of specific effects. The F-statistics for financial market tests the null hypothesis that the coefficients for financial market and the interaction terms are jointly zero. F-statistics for FDI tests that the coefficients for FDI and the interaction term are jointly zero. The values in parenthesis below the test statistics indicate p-values.

As can be seen in Table 4 there is considerable variation in the coefficients of the FDI as the financial indicator changes, warranting the need to look at the range of financial market variables rather than a few. To test whether our selected countries have the same intercept we conduct joint significance test on country specific coefficients using Wald test statistics. Table 4 also reports the results of this joint significance test on specific effects. The hypothesis that the country specific coefficients are the same cannot be rejected in all the regression except in column (6). This means that all the countries considered in this study share similar policies or common problems. We also conduct a joint significance test on financial market with the interaction term and a joint significance test on FDI with the interaction term. For most financial variables, the tests could not confirm the importance of both financial markets and FDI except in two cases – the BTOT and MC. The hypothesis that the coefficients of both FDI and the interaction between FDI and financial markets are zero is rejected outright at 10% level but only in the case of MC (column 6). As can be observed from the Table 4 the coefficients of the interaction terms in these two regressions report the lowest *t*-statistics compared with the others. As indicated by these tests FDI and financial market are very necessary in the growth process but unfortunately the amount of FDI inflows to the region is very small and financial markets are underdeveloped.

Also tested is the joint significance of both FDI and SCH (human capital) with the interaction term. The hypothesis that the coefficients of SCH and the interaction term are zero cannot be rejected at 10%, while the hypothesis that the coefficients of FDI and interaction terms are zero is rejected at 10%. This suggests that human capital is vital in enhancing the role of FDI in the economic growth especially in developing oil economies, as it facilitates learning-by-doing and acquisition of new technology. Development of human capital and financial market are necessary for the MENA oil producing countries to reap the full benefits associated with FDI. We are not surprised at the results of the investigations as FDI inflows to the MENA region remain relatively small and contribute only very modestly to gross fixed capital formation. Krogstrup and Matar (2005) noted that the overall build-up of capital formation was mainly financed by domestic public and private funds.

To get estimate of how importance the financial sector is in enhancing the growth effects of FDI, one can ask the hypothetical question of how much a one standard deviation increase in the financial market variable would enhance the growth rate of a country receiving the mean value of FDI in the sample. However as the coefficients of the financial market variables are not significant, this is excluded. But for readers who would like see the net effect of financial markets on MENA oil producing countries, we refer them to Appendix Table 2.

Empirical studies have found positive correlation between GDP growth rate and domestic investment. Some empirical studies have suggested that domestic investments are necessary for FDI spillover into host country, especially in the cross-country regressions. To check the robustness of our model we control for domestic investment ratio (domestic investment over GDP). For this effect we proxy domestic investment with gross domestic savings ratio to GDP and include it as independent variable. The results are reported in Table 5.

Including the domestic investment does not lead to much change in the results. The FDI is consistently negative and significant in most cases. Its magnitude does not change as well. But however there is a noticeable reduction in *t*-ratios. This suggests that FDI is below the threshold necessary to spur development or growth rate. Even though the *F*-test

indicates that FDI is indispensable in the growth process perhaps through its role in capital accumulation, its long run effect is yet to be realised in MENA oil producing countries. The results on interaction terms do not differ from the results obtained in Table 4. The coefficients are positive except in column (2) and not significant but only in the cases of LLY (column 1) and BTOT (column 2). As expected, domestic investment enters significantly in all the regressions. In most literatures the interaction between FDI and human capital has been shown to have a positive effect on economic growth (Borensztein *et al.*, 1998; Alfaro *et al.*, 2004). This is reported in column (7). The interaction between FDI and SCH contradicts the earlier findings in the literature, and instead it is negative and not significant. We are not surprised at these results as two variables are below their threshold levels. What do we learn from the entire results? They confirm that the enabling conditions are necessary for positive externality effects of FDI to be realised. Although we need more convincing results to come to firm conclusion on these issues in MENA region. However we need not generalise our results. The picture might look different in other developing nations with different policies and less mineral resources but concentrate on manufacturing FDI to facilitate growth.

## 6 Endogeneity Issues and Policy Implications of the Results

From the preceding discussion there has been no mention endogeneity problem. On the theoretical point of view it is plausible and also very likely that both the magnitude of FDI and the efficiency of financial markets increase with higher growth rate. This would lead to an overstatement of the effects of each of the two variables and their interaction on growth, since we use the average values of these variables to estimate the coefficients in Tables 4 and 5. Thus we need to construct instruments of FDI and Domestic investment variables. Following the evidence provided by Wheeler and Mody (1992) that FDI is self-reinforcing (that is the existing stock of foreign investment is a significant determinant of current investment decisions) lagged FDI is used as an instrument for FDI. Also the lagged of domestic investment is used as an instrument for domestic investment. The results of this exercise are reported in Table 6. The results continue to support the findings in Tables 4 and 5. The coefficients of financial markets did not change much with earlier OLS results in Tables 4 and 5. Instrumental variable estimation here corrects for classical measurement error, which biases the OLS coefficients to zero.

What are the implications of the results of this study? Several implications can be arrived at from our results. First, FDI being consistently negative shows that its effect on the economic performance is small and it has not reached the level required to boost economic growth. Some studies have found FDI to have negative effects on growth in a host country due to negative crowding effects outweighing potentially positive externalities. Our study suggests that domestic investment leads to increased growth. A link between foreign firms and local firms will yield more dividends.

Second, the MENA oil producing countries as a group does not currently seem to be benefiting substantially from FDI, given the low level of current FDI and the result of this. This does not mean that no country is benefiting from FDI.



Table 5: Growth and FDI – robustness – domestic investment; Dependent variable: per capita growth rate

	(1) LLY	(2) BTOT	(3) PRIVCR	(4) BCR	(5) M2	(6) MC	(7) SCH & PRIVCR
log(initial GDP)	0.0237 (1.001)	0.0191 (0.726)	0.0249 (0.933)	0.0249 (1.113)	0.0223 (1.227)	0.0114 (0.568)	0.0111 (0.432)
FDI	-0.2651 (-2.695)	-0.2588 (-3.193)	-0.2488 (-2.062)	-0.2699 (-2.515)	-0.2505 (-2.088)	-0.0071 (-0.039)	-0.2459 (-2.482)
Inflation rate	-0.0567 (-1.827)	-0.0754 (-1.399)	-0.0358 (-0.719)	-0.0656 (-1.492)	-0.0569 (-1.424)	-0.0764 (-2.209)	-0.0739 (-1.655)
Exchange rate changes	-0.9612 (-20.942)	-0.9664 (23.791)	-0.9655 (-22.499)	-0.9570 (-18.708)	-0.9567 (-18.810)	-0.9228 (-52.201)	-0.9665 (22.546)
Schooling	0.0404 (1.425)	0.0258 (0.815)	0.0345 (0.860)	0.0417 (1.666)	0.0347 (1.476)	0.0347 (-1.349)	-0.0842 (-0.339)
OPEN	0.00036 (69.878)	0.00036 (66.006)	0.00036 (59.581)	0.00035 (72.025)	0.00036 (71.017)	-0.0711 (-0.451)	0.00036 (70.942)
Population growth rate	-1.0410 (-2.697)	-0.7763 (-1.088)	-1.0410 (-2.120)	-1.0977 (-3.321)	-0.9728 (-2.237)	-0.8363 (-3.761)	-0.8508 (-1.518)
Security risk	-0.0357 (-0.705)	-0.0381 (-0.790)	-0.0389 (-0.771)	-0.0501 (-0.972)	-0.0499 (-1.015)	-0.0081 (-0.160)	-0.0523 (-0.959)
Financial Markets	-0.0247 (-1.305)	0.2550 (1.302)	-0.0017 (-0.647)	-0.0286 (-0.560)	-0.0122 (-0.190)	0.1018 (3.298)	-0.0026 (-1.184)
FDI x Financial markets	0.0848 (1.834)	-4.1448 (-1.769)	0.0230 (0.505)	0.0787 (1.280)	0.0824 (1.293)	0.1261 (1.637)	
Domestic investment	0.2648 (2.189)	0.3113 (2.565)	0.2988 (2.334)	0.3055 (2.262)	0.2949 (2.119)	-0.0603 (-0.679)	0.2862 (2.728)
FDI x Schooling							-1.9812 (-1.611)
R-squared	0.75	0.73	0.75	0.73	0.73	0.44	0.71
Durbin-Watson stat	1.904	1.902434	1.91925	1.873269	1.871954	2.887642	2.016
F-statistic (specific effects)	2.1649 (0.1432)	3.5135 (0.0627)	1.4053 (0.2376)	0.5097 (0.4764)	0.0843 (0.7719)	8.4888 (0.0050)	0.2427 (0.6229)
F-statistic (Financial markets and interaction)	1.3645 (0.2446)	3.2166 (0.048)	0.2365 (0.6274)	1.1798 (0.2791)	1.8601 (0.1746)	7.6234 (0.0077)	2.5130 (0.1149)
F-statistic (FDI and interaction)	3.2197 (0.0747)	3.4394 (0.0655)	3.9566 (0.0484)	3.5511 (0.0614)	2.6023 (0.1087)	0.5243 (0.4719)	3.1350 (0.0786)
Observations	174	174	174	174	174	77	174

Notes: Notes: t-values in parenthesis are heteroskedastic consistent. The financial market variable changes with each column and are all logarithms of the actual values. F-statistics test the joint significance of coefficients of specific effects. The F-statistics for financial market tests the null hypothesis that the coefficients for financial market and the interaction terms are jointly zero. F-statistics for FDI tests that the coefficients for FDI and the interaction term are jointly zero. The values in parenthesis below the test statistics indicate p-values.

Third, in fact having FDI is no guarantee for stronger economic growth. However it is quite unfortunate that most of the absorptive capacities, namely financial markets, examined fall below their threshold thus their impact in enhancing the role of FDI is small. Most the financial market indicators are negative and where they are positive they are not significant. Also the interaction terms, with the exception of liquidity ratio and commercial-central bank asset ratio, though positive, are not significant. Surprisingly however, human capital is well above the threshold of 0.52 years of Borensztein *et al.* (1998) for FDI to have a positive impact. It is noteworthy that the proxy for human capital - average years of schooling of the population aged 15 years and above - include women. In some Arab countries women are not allowed to work. This may affect the result on the human capital in this study.

Too, as often pointed out in the literature, the average years of schooling is a measure of quantity rather than quality of education. Thus, for example, if a high fraction of secondary education in Arab countries is religious schooling exclusively, these statistics may not give an accurate picture of the level of absorptive capacity of FDI implied by the educational levels in the MENA region. Unfortunately, there are currently no good measures of the level of quality or content in education over time which could be used in across country analysis. Hence, country specific evaluations relying on sound judgment must be conducted when evaluating whether a given MENA country is currently likely to be able to benefit from skills transfers from FDI from more advanced countries.

More so, the psychological aspect of labour force might be interesting and critical to growth. How many MENA oil producing citizens are really in the labour force? By this we mean the willingness of the population to work and participate in the growth process. Sustainable development or growth must be evolved internally, not externally. Hence a policy aimed at encouraging a greater number of populations to participate is highly desired.

Fourth, security risk as perceived by investors does not constitute much threat to FDI inflows and hence growth. This variable is entirely negative and not significant.

What needs to be done? Policies need to be initiated to accelerate the growth of financial markets in the MENA in oil producing countries. Increased financial sector liberalisation and private participation are the most likely policies that can facilitate the development of financial sector. As observed by Abed (2003) domestic policy failures that include the strong interventionist role of the state, weak integration into international trade and insufficient attractiveness to foreign direct investment (FDI) are responsible for poor economic performance of the MENA countries. Also a failure to develop closer link with the global economy through trade in services and goods other than oil has prevented a more positive growth impact of the reforms (see Hoekman and Meserlin, 2002).

Furthermore, it is clear that policy failures and insufficient reforms often constitute bottlenecks to growth. Poorly developed institutions tend to distort the incentive structure of economic agents. For oil-exporting MENA countries, in particular, institutions required for sustainable growth are less advanced than the level of their per capita income would suggest (Nunnenkamp, 2005). The abundance of oil appears to be a curse, rather than a blessing. It encourages rent-seeking activities, while discouraging productive activities, and thus exerts a negative impact on economic growth via its deleterious impact on institutional development.

Table 6: Growth and FDI - endogeneity (IV), Dependent variable: per capita growth rate

	(1) LLY	(2) BTOT	(3) PRIVCR	(4) BCR	(5) M2	(6) MC	(7) SCH & PRIVCR
log(initial GDP)	0.0247 (1.011)	0.0170 (0.923)	0.0181 (0.942)	0.0194 (1.223)	0.0183 (1.117)	0.0116 (0.558)	0.0113 (0.452)
FDI	-0.2551 (-2.495)	-0.2678 (-2.973)	-0.2398 (-2.084)	-0.2786 (-2.701)	-0.2514 (-2.170)	-0.0071 (-0.048)	-0.2459 (-2.583)
Inflation rate	-0.0567 (-1.827)	-0.0746 (-1.417)	-0.0538 (-0.816)	-0.0655 (-1.497)	-0.0578 (-1.523)	-0.0857 (-2.312)	-0.0742 (-1.754)
Exchange rate changes	-0.9612 (-21.942)	-0.9234 (21.671)	-0.8755 (-20.565)	-0.8570 (-19.684)	-0.8657 (-19.851)	-0.8239 (-53.352)	-0.8776 (21.554)
Schooling	0.0413 (1.625)	0.0357 (0.826)	0.0337 (0.962)	0.0479 (1.765)	0.0358 (1.4865)	-0.0716 (-1.357)	-0.0851 (-0.348)
OPEN	0.00036 (67.745)	0.00037 (65.06)	0.00034 (60.251)	0.00033 (72.-012)	0.00035 (71.017)	-0.0812 (-1.561)	0.00035 (72.842)
Population growth rate	-0.9410 (-2.997)	-0.8563 (-1.097)	-1.0510 (-2.230)	-1.0984 (-3.522)	-0.8768 (-2.437)	-0.8560 (-3.764)	-0.7602 (-1419)
Security risk	-0.0457 (-0.605)	-0.0289 (-0.892)	-0.0375 (-0.871)	-0.0521 (-0.984)	-0.0562 (-1.315)	-0.0182 (-0.181)	-0.0463 (-1.059)
Financial Markets	-0.0347 (-1.505)	0.3540 (1.503)	-0.0117 (-0.746)	-0.0290 (-0.662)	-0.0123 (-0.291)	0.1017 (3.462)	-0.0125 (-1.290)
FDI x Financial markets	0.0848 (1.946)	-3.4645 (-1.684)	0.0131 (0.607)	0.0677 (1.560)	0.0815 (1.383)	0.0273 (1.577)	
Domestic investment	0.2648 (2.543)	0.4123 (2.764)	0.3518 (2.436)	0.3045 (2.342)	0.2739 (2.318)	-0.0702 (-0.874)	0.1964 (2.852)
FDI x Schooling							-0.9913 (-1.526)
R-squared	0.71	0.70	0.71	0.70	0.70	0.42	0.69
Durbin-Watson stat	1.875	1.902	2.012	1.773	1.862	2.889	2.015
F-statistic (specific effects)	1.9649 (0.1232)	4.3126 (0.0428)	2.3155 (0.3368)	0.8018 (0.6745)	0.0864 (0.8812)	9.0458 (0.0030)	0.3247 (0.7235)
F-statistic (Financial markets and interaction)	1.4655 (0.2526)	3.5172 (0.027)	0.3475 (0.8064)	1.2868 (0.4785)	1.7621 (0.2527)	6.6234 (0.0086)	2.6231 (0.1045)
F-statistic (FDI and interaction)	3.319 (0.0847)	3.7395 (0.0545)	4.5560 (0.0432)	3.8512 (0.0474)	2.8023 (0.0871)	0.4845 (0.6714)	3.4362 (0.0665)
Observations	174	174	174	174	174	77	174

Notes: Notes: t-values in parenthesis are heteroskedastic consistent. The financial market variable changes with each column and are all logarithms of the actual values. F-statistics test the joint significance of coefficients of specific effects. The F-statistics for financial market tests the null hypothesis that the coefficients for financial market and the interaction terms are jointly zero. F-statistics for FDI tests that the coefficients for FDI and the interaction term are jointly zero. The values in parenthesis below the test statistics indicate p-values.

Thriving of rent-seeking activities shows the inefficiency of institutions and or corruptions. A producer is able to hide part of his output from both bribery and taxation<sup>3</sup>. Thus, there is a great need for a good tax policy that would extract rent from foreign companies operating in the MENA oil producing countries. Institutions (both legal and economic institutions such as board of Inland Revenue) need to be strengthened. How the society would invest the rents (resources) so extracted to increase the social welfare is very important and it might depend upon the institutions' strengthens.

As oil and gas sector requires substantial capital outlay, which is beyond that capacity of domestic investors, or other interested individuals, pre-processing of the oil in the host country is necessary as this would generate employment and allow for domestic citizens' participation in the growth process.

More country-specific research on the impact of FDI in extractive sector in MENA countries is clearly called for to clarify which specific countries fall into which of these groups. It is in this respect important to keep in mind that cross country comparable data on different measures of absorptive capacity are scarce, and what is available is likely to be imprecise and potentially misleading. Country specific research may hence prove to yield the most interesting result if conducted on sector or industry levels using micro and survey data rather macro data

## 7 Conclusions

While multitude of theories suggests that FDI has positive externalities in the host country, FDI in the extractive sector seems to be portraying a different picture. The FDI contribution to fixed capital formation is very small in MENA oil producing countries. This suggests that the overall build-up of capital formation is mainly financed by domestic public and private funds. Hence its role to enhance or drive growth remains unclear. It is domestic investment that does possess the driving force to accelerate growth in economies examined.

Absorptive capacities – financial markets and human capital in most cases are below their threshold and as such could not enhance the role FDI in extractive sector in growth process of the economies examined. Researches indicate that host countries need to have attained a certain level of absorptive capacity for the host country to be able to garner these positive externalities. Short of this level of absorptive capacity, as we have observed in this study, FDI may even exhibit negative externalities. Even where absorptive capacity (as is the case of human capital in MENA) is high the willingness to work is low coupled with small populations. Engaging outside labor force is an interim remedy to meet short supply of local workers but not the long term solution. As we have pointed out a true economic growth or development must come from nationals. This conclusion is very sensitive to the absorptive capacity measures used, however. More country specific research is needed to establish robust conclusions.

Our analysis has made one point very clearly: there is no reason for MENA oil producing countries to expect positive externalities that come with an increase in FDI inflows when the enabling conditions are low or any reason for implementing costly incentive schemes, such as tax holidays, investment subsidies, export credits and other measures favoring FDI. Such policies may reduce overall welfare by resulting in wasted political as well as

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<sup>3</sup> For more information on rent seeking activities and growth see Angeletos and Kollintzas (2000)

economic resources if the country in question does not have a sufficient level of absorptive capacity. Rather, the countries under investigation would benefit by implementing policies to improve on their capacity to absorb FDI, such that more benefits may be reaped from existing and future FDI stocks. An upgrade of the human capital stock through an improvement in the quality and quantity of education, an improvement in the functioning of the financial sectors, a strengthening the quality of business regulation are all policies that fall into this category. In turn, countries with sufficiently high levels of absorptive capacity would only gain more from their existing and future FDI stocks and inflows. For countries below the threshold level of absorptive capacity, policies to upgrade this capacity are very likely to attract more FDI on their own account. Only at this time will FDI flows more likely to be associated with positive externalities due to the higher levels of absorptive capacity. Finally, pre-processing of mineral resources in host countries may create more opportunities for the citizens' participation.

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**Appendix**


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Table A.1: Variables and Data Sources

<b>Variables</b>	<b>Sources of Data</b>
Foreign direct investment (FDI):	World Development Indicator database
GDP per capita	World Development Indicator database
Capitalization (MC):	World Bank Financial Structure Database.
Liquidity (LLY):	World Bank Financial Structure Database
Private sector credit (PRIVCR)	World Bank Financial Structure Database.
Bank credit (BCR):	World Bank Financial Structure Database.
Commercial-central bank (BTOT)	IFS online database of IMF.
Inflation:	World Development Indicator database
Exports	World Development Indicator database
Imports	World Development Indicator database
Trade openness (OPEN)	IFS online database of IMF.
Human capital (Average years of schooling)	Barro and Lee (2000). Human Capital Updated Files
Kuwait war	Dummy variable
Exchange rate	IFS online database of IMF.
Security risk	Institutional Investors Ratings
Population	IFS online database of IMF.
Gross Domestic Product	World Development Indicator database

**Net Effect of Financial Market**

To get estimate of how importance the financial sector is in enhancing the growth effects of FDI, one can ask the hypothetical question of how much a one standard deviation increase in the financial market variable would enhance the growth rate of a country receiving the mean value of FDI in the sample. However as the coefficients of the financial market variables are not significant, this is excluded. But for readers who would like see the net effect of financial markets on MENA oil producing countries, we refer them to Appendix Table

The result of this exercise is reported in Table 5. Panel (A) shows the overall net effect<sup>4</sup> of each of the financial market variable.

The overall net effect of financial markets on the MENA oil producing countries turns out to be positive and but small in magnitude. However the overall net effect of average years of schooling is negative. For instance, if we use the LLY variable (column 1) it means that having a better financial market would allow countries to experience an annual growth rate increase of 0.002% over the 25-year period. Panel B reports the effects on individual countries for each of the financial market variable. As can be observed there is a considerable variation depending on which financial market variable we look at. Almost

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<sup>4</sup>The net effect is calculated for example as  $\alpha_2 \times \text{meanFDI} \times \sigma_{\log(\text{PRIVCR})} + \alpha_3 \sigma_{\log(\text{PRIVCR})}$ , see Alfaro *et al.* (2004) for more details. The effects are in percentage as we used to logarithms of the financial variables in the analysis.

all turn out to be negative except in columns 2 and 6 – BTOT and MC. For example, a one standard deviation increase in MC will allow Bahrain to experience annual growth rate increase of 0.08%, Iran 0.60% , Kuwait 0.04%, Qatar 0.42%, Oman 0.073%, UAE 0.70% and Saudi Arabia 0.05%. The liquidity (LLY), M2, PRIVCR and BCR are disturbing since they suggest that countries experience a negative effect due to FDI. This might be attributed to the fact that some banks in MENA oil producing countries are less developed compared to stock markets. However, the data for stock market are less than 20 years and the turnover is very high. However, irrespective of the financial market variable we use there remains the problem that the effect is very small. One possible explanation is that we might have forced a linear relationship on what is essentially a non-linear interaction between FDI and financial markets<sup>5</sup>. Secondly, insufficiently developed financial markets or institutions can choke the positive effect of FDI. Thirdly the oil producing countries of MENA region have not reached the threshold level of the absorptive capacities (human capital and financial markets development) or in the FDI level. Policies to raise the levels of these critical factors should, as a matter, be give priority attention. The policies might be directed towards further liberalization of financial sector and investments.

Table A.2: Net effect of FDI

Panel A	Net effect of FDI						
	1	2	3	4	5	6	7
	LLY	BTOT	PRIVCR	BCR	M2	MC	SCH
Net effect of FDI	0.002	0.031	0.003	0.0021	0.0013	0.012	-0.0011
Observations	175	175	175	175	175	77	175
Cross section units	7	7	7	7	7	7	7

  

Panel B	Net effect of FDI for Individual countries						
Bahrain	-0.015	-0.027	0.0002	-0.005	-0.005	0.082	-0.0200
Iran	-0.044	0.244	-0.0003	-0.006	-0.007	0.600	-0.0003
Kuwait	-0.010	0.081	-0.0005	-0.020	-0.009	0.040	0.0020
Qatar	-0.049	0.317	-0.0009	-0.031	-0.043	0.416	0.000005
Oman	-0.035	0.085	-0.0002	-0.025	-0.020	0.073	-0.0038
UAE	-0.027	0.445	-0.0024	-0.102	-0.085	0.691	0.000007
Saudi Arabia	-0.023	0.018	-0.0050	-0.014	-0.010	0.048	-0.0007

An alternative way to see how countries perform is to simply use the estimated coefficients for the sample of countries and calculate the net effect of FDI on growth for each country. We use only the mean to calculate the net effect of FDI, minimum and maximum values may give a different picture of the net effect. The result of this exercise is shown in Table A3 in Appendix. Again there is considerable variation in the net effect of FDI on growth rate under alternative financial market variables. With the exception of Kuwait, other countries have negative net effect of FDI, with the financial markets and average years of schooling. The Qatar and UAE recorded the lowest net effect.

<sup>5</sup> For more explanation see Alfaro *et al.*, (2004) and Borensztein *et al.*, (1998).



Table A.3: Net effect for Individual Countries

	Net effect for Individual countries						
	LLY	BTOT	PRIVCR	BCR	M2	MC	SCH
Bahrain	-0.02422	-0.47093	-0.01697	-0.02062	-0.0181	-0.09511	-0.17493
Iran	-0.00048	0.012108	-0.00024	-0.00031	-0.00026	-0.00022	-0.00203
Kuwait	0.00374	0.066879	0.003037	0.003387	0.002902	0.016815	0.032629
Qatar	-2.1E-13	-1.7E-12	-8.2E-14	-1.5E-13	-7.2E-15	-9.9E-14	5.23E-15
Oman	-0.0527	0.095733	-0.02395	-0.04498	-0.04684	-0.03145	0.007691
UAE	-3.4E-14	-3.2E-13	-1.5E-14	-2.8E-14	-5.1E-15	-1.5E-14	1.58E-15
Saudi Arabia	-0.01276	-0.01128	-0.00474	-0.01095	-0.01091	-0.01282	0.002534

Notes: the net effect here is equal to  $\alpha_2 \times FDI_{it} + (\alpha_3 \times FDI_{it} \times \log(\text{Finance}))$