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**A COMPARATIVE ANALYSIS OF THE DETERMINANTS
OF FOREIGN DIRECT INVESTMENT
IN THE ARAB WORLD AND IN ASIA**

**Brahim Elmorchid, Nouria Ridha
and Khalid Sekkat**

Working Paper No. 811

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Abstract

The paper investigates the determinants of FDI to Arab countries in order to single out policies that allow continuing attraction of more FDI. The analysis is conducted in a comparative perspective to comparable Asian countries and distinguishes two levels. The first level concerns the whole Arab world compared to Asia while the other concerns the differences within the Arab world. It was found that the Arab world is different relative to the Asian and that the different Arab sub-groups (Oil-rich-labor-poor countries, oil-rich-labor-rich countries and oil-poor-labor-rich) are treated differently by foreign investors. For the Arab world as whole to attract or maintain as much FDI as Asia, infrastructure availability, the quality of institutions and foreign exchange policies should be improved. However, in the oil-rich labor-poor countries better availability of human capital has the highest impact while in the oil-rich labor-rich countries better availability of infrastructure and sound foreign exchange policies are the most important. In the oil-poor labor-rich countries the main driver of FDI inflows is the quality of institutions.

JEL Classifications: F2

Keywords: Determinants of Foreign Direct Investment, Arab and from Asian Countries, Foreign Exchange Policies.

ملخص

تحقق هذه الورقة في محددات الاستثمار الأجنبي المباشر إلى الدول العربية من أجل إبراز السياسات التي تسمح بجذب مزيد من الاستثمار الأجنبي المباشر المستمر. ويجري التحليل من منظور مقارنة للدول الآسيوية و يميز مستويين. المستوى الأول يتعلق في العالم العربي كله بالمقارنة مع آسيا في حين أن المستوى الآخر يهتم بما هو داخل العالم العربي. تبين أن العالم العربي يختلف عن آسيا وأن مختلف المجموعات الفرعية العربية (البلدان الغنية بالنفط والعمالة الفقيرة ، الدول الغنية بالنفط والعمالة الغنية والفقيرة للنفط والعمالة الغنية) يتم التعامل معها بشكل مختلف من قبل المستثمرين الأجانب . بالنسبة للعالم العربي ككل لجذب الاستثمار الأجنبي المباشر أو الحفاظ على أكبر قدر آسيا ، وتوافر البنية التحتية، و ينبغي تحسين نوعية المؤسسات والسياسات الصرف الأجنبي. ومع ذلك ، فإن البلدان الفقيرة العمالة والغنية بالنفط توفر أفضل من رأس المال البشري لديها أعلى تأثير بينما في البلدان الغنية العمل الغنية بالنفط توفر أفضل البنى التحتية و سياسات النقد الأجنبي السليمة هي الأكثر أهمية. في البلدان الغنية الفقيرة العمالة يكون النفط هو المحرك الرئيسي للتدفقات الاستثمار الأجنبي المباشر هو نوعية المؤسسات.

1. Introduction

Like many developing countries, policy makers in Arab countries are highly concerned with Foreign Direct Investment (FDI) inflows. Such inflows represent additional resources needed to improve the economic performance of their country (e.g. Blomstrom et al., 1992, Agosin and Mayer, 2000 and Borensztein et al., 1998). Actually, FDI inflows are expected to increase a country's output and productivity, to encourage local investment and to stimulate the development and dispersion of technology. But, in order to reap such benefits, countries need to improve the attractiveness of their economy to FDI inflows. This is among the reasons that pushed a number of developing countries to implement reform packages. Such reforms, which aimed at the creation of an investment-friendly climate in the country, were mainly concerned with trade barriers, foreign exchange control, and the state involvement in business. However, international evidence suggests that such reforms might not be sufficient and companion policies would be needed to further strengthen the investment climate. Such policies concern the availability of adequate infrastructure, the quality of the economic, political and institutional framework and the availability of human capital.

The issue of attracting FDI is of prime importance to Arab countries; For a long time a majority of them has been attracting little FDI. In the late 1980s, the Region's ratio of FDI to GDP was the lowest (0.39%) compared to all other regions except South Asia (0.10%). However, recent figures show a significant improvement in FDI inflows to the Region which is now doing better than many other regions. Between 2005 and 2010, the Region ranks first in terms of ratio of FDI to GDP (4.6%) just before Europe & Central Asia (4.31%). It also shows a steady increase of the ratio since 1990 with a notable acceleration since 2003. There are, however, notable differences between countries over the period. Kuwait is receiving almost no FDI (like during the preceding periods) and Algeria exhibits a ratio of FDI to GDP far below 2%. In contrast, FDI to Jordan and Lebanon represent around 16% and 13% of their GDP respectively.

To provide useful policy recommendations one needs a better understanding of the drivers behind the good and bad performance in term of FDI inflows to the Region. Therefore, this paper seeks to explain not only the evolution of FDI to the Region and the contrast across countries but also compare with similar Asian countries. The paper focuses on the relative contribution of foreign liberalization, the quality of governance, human capital and availability of infrastructure.

The rest of the paper is organized as follows. The next section deals with the relation to the literature. Section 3 provides an analysis of FDI to the Arab region as compared to other regions of the world as well as the differences within the Arab region in terms FDI inflows. The fourth section presents the econometric analysis and Section 5 concludes.

2. Relation to the Literature

2.1 Impact of FDI

The literature emphasized three expected positive impacts of FDI inflows to a given country,: increase in productivity, increase in domestic investment and development and dispersion of new technologies.

FDI is supposed to increase a country's productivity through a more efficient use of capital, absorption of unemployed resources and a better combination of foreign advanced management skills with domestic labor and inputs. UNCTAD (1992) lends clear support to such a role of FDI in developing countries; a conclusion reached independently by Blomstrom et al. (1992). De Gregorio (1992) shows, in a panel of 12 Latin American countries, that FDI is about three times more efficient than domestic investment.

FDI is also expected to act as a catalyst for local investment by complementing local resources and providing a signal of confidence in investment opportunities. Agosin and Mayer (2000) examined such a role of FDI focusing on the extent to which FDI crowds in or crowds out domestic investment. Their estimates using a panel of 32 countries over the period 1970-96, showed the presence of a crowding-out effect in Latin America and a crowding-in effect in Asia. In Africa, FDI increases domestic investment one for one (neutral effect). These results mitigate those obtained by Borensztein et al. (1998) who found non-significant effect of FDI on domestic investment for a sample of 69 developing countries.

FDI can stimulate the development and dispersion of technological skills through transnational corporations' internal transfers and through linkages and spillovers among firms. The recent growth literature has highlighted the dependence of growth rates on a "catch-up" of the domestic technology relative to that of the rest of the world. Findlay (1978) suggested that foreign direct investment increases the rate of technological progress in the host country through a "contagion" effect from the more advanced technology and management practices, etc. used by foreign firms. Wang (1990) incorporates this idea into a model where the increase in "knowledge" applied to production is a function of FDI. On the empirical front, Borensztein et al. (1998) examined the role of FDI in the process of technology diffusion and economic growth in developing countries. They tested for the effect of FDI flows on economic growth in 69 developing countries through a "catch-up" process in the level of technology. Their results reveal a strong complementarity between FDI and human capital. FDI has an overall positive effect but its magnitude depends on the stock of human capital available in the host country. FDI can even have a negative effect on growth in countries with low levels of human capital.

Regarding the effects of FDI on Arab countries, little research has been conducted. It focused mainly on quantifying the influence on growth and the spillover effect. Bouklia and Zatla (2000) investigated the relationship between the stock of FDI and the growth rate. They found a positive but non-significant effect of FDI on growth. When they enlarged the cross-section dimension of the panel to include 54 developing economies, the relationship became highly significant. The authors interpreted this finding as reflecting the existence of a threshold level of human capital necessary for FDI to affect growth. Omran and Bolbol (2003) found that FDI's positive impact on growth in the Arab world depends on financial development. Finally, using a meta-study analysis of the literature on FDI and growth, Doucouliagos et al. (2010) found that in the Region the impact of FDI on growth is the lowest compared to the rest of the world.

Note, however, that fears were also expressed about the possible negative effects of FDI in developing countries. FDI was sometimes seen as a danger for national industries as it would entail the closing of national companies thus increasing unemployment, increasing the capital account weaknesses and preventing domestically led growth. It has also been subject to political criticism; seen among developing countries as a colonial relic aimed at taking control of national resources. As a consequence, many developing countries such as India (Bajpaj and Sachs, 2000), passed a series of legislations restricting foreign ownership, repatriation of capital, and conditioning FDI on performance requirements and technology transfer among others. The official aim was to maximize the benefits of foreign participation in national economies using public policy as a tool to channel investments to critical sectors, gather knowledge and protect the economy from international competition.

2.2 Determinants of FDI

Various motivations of FDI were put forward in the literature. The eclectic theory of FDI groups them into three categories (Dunning 1981 and 1988): Ownership-specific advantages, transaction costs and location advantages. Given the objective of the study, we will focus on

the third motivation. We group a country's advantages into three categories: basic economic factors, trade and foreign exchange policy and other aspects of the business climate.

Basic Economic Factors

An early survey by Agarwal (1980) identified the difference in the rate of return on capital across countries, portfolio diversification strategy of investors and market size of the host country as the basic economic determinants of country attractiveness with respect to FDI.¹

The difference in the rate of return depends on incentives for foreign investors and supply of cheap labor. Studies that have focused on incentive policies such as grants, subsidies, tax abatement, loan guarantees and interest subsidies, showed that their effect on FDI is only marginal (Gubert and Mutti, 1991; Brewer, 1993 and Loree and Guisinger, 1995). One possible reason is that incentives are generally accompanied by a set of restrictions and requirements.

The portfolio diversification hypothesis stresses the fact that investors select their locations taking into account both the expected profits and the perceived risk. Portfolio diversification helps reducing the total risk as long as returns are highly correlated within the country and weakly correlated between the home and the host countries. The empirical evidence in favor of this hypothesis remains weak. Some authors attempted to understand why multi-national companies tend to contribute more to FDI than to portfolio investments which are more likely to provide better instrument for geographical diversification. They argued that this preference might be due either to the absence of organized security markets (the case of LDCs) or to the presence of high inefficiencies on these markets when they exist.

Finally, FDI is considered to be a function of sales on the host market. Most empirical studies reviewed by Agarwal have lent support to the relationship between FDI and market size of the host countries. This view is, however, challenged by Lucas (1993). Focusing on seven Asian countries over the period 1960-87, he considered two measures of market size. One concerns the export market and the other concerns the domestic market. The results revealed a weak relationship between the size of the domestic market and the volume of FDI and a high degree of responsiveness of FDI to income in major export markets. This may reflect the outward orientation of foreign firms located in this region. FDI inflows are also found to be more responsive to wages than to costs of capital, including taxes.

Considering Arab countries, Moosa (2009) applied an Extreme Bound Analysis (EBA) to a large number of factors influencing FDI inflows. He found that FDI reacts to GDP growth, rather than to its level, to the enrolment in tertiary education, to research and development spending, to country risk and to domestic investment. Although the EBA methodology is criticized, his findings go in line with the conventional wisdom on the determinants of FDI. Massoud (2005) focused on the controversial debate on tax incentives to study their effect on FDI inflows to Egypt. While tax incentives might increase investments because of higher after tax returns, the author argued that there is no clear cut evidence of their effect on the location decision of MNEs. The study used the tax elasticity of investment to quantify the responsiveness of FDI to changes in the tax rate. The results showed that the positive effect of tax incentives on FDI is marginal. Moreover, such positive effect has been out passed by losses in the tax revenue. In sum, tax incentives have resulted in inefficiencies in public spending.

¹ Note, however, that FDI may also be linked to the desire to exploit some natural resources that are location specific (e.g. Petroleum).

Trade and foreign exchange policy

The impact of trade and foreign exchange policies was examined, among others, by Hufbauer et al. (1994), Froot and Stein (1991), Cushman (1985), Goldberg and Kolstad (1995) and Blonigen and Haynes (2002). Hufbauer et al. (1994) show that the size and openness of the host country are important determinants of FDI flows from the United States and Japan. Blonigen and Haynes (2002) support the hypothesis of tariff-jumping by multinational firms from industrialized countries into the USA. The relationship between FDI flows and exchange rate was examined by Froot and Stein (1991) who found that FDI inflows are negatively correlated with the value of the dollar. This implies that a depreciated currency can stimulate the acquisition of control of productive corporate assets. Cushman (1985) focused on the effects of real exchange rate risk and expectations on FDI. The results show significant reductions in US direct investment associated with increases in the current real value of foreign exchange, and very strong reductions associated with the expected appreciation of real foreign exchange. Goldberg and Kolstad (1995) explore the implications of short-term exchange rate variability on FDI flows and support the hypothesis that volatility contributes to the internationalization of production. Finally, Castanaga et al. (1998) found that exchange rate distortions in the host country do not have a negative effect on FDI flows while growth expectations exert a positive effect and corruption a negative one.

As far as Arab countries are concerned, Sekkat and Veganzones (2007) have examined the effects of trade and exchange rate policies on these countries' attractiveness to total FDI and to FDI in manufacturing. The results showed that openness increases total FDI inflows and that a friendly investment climate complements openness in further attracting FDI. The impact of openness on manufacturing is almost double that of the impact on total FDI which makes liberalization an even more important factor for the attractiveness of a country when more productive FDI is concerned.

Other aspects of the business climate

In addition to the above discussed policies, the business climate is affected by a large set of factors such as the availability of adequate infrastructure, the quality of the economic, political and institutional framework and the availability of human capital. These factors play an important role in a country's attractiveness to FDI.

Economists generally acknowledge the important role of infrastructure in stimulating growth and investment. Wheeler and Mody (1992) found that infrastructure quality is an important determinant of FDI inflows to LDCs. Labor costs and the existing foreign investment also play an important role. However, their results suggested that incentive variables to attract more FDI flows such as tax breaks or short run grants have only a limited effect because transfer pricing and deduction of foreign taxes provide alternative ways to reduce the amount of paid taxes.

Political instability can have a negative effect on FDI flows through its impact on profit uncertainty. Root and Ahmed (1979) tested for the effect of economic, social and political variables on FDI. They found that four economic variables (per capita GDP, GDP growth rate, economic integration, importance of transport, commerce and communication) one social variable (degree of urbanization) and one political variable (the number of constitutional changes in government leadership) have an effect on FDI. Schneider and Frey (1985) reexamined the issue and concluded that both economic and political factors are crucial for FDI flows to LDCs. As far as economic factors are concerned, FDI reacts positively to per capita GNP and negatively to the balance of payments deficit. Growth of GNP and the workers' skill level are found to have weak effects on FDI decisions. Regarding political determinants, the amount of bilateral aid coming from Western countries has a

strong positive effect on FDI flows, while a government's ideological position (right or left wing position) does not have any significant effect.

The role of institutions is crucial in terms of commitments to and enforcement of rules. Corruption is generally put at the heart of the non-enforcement of rules in LDCs. It is found to depress growth and domestic investment and to contribute to an unfair wealth distribution (Mauro, 1995). Wei (2000) carefully examined the relationship between FDI and corruption. He used three measures of corruption, all of which are based on surveys of international entrepreneurs. The estimation results showed the existence of a negative relationship between corruption level in the host country and inward foreign direct investment. Henisz (2000a) focused on the effect of commitment to rules on growth and investment. He examined the effect of frequent or arbitrary changes in taxation, regulation and other relevant economic policies and found that commitment to rules has a statistically and economically significant impact on growth and that this result is robust to various specifications. Henisz (2000b) focused on the effects of political hazard and contractual hazard on the investment decision of multinational corporations. The results confirm that firms are more likely to enter wealthier countries with large population and credible political rules.

The results of the "Doing Business" survey conducted by the World Bank highlight other aspects of institutions (e.g. labor market institutions, custom functioning, infrastructure etc.). Javorcik and Spatareanu (2004) concentrated on labor market regulation. They found that a more flexible labor market in the host country increases the likelihood of investment inflows. Dollar et al. (2004) studied the impact of low customs clearance times, reliable infrastructure and good financial services on FDI in eight developing countries. The results showed that such good investment climate attracts more foreign investment.

Rossto et al. (2005) investigated the potential impact of good telecommunication services on the Arab countries' attractiveness to FDI. Such services are assumed to facilitate integration into cross-border production networks, thus creating a supporting environment for investment. Their results imply that the availability of good telecommunication services increases the host country attractiveness with respect to FDI. Méon and Sekkat (2004) examined the impact of different dimensions of institutions on FDI to Arab countries.² Six indicators of institutions are considered (i.e. the Corruption Perception Index published by Transparency International, the corruption index provided by the World Bank, the corruption index computed by Wei, government effectiveness, the rule of law (both drawn from Kaufmann et al., 1999) and the index from the International Country Risk Guide (ICRG)). The results show that the ICRG index is significantly and positively correlated with the FDI ratio, suggesting that political risk is a severe impediment to FDI. The results also showed that the corruption index, as measured by Wei (2000), is significant suggesting corruption tends to impede FDI.

Chan and Gemayel (2004) complemented Sekkat and Méon (2004) by focusing on risk of instability. They used the economic, financial, and political risk indices of the International Country Risk Guide (ICRG). The standard deviation and the inter-quartile range are used as measures of risk of instability. The results show that the estimated coefficients of risk of instability have the expected sign and are significant irrespective of the measure of instability and of the index under consideration. It appears, therefore, that policies designed to stabilize investment risk should help Arab countries in attracting FDI. Such policies could include measures to improve the regulatory environment, reduce currency and financial risk, and avoid political and social instability.

² The work by Daniele and Marani (2006) is similar.

3. FDI in Arab Countries

The foreseen positive effects of FDI on the host economy have widely served as a basis for policies recommending the opening up of the economy to foreign investors. After the restrictive policies on foreign ownership pursued throughout the 1970's and the emergence of the Washington Consensus as a streamline for development in the 1980's, FDI was seen by policymakers in developing countries as the best and fastest way to get access to foreign technologies, markets, and increase foreign currency earnings. As it should serve as a support to the building of domestic production capabilities and exports, FDI required specific domestic policies (Gore, 2000).

Arab countries were not an exception to this trend. Examples include Algeria, Libya, Egypt, Jordan, Morocco and Tunisia among others. Before 1990, Algeria allowed direct investments in the hydrocarbons sector only if foreign investors enter the country via joint ventures with the national hydrocarbon company Sonatrach. This illustrates the willingness of public bodies to keep the country's resources under control while gaining access to foreign technologies. Egypt, although it did not impose controls on ownership by foreign investors, has used Law 8 of 1997 to channel foreign participation into targeted sectors. Libya allowed foreign participation on a minority basis. Jordan allowed only 50% of foreign ownership in a number of activities and FDI is subject to a minimum amount of funds. Before the 1980's, Morocco used the "moroccanization decree" to increase local ownership against foreign investments.

Today, most of the countries under study have adopted a more liberal framework towards foreign investors. Since 1995, Morocco has abolished the restrictive framework and adopted a highly liberalized environment for foreign investors. Tunisia has set foreign investment promotion as a key target of the 11th Economic Development Plan. Inflows have slowly increased partly as a result of such less restrictive framework.

3.1. A regional perspective

Figure 1 presents the ratio of FDI to GDP for Arab countries and other regions over four periods. In the first period, Arab countries scored one of the lowest ratios (0.78%) of all regions. However, in the last period the Region exhibited the highest ratio (4.85%) just before Europe & Central Asia (4.66%) and far ahead of the other regions. This evolution translates the dramatic increase of the ratio of FDI to GDP in the Arab countries (4 percentage points) which equals almost twice the highest increase observed in the other regions except Europe & Central Asia. There are, however, notable differences across the Region.

From an economic point of view, one can divide Arab countries in three sub-groups:

- Oil rich and labor poor countries (the Gulf countries and Libya),
- Oil rich and labor abundant countries (Iraq, Algeria, Syria, Sudan and Yemen)
- Oil poor and labor abundant countries (Egypt, Morocco, Tunisia, Jordan and Lebanon).

Due to data availability, Mauritania, Djibouti, Somalia and Palestine were not included in the analysis. Figure 2 compares the ratio of FDI to GDP across three sub-groups over four periods. It shows the same steady increase of the ratio for the three groups. However, the group of oil poor and labor abundant countries exhibits the highest increase and the highest level of the ratio in the last period. The performance is impressive given that this group had the lowest ratio during the two first periods. The second group is the lowest performing.

3.2 A sub-regional perspective

The above analysis already suggested that the various groups of Arab countries didn't perform similarly in terms of FDI inflows. This section shows that the differences show up even inside each group. Figure 3 which focuses on the group of oil rich and labor importing countries shows that Bahrain is the country benefiting the most from FDI inflows given its

GDP and has maintained such a status all over the four periods. Qatar exhibits a similar performance although less pronounced. Only during the last period, Saudi Arabia, United Arab Emirates, Oman and Libya have a high ratio which is comparable to the rest of the group. Interestingly, Kuwait received very little FDI throughout all the periods. The ratios inside the group of oil rich and labor abundant countries are presented in Figure 4 which reveals that Syria is achieving the best all over the period although its ratios are much lower compared to countries in the other groups. During the last period, Yemen exhibits a relatively high ratio while Algeria and Iraq have received very little FDI over the four periods. Finally, in Figure 5 Lebanon and Jordan appear as the best performing in terms of attraction of FDI inside the group of oil-poor and labor-abundant countries. Actually, their scores during the last period are much higher than any country in the other groups. Egypt and Tunisia are doing fairly while Morocco has the lowest ratios.

4. Empirical Analysis

4.1 Specification

Empirical studies differ with respect to FDI specifications. The differences concern both the variables to be included in the specification and their definition (nominal versus real measures and levels versus growth rates). A common specification relates the ratio of FDI over GDP to per capita GDP and other variables of interest (see Sekkat, 2012 for a discussion):

$$\text{Log} (FDI_{it} / GDP_{it}) = \beta_0 + \beta_1 * \text{Log} (GDP \text{ per capita}_{it}) + \beta_2 * \text{Log} (Infrastructue_{it}) + \beta_3 * \text{Log} (Humancapital_{it}) + \beta_4 * \text{Log} (Institution_{it}) + \beta_5 * \text{Log} (Foreigntax_{it}) + \eta_{it} \quad (1)$$

where

FDI_{it} / GDP_{it} is the ratio of foreign direct investment inflows to gross domestic product of country i ;

$Infrastructue_{it}$ is an indicator of country i 's infrastructure;

$Humancapital_{it}$ is an indicator of country i 's human capital;

$Institution_{it}$ is an indicator of country i 's quality of institution;

$Foreigntax_{it}$ is an indicator of country i 's foreign exchange policy;

η_{it} is the error term

We scaled down FDI by GDP to correct for the differences in countries' sizes. The explanatory variables are in real term. The relationship between per capita GDP and FDI is debated in the empirical literature (Asiedu, 2002). For instance, Schneider and Frey (1985) consider GDP per capita as reflecting the wealth of the resident of the host country and then demand effectiveness. The expected sign of the corresponding coefficient is, therefore, positive. In contrast, Edwards (1990) interprets GDP per capita as the inverse of the return on capital in the host country. Then the coefficient of GDP per capita in the FDI equation is expected to be negative. A higher real per capita income is supposed to decrease the attractiveness of FDI. The four variables are from the World Development Indicators published by the World Bank.

Our variables of interest are those reflecting the "investment climate" (in the broad sense) on which governments can act to attract FDI. The indicator of foreign exchange policy ($Foreigntax_{it}$) is the indicator called Freedom to Trade Internationally published by the Fraser Institute. It reflects the open orientation of the economy beyond trade in goods which is more relevant for investors than for traders. It combines information on taxes on international trade, regulatory trade barriers, black-market exchange rates and international

capital market controls. An increase in the indicator means more openness. Its coefficient might be positive or negative following the motive of FDI. If the motive is only to serve the host market, the coefficient should be negative because higher openness means more competition on this market. This is known as the “tariff jumping” motivation for FDI. If the objective is to serve external markets, the coefficients should be positive since higher openness means easier access to foreign markets. Moreover, higher openness can allow cheaper access to imported inputs. To assess the impact of the quality of institutions, we use the indicator “investment profile” of a country which is published by the PRS Group in the International Country Risk Guide (ICRG). The indicator is the sum of three basic indices assessing three distinct dimensions of the formal environment of FDI: contract viability, profit repatriation, and payment delays. It ranges from zero to 100, higher values indicating a better environment. For the other indicators, we follow the literature in using the primary school enrolment ratio as a human capital indicator and the number of telephone subscribers per 1000 inhabitants as an infrastructure indicator.

4.2 Sampling issues

To conduct the analysis a sample of 29 countries, of which 16 Arabs and 13 Asians, over the period 1984-2009 has been built. As has been shown in the descriptive analysis,³ there is potentially important heterogeneity not only between Arab and Asian countries but also among Arab countries which poses two interesting questions: i) is the Arab world really (statistically significant) different relative to Asian countries? ii) Within the Arab sample, are the three groups really treated differently? To address these questions, we consider four sub-samples (Asians and the three Arab groups). Equation (1) is estimated over the whole sample while allowing for the coefficients to differ across sub-samples. Precisely, for each sub-sample a geographic dummy is created which takes the value 1 when the observation corresponds to the sub-sample under consideration and zero otherwise. To judge whether the coefficients are statistically different between sub-samples, an F-test is performed.

Table 1 gives the results of the F-tests pertaining to each comparison. It distinguishes whether the difference concerns only the average level of the ratio (Column “constant”) or the behavior of investors across sub-samples (Column “slopes”). A first comparison is conducted with respect to Asia for the whole Arab world and for each Arab sub-group with respect to Asia (the first 2 columns):

- To compare the whole Arab world to Asia (First line), each explanatory variable is introduced in interaction with the geographic dummy (one for Arabs and the other for Asia). The F-test examines whether the coefficients of the variables are equal i.e. there is no difference between the whole Arab world and Asia.
- To compare each Arab group to Asia (Second, third and fourth lines), each explanatory variable is introduced in interaction with the geographic dummy corresponding to each group. The F-test examines whether the coefficients of the variables are equal i.e. there is no difference between the corresponding Arab group and Asia.

A second comparison concerns each Arab sub-group with respect to the average of the whole Arab world. The approach is the same as above except that now each Arab sub-group is compared to the rest of Arab countries.

Out of the reported 14 F-statistics, two are significant at the 5% level and 12 at the 1% level meaning that the equality of coefficients between all pairs of sub-samples is rejected by the data both for the constant and slopes. These results provide answers to the above questions: i)

³ A dramatic change after 2004 was also noticed with the descriptive analysis. We conducted similar tests allowing for coefficients to differ before and after 2004. The results are reported in Appendix B. They provide no additional insight relative to the sub-samples comparisons.

Yes the Arab world is different relative to the Asian frontier and ii) Within the Arab sample the three groups are different.

4.3 Estimation results

The above analysis showed that the Arab world is different relative to the Asian and that the different Arab sub-groups are treated differently by foreign investors. This has the technical implication that estimation should allow for differences in coefficients. Doing so, allows better highlighting of the sources of the differences. The analysis is conducted at two levels. The first level concerns the whole Arab world versus Asia while the other concerns the differences within the Arab world. During estimation, the results of the third group of Arab countries (Oil-poor labor-rich) exhibits unexpected and significant results for some key variables. Having further investigated the source of this contrast, it appears to depend on the presence of Egypt in the sub-sample. Dropping Egypt and re-estimating the model seems to solve the problem. We preferred, therefore, presenting the results without Egypt in the sample.

Table 2 provides the Panel fixed effects estimation results of Equation 1 over the whole but allowing for differences in coefficients between Arab countries as a whole and Asia. The overall quality of the fit is good. The results pertaining to Asia show only one significant coefficient i.e. the one of foreign exchange. It is worth remembering here that foreign exchange refers not only to trade in goods but also to capital market. Hence, for two equally liberalized countries in term of trade in goods the investors will choose the one with a higher liberalized capital market. The results concerning Arab countries as a whole show three significant coefficients i.e. the ones of infrastructure, institutions and foreign exchange. All significant coefficients have the expected positive sign. As compared to Asia, the Arab world as a whole can attract more FDI provided infrastructure availability, quality of institutions and foreign exchange policies are improved.

Turning to the differences within the Arab world, the Panel fixed effects estimation results are presented in Table 3. Estimation is conducted over the whole Arab sample but allowing for difference in coefficients across groups following the approach explained above. The overall quality of the fit is good. The results pertaining to the oil-rich labor-poor countries sub-sample show that investors are mainly leaning towards countries with high real per capita income and human capital. For the oil-rich labor-rich countries sub-sample, the significant coefficients are those of real per capita income, infrastructure and foreign exchange. In contrast to the results in the first group, the coefficient of the per capita GDP is significant and negative which is coherent with Edwards (1990)'s interpretation i.e. GDP per capita as the inverse of the return on capital in the host country. The coefficient of infrastructure and foreign exchange are positive. Here, investors are mainly concerned with the return on capital in the host country, the liberalization of foreign exchange and the provision of infrastructure. The results of the third group of Arab countries (Oil-poor labor-rich) imply that the main driver of FDI inflows in this group is the quality of institutions.

To sum up, it appears that for the Arab world as whole to attract or maintain as much FDI as Asia, infrastructure availability, quality of institutions and foreign exchange policies should be improved. Interestingly such improvements could affect the three sub-groups of Arab countries. In the oil-rich labor-poor countries better availability of human capital has the highest impact while in the oil-rich labor-rich countries sub-sample better availability of infrastructure and sound foreign exchange policies are the most important. In the oil-poor labor-rich countries the main driver of FDI inflows is the quality of institutions.

5. Conclusion

Foreign Direct Investment (FDI) inflows represent additional resources developing countries need in order to improve the economic performance of their economies. Hence, many of them

are highly concerned with attracting such inflows. The issue is also of prime importance to Arab countries which have been attracting little FDI in the past especially compared to Asia. However, since 2005 figures show a significant improvement in terms of FDI inflows to the Region. The purpose of this paper was to investigate the determinants of FDI to Arab countries in order to identify the reasons of recent improvement and single out policies that allow such improvement to continue. The analysis was conducted in a comparative perspective to comparable Asian countries to identify additional measures that allow such improvement to continue.

The analysis was conducted at two levels. The first level concerns the whole Arab world compared to Asia while the other concerns the differences within the Arab world. It was found that the Arab world is different relative to the Asian and that the different Arab sub-groups (Oil-rich-labor-poor countries, oil-rich-labor-rich countries and oil-poor-labor-rich) are treated differently by foreign investors. The results show that that for the Arab world as whole to attract or maintain as much FDI as Asia, infrastructure availability, quality of institutions and foreign exchange policies should be improved. It is worth noting that foreign exchange refers not only to trade in goods but also to capital market. Hence, for two equally liberalized countries in term of trade in goods, the investors will choose the one with a higher liberalized capital market. Interestingly such improvements could affect the three sub-groups of Arab countries. However, in the oil-rich labor-poor countries better availability of human capital has the highest impact while in the oil-rich labor-rich countries better availability of infrastructure and sound foreign exchange policies are the most important. In the oil-poor labor-rich countries the main driver of FDI inflows is the quality of institutions.

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Figure 1: Ratio of FDI to GDP (%) across time and space

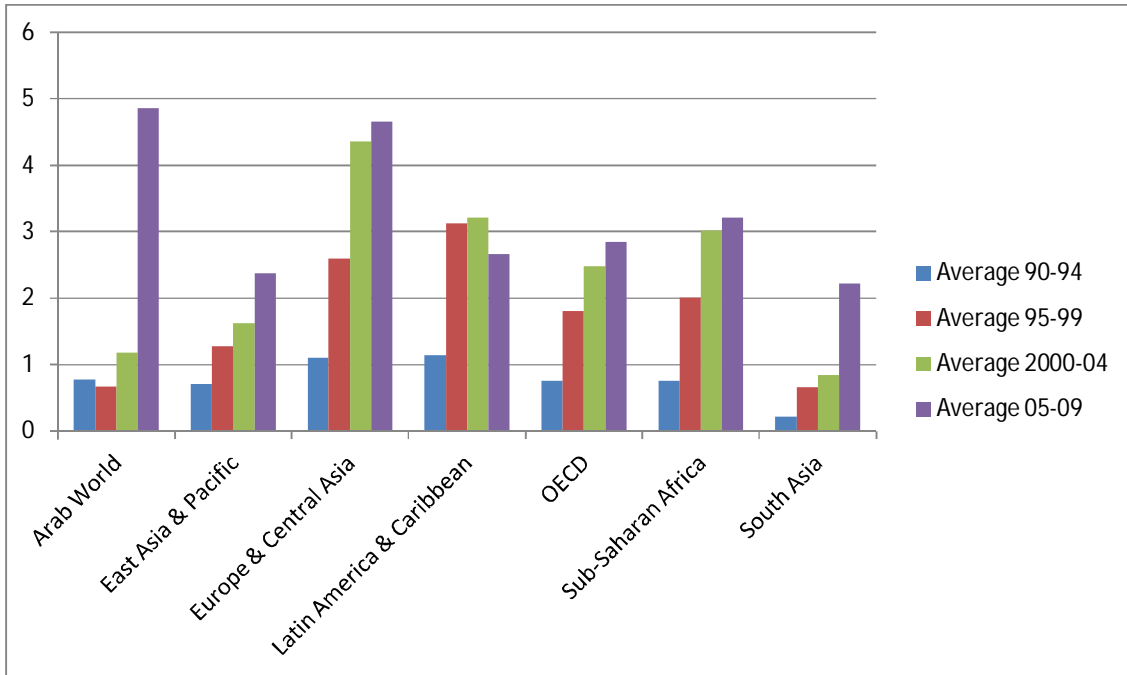


Figure 2: Ratio of FDI to GDP (%) Across Time and Group of Arab Countries

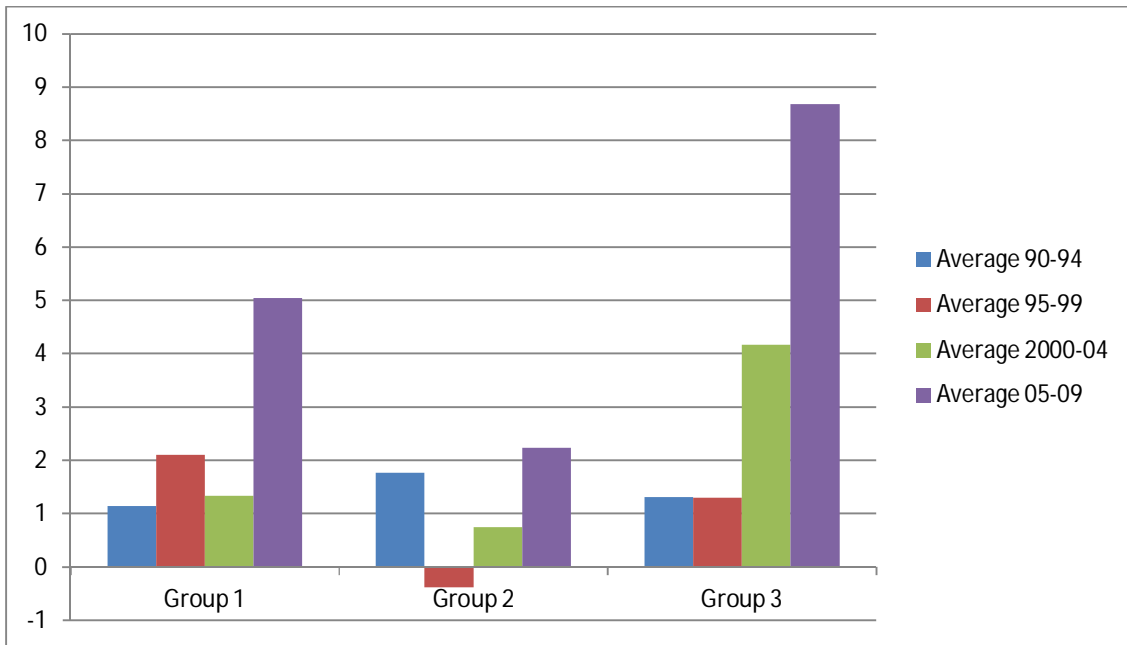


Figure 3: FDI Inflows as % of GDP Oil Rich and Labor Importing Countries

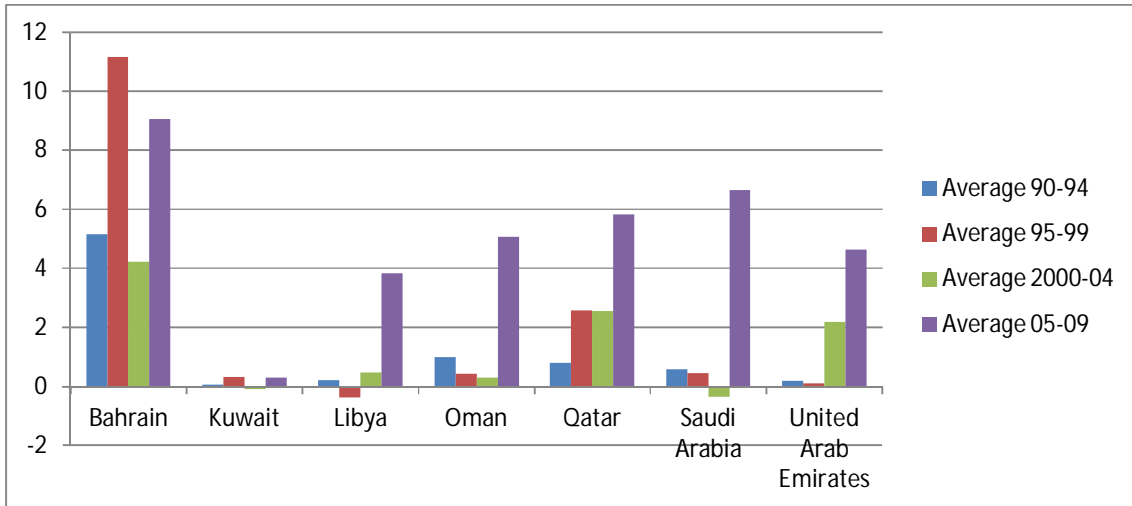


Figure 4: FDI Inflows as % of GDP in Oil Rich and Labor Abundant Countries

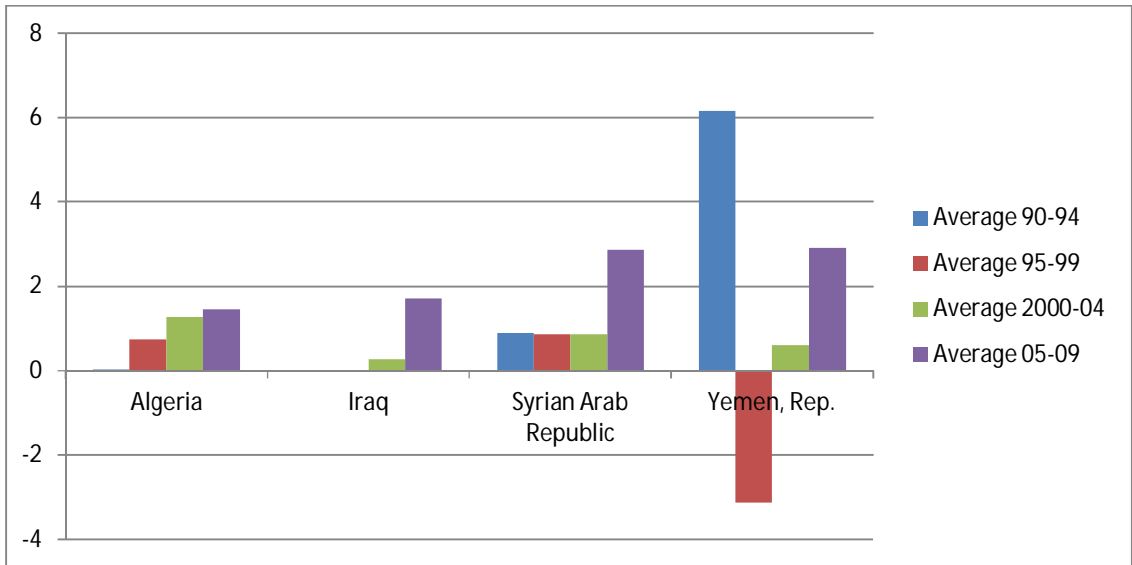


Figure 5: FDI Inflows as % of GDP in Oil Poor and Labor Abundant Countries

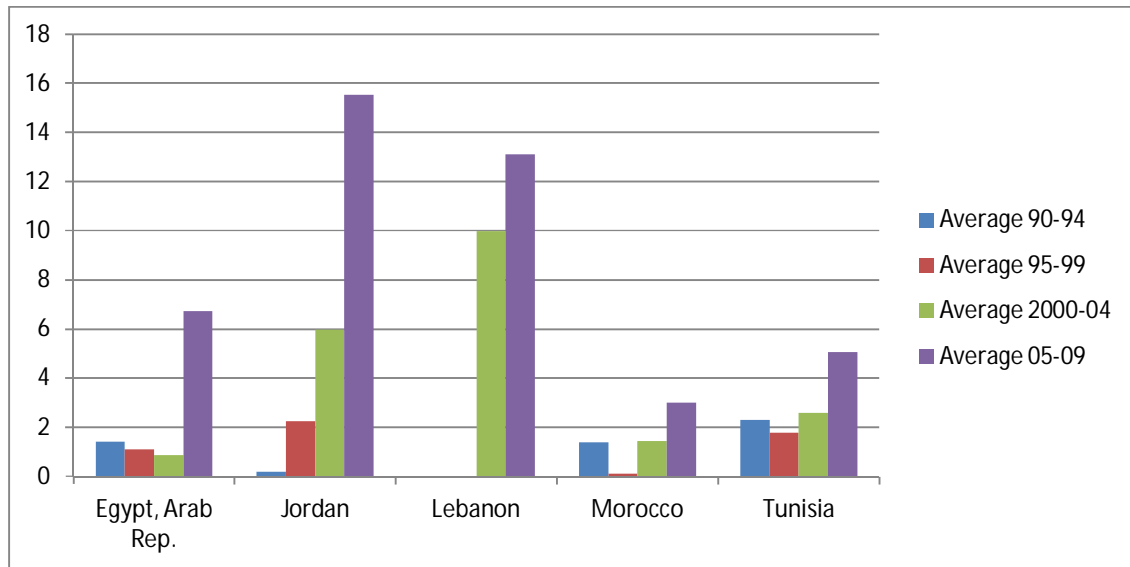


Table 1: Tests of the Equality of the Coefficients between Samples

	Comparator			
	Constant	Asia Slopes	Constant	Arab Countries Slopes
Arab Countries	F (1,437): 47.52 ***	F (5,432): 9.68 ***
Oil rich Labor poor	F (1,272): 43.45 ***	F (5,267): 15.12 ***	F (1,176): 8.651 ***	F (5,171): 10.04 ***
Oil rich Labor rich	F (1,280): 24.03 ***	F (5,275): 2.39 **	F (1,176): 22.26 ***	F (5,171): 2.80 **
Oil poor labor rich	F (1,330): 34.87 ***	F (5,325): 22.58 ***	F (1,176): 13.65 ***	F (5,171): 12.69 ***

Notes: ** = Significant at 5%, *** = Significant at 1%

Table 2: Estimation Results: Arab Countries Compared to Asia

	Asia		Arab Countries	
	Coefficient	t-statistic	Coefficient	t-statistic
Real per capita income	0.537	1.282	-0.950	-1.300
Infrastructure	-0.204	-1.220	1.331	4.804
Institutions	0.376	1.105	0.571	1.713
Human capital	0.770	0.626	0.640	0.668
Foreign exchange	3.622	7.519	2.165	3.420
Number of observations			376	
Fixed effects test; P-value			0.00	
Adjusted R ²			0.67	

Table 3: Estimation Results: Arab Sub-Groups Compared to the Whole Arab World

	Oil rich labor poor		Oil rich labor rich		Oil poor labor rich	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
Real per capita income	6.736	2.857	-11.095	-4.827	0.095	0.097
Infrastructure	-3.226	-1.521	3.538	4.543	0.511	1.410
Institutions	-1.432	-1.625	-0.180	-0.221	2.096	4.376
Human capital	8.644	2.209	-5.513	-1.452	-0.763	-0.674
Foreign exchange	-8.263	-1.605	3.356	2.384	1.913	1.018
Number of observations			158			
Fixed effects test; P-value			0.00			
Adjusted R ²			0.73			

Appendix A: Countries in the Sample

Country	Region
Algeria	Arab
Bahrain	Arab
Egypt	Arab
Iraq	Arab
Jordan	Arab
Kuwait	Arab
Lebanon	Arab
Libya	Arab
Morocco	Arab
Oman	Arab
Qatar	Arab
Saudi Arabia	Arab
Syria	Arab
Tunisia	Arab
UAE	Arab
Yemen	Arab
Bangladesh	Asia
China	Asia
India	Asia
Indonesia	Asia
Japan	Asia
Korea South	Asia
Malaysia	Asia
Pakistan	Asia
Philippines	Asia
Singapore	Asia
Sri Lanka	Asia
Thailand	Asia
Vietnam	Asia

Appendix B: Analysis Post 2004

Table B1: Tests of the Equality of The Coefficients between Samples (Since 2004)

	Comparator			
	Constant	Asia Slopes	Constant	Arab countries Slopes
Arab Countries	F (1,109): 53.31 ***	F (5,104): 5.59 ***		
Oil rich Labor poor	F (1,67): 4.22 ***	F (5,62): 22.73 ***	F (1,44): 1.19	F (5,39): 19.93 ***
Oil rich Labor rich	F (1,64): 8.68 ***	F (5,59): 0.33	F (1,44): 7.39 ***	F (5,39): 7.27 ***
Oil poor labor rich	F (1,76): 99.25 ***	F (5,71): 1.92	F (1,44): 12.06 ***	F (5,39): 3.17**

Table B2: Estimation Results (Since 2004)

	Asia and Arab Labor rich countries	Oil rich Labor poor Arab Countries
Real per capita income	-0.239 -1.084	-3.143 -3.165
Infrastructure	0.005 0.033	5.785 2.286
Institutions	-0.733 -1.558	51.916 2.820
Human capital	-1.399 -1.577	5.743 1.027
Foreign exchange	4.432 6.592	9.248 1.466
Number of observations		110
Adjusted R ²		0.79