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Institutional Reforms Policy Debate and FDI Flows to MENA Region

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Abstract:

The paper revisits the policy debate on institutional reform approaches in the development economics and economic policy literature and empirically examines its relevance to the MENA region in the context of FDI flows. Using panel data for the period 1985-2008 and adopting an error components model, the paper finds little relevance of this debate to MENA countries.

Empirical evidence suggests the importance of natural and human resources to FDI flows to the region. Improvement in investment expropriation risk has a positive influence. Bilateral investment treaties with OECD countries and other domestic institutional functions do not have statistically significant influence on FDI flows.

***JEL Classification*:** F21; K33; O16; O17; O19

Keywords: Property rights protection; bilateral investment treaties; FDI; institutional reforms; MENA

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Institutional Reforms Policy Debate and FDI Flows to MENA Region

1. Introduction

Institutions are defined as the set of rules governing human behavior (North 1991). They include both formal and informal rules. Formal rules are legal in nature, and include constitutions, laws, and regulations created and enforced by the government, in response to individuals' needs to organize interactions in society. Informal rules are social in nature, and include traditions and customs, influenced by cultures and beliefs, and evolve with the development of society and human behavior.

Institutions play an important role in supporting markets and transactions by protecting property rights, enforcing contracts, and facilitating collective action to provide physical and organizational infrastructure (Dixit 2009). They create order, reduce uncertainty in the exchange of goods and capital, and help determine the transaction and production costs and thus the feasibility and profitability of engaging in economic activity (North 1991).

Among the positive outcomes of good institutions is the promotion of integration into the world economy (Rodrick 2008). In promoting integration into the world economy, capital flows constitute one important integration channel. Property rights protection (PRP) is widely believed and has been empirically found to encourage capital flows and provide incentives for investment and capital exchange.

In empirically examining the influence of domestic institutions on capital flows, empirical studies have focused mostly on domestic PRP institutional functions.[1,2] These studies have used indicators of institutional functions quality, which assess actual performance against industrialized countries' first best performance.

[1] By PRP institutional functions we refer to the *outcomes* of domestic institutions, mainly the legal and judicial systems and the government bureaucracy, which influence the PRP process. Examples of these functions are the issuance of laws; the enforcement of laws, contracts and order; the restriction of government's power to expropriate and extract rents; and the control of corruption.

[2] See for example Alfaro *et al* (2008), Asiedu (2006), Busse and Hefeker (2007), Daude and Fratzscer (2008), Daude and Stein (2007), Du *et al* (2008), Faria and Mauro (2009), Kraay and Nehru (2006), Lane (2004), Mina (2006), Mina and Martinez-Vazquez (2006), Mishra and Dally (2007), Naude and Krugell (2007), and Wei (2000).

This assessment approach has been adopted despite the diverging social and political norms between developing and emerging market economies on the one hand and developed economies on the other. Such approach implies that institutional reforms, if decided on, should in principle bring convergence of domestic institutional functions performance in developing and emerging market economies to that in developed countries. It may also imply that in undertaking institutional reforms, developing and emerging market economies should adopt an "orthodox" approach of reforming domestic institutions that is believed to achieve the first best, a point that is discussed further below.

The assessment of institutional function performance against industrialized countries' first best is understandable in light of the intensifying globalization over the past quarter century and the growing importance of markets in resource allocation and conducting economic activity. Intensifying globalization and development of markets have required the adoption of common institutional functions and standards, similar to the adoption of a common language in communications, which facilitate trade and capital mobility.

Adopting an orthodox approach for institutional reforms, however, does not take into account a country's unique circumstances and the interaction with other institutional features within the country. This view is supported by Rodrick (2008), who argues that institutional reforms promoted, for example by the World Bank, IMF or WTO, presumes the existence of a unique set of appropriate institutional arrangements the convergence to which is "inherently desirable". He also warns that the convergence to a first best practice does not "consider potential interactions with institutional features elsewhere in the system" and advocates institutional reforms based on the theory of the second best instead.

Along the lines of the theory of the second best, many governments have signed bilateral investment treaties in the presence of domestic institutional functions in order to strengthen PRP, either as complements or substitutes to their domestic (PRP) institutional functions. A bilateral investment treaty is a legal instrument under international law between two contracting countries, the aim of which is to establish clear, simple, and

enforceable rules for the reciprocation of foreign investment protection from the risk of government expropriation in each other's country. It identifies the circumstances under which expropriation can take place and the associated compensation standards, and establishes investment dispute settlement mechanisms, which facilitate foreign investment in the presence of imperfect domestic PRP institutional functions.

Against the theoretical debate underlying institutional reforms, the paper empirically examines the validity of this debate to MENA countries. The paper empirically examines the influence of the second best approach for PRP comprised of bilateral investment treaties *and* domestic institutional functions on FDI flows to the Middle East and North Africa (MENA) region, while controlling for the traditional FDI determinants. The paper compares such influence to that of the first best approach comprised only of domestic institutional functions. MENA countries provide a room for improvement in performance of a number of domestic institutional functions. The paper selects treaties entered into force with high income OECD countries, which constitute about one third of the number of treaties entered into force by 13 high and middle income MENA countries.[3]

The paper uses panel data for the period 1985-2008 and adopts an error components model (least squares dummy variables) approach to take into account potential unobservable country effects. Empirical evidence shows that the risk of investment expropriation is the only domestic institutional function that matters to FDI flows; FDI flows are "risk improvement" elastic. The influence of bilateral investment treaties is mostly of no statistical significance; if it is, the influence is surprisingly negative. Oil prices and labor force have a positive influence on FDI flows emphasizing the importance of natural and human resources to FDI in MENA countries. The institutional reform debate is of little relevance to the MENA countries as far as FDI flows are concerned.

[3] Sample countries comprise Algeria, Egypt, Libya, Morocco and Tunisia from North Africa, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE from the GCC region, in addition to Jordan and Syria. Lebanon has been excluded from the sample due to the civil war and political unrest, which have plagued the country until recently, and the absence of natural resources, an important explanatory variable in the empirical model.

The paper proceeds as follows. Section 2 discusses the findings of the empirical literature on the influence of domestic institutional functions and bilateral investment treaties on FDI. Section 3 discusses the empirical model and the testable hypotheses. Section 4 discusses the data and empirical issues and the estimation methodology adopted. Section 5 discusses the empirical results, while section 5 concludes.

2. Influence of domestic institutional functions and bilateral investment treaties on FDI in empirical literature

2. 1 Domestic institutional functions and FDI

The influence of domestic institutional functions on the different types of capital flows has been empirically examined in the FDI literature. It is found that better domestic institutional functions encourage FDI in different regions. Asiedu (2006) finds that less corruption, political stability, and legal system reliability promote FDI in *Africa*, a result that Naude and Krugell (2007) share. Mishra and Daly (2007) reach similar results in examining FDI in *host OECD and Asian countries*. They find that the strength and impartiality of the legal system, popular observance of law, strength and quality of bureaucracy, and government stability have a direct effect on FDI. Focusing on US FDI in *China*, Du et al (2008) recently examine the impact of economic institutions, including PRP and contract enforcement, on location choice among Chinese regions, and find that US multinationals prefer to invest in regions with better protection of intellectual property rights, lower degree of government intervention in business operations, lower level of government corruption, and better contract enforcement.

More generally in *developing countries*, Busse and Hefeker (2007) find that institutional functions, namely government stability, internal and external conflict, corruption and ethnic tensions, law and order, democratic accountability of government, and quality of bureaucracy, are highly significant determinants of FDI inflows. Daude and Stein (2007) find that better institutional functions have an overall positive effect on bilateral FDI. However, some institutional functions have more influence on FDI than others; these include government stability, law predictability, and quality of regulations and policies. Wei (2000) focuses solely on corruption and finds that corruption acts as a tax deterrent to bilateral FDI.

PRP institutional functions have an important influence on equity capital flows, i.e. both FDI and portfolio equity. In examining whether countries get more financially integrated through certain types of capital flows as opposed to others, Daude and Fratzscer (2008) find that portfolio investment, compared to FDI and debt securities, is by far the most sensitive to quality of institutional functions. Similarly Alfaro *et al* (2008) find that low institutional quality is the leading factor in explaining the lack of capital flows from rich to poor countries – the Lucas Paradox. Exploring the determinants of countries' external capital structure, Faria and Mauro (2009) find that the share of FDI and portfolio equity in countries' total external liabilities is positively influenced by quality of institutional functions, as well as educational attainment and natural resource abundance: Better domestic institutional functions are said to tilt countries' capital structures towards equity and away from debt.

2. 2 Bilateral investment treaties and FDI

The influence of bilateral investment treaties on FDI has been examined in the FDI literature (Desbordes and Vicard 2009; Egger and Pfaffermayr 2004; Egger and Merlo 2007; Hallward and Driemeier 2003; Kerner 2009; Mina 2009; Neumayer and Spess 2005; Tobin and Rose-Ackerman 2006; UNCTAD 1998). This research question has been extended to a number of directions: the role of treaties in strengthening economic and political relationships (Desbordes and Vicard 2009); the nature of relationship between treaties and domestic institutions (being complements or substitutes) (Desbordes and Vicard 2009; Hallward and Driemeier 2003; Mina 2009; Neumayer and Spess 2005); the level of government commitment to PRP by signing or entering into force treaties (Egger and Pfaffermayr 2004; Egger and Merlo 2007; Kerner 2009; Mina 2009); the impact of treaties on FDI over time (Egger and Merlo 2007); and the impact of treaties as proliferation across countries (Tobin and Rose-Ackerman 2006). We briefly survey below these studies keeping in mind first the impact on FDI and second the finer strand addressed.

UNCTAD (1998) examines the impact of investment treaties on FDI using both time series and cross section analyses. Time series analysis has been conducted using data over 11 years and 200 bilateral investment treaties signed between 14 home and 72 host countries. The study finds that investment treaties have a positive, albeit not a strong effect on FDI flows. However, BIT impact is most statistically significant for the share of a home country partner in a host country's total inflows, and for the share of a particular host country in a home country's total FDI outflows. The cross section analysis of the study has found a positive impact of investment treaties on the absolute level of FDI flows and on FDI flows relative to GDP. The overall conclusion of the cross section analysis is that investment treaties play a minor and secondary role in attracting FDI, while the leading determinant appears to be market size.

A similar conclusion is reached by Hallward-Driemeier (2003) in examining the impact of ratified bilateral investment treaties on bilateral FDI flows from 20 home OECD countries to 31 host developing countries over the period 1980–2000. She tests for the change over time in the property rights introduced with ratified BITs in three ways: a) using a dummy variable that takes the value of 1 once a BIT has been ratified between a pair of source-host countries; the significance of the coefficient indicates the importance of the treaty; b) using a dummy variable for a three-year post ratification window to capture the time horizon over which a BIT might attract additional FDI; and c) using a series of dummies, for the year of ratification, and each year prior and post ratification to see if there are consistent patterns across country pairs. She finds both negative and little positive impact of investment treaties on FDI in countries, and argues that this impact is possibly obscured by other changes occurring between the two contracting partners over time, such as lowering trade barriers, the increased knowledge of conducting business in the host country, and ratification of a tax treaty. She also finds that bilateral investment treaties complement rather than substitute for strong domestic institutions, and are more "effective in settings of higher institutional quality and where institutions are already being strengthened." Accordingly, she argues that, "*This undermines a central rational for some of the less developed countries that enter into these agreements hoping to bypass the need to strengthen property rights and institutions more generally. Put differently, if host countries are committed to trying to attract more FDI, BITs have not*

provided a short-cut from the need to implement broader reforms of domestic institutions (italics added; pages 21-22)."

More recent studies have found a positive impact of bilateral investment treaties on FDI. Distinguishing between signed and ratified bilateral investment treaties, Egger and Pfaffermayr (2004) find that both signed and ratified treaties exert a significant positive impact on the stock of outward FDI of 19 home OECD countries into 54 host countries (both OECD and non-OECD) for the period 1982–1997. However, the impact of ratified treaties is higher than that of signed treaties. Similarly Neumayer and Spess (2005) find that bilateral investment treaties have a significant positive impact on FDI flows to 119 developing countries for a longer time period (1970–2001). Also Tobin and Rose-Ackerman (2006), in studying the impact of bilateral investment treaties contracted between home OECD countries and host developing countries during the period 1980–2003, find that the number of treaties contracted has a positive impact on FDI in subsequent periods but their marginal impact diminishes as the number of globally contracted BITs increases. Additionally, they find that a stronger political environment for investment and a better local economic environment are complements to BITs.

Accounting for the long-run dynamic effect of bilateral investment treaties on FDI and adopting a first-differenced GMM estimator, Egger and Merlo (2007) use bilateral FDI stocks covering 24 home and 28 host OECD and transition countries in the period 1980–2001. They find that the long-run impact of bilateral investment treaties on FDI is nearly double the short-run effect.

Focusing on the oil abundant Gulf Cooperation Council (GCC) countries and arguing that the rationale for contracting bilateral investment treaties seems controversial and goes beyond attracting FDI to strengthening bilateral economic and political relationships, Mina (2009) finds that bilateral investment treaties contracted with high-income non-OECD countries have a positive influence and are more influential on FDI stocks than domestic institutions, contrary to Hallward-Driemeier (2003). On the other hand, bilateral investment treaties contracted with OECD and upper-middle-income countries have a surprisingly negative influence, and seem to be dominated by the significantly positive influence of domestic institutions on FDI similar to Hallward-Driemeier (2003).

Focusing on the political rationale of bilateral investment treaties, Desbordes and Vicard (2009) argue that foreign investors are likely sensitive to the quality of interstate political relationships, which negatively affects government expropriation of investment. In this respect bilateral investment treaties offset interstate political tensions. Using a gravity FDI model to empirically examine the impact of bilateral investment treaties on bilateral FDI stocks between 30 OECD countries and 62 OECD and non-OECD countries in 1991-2000, they find that the quality of interstate political relations significantly increases FDI, bilateral investment treaties have a positive effect on FDI stocks especially when interstate political relationships are tense, and the effectiveness of treaties increases with the quality of domestic governance suggesting that both domestic institutions and bilateral investment treaties are complements.

Observing the puzzle that bilateral investment treaties increase *aggregate* FDI flows despite the absence of evidence on increased investment by protected investors, Kerner (2009) offers explanations of the mechanisms through which bilateral investment treaties impact FDI based on international relations theories. He argues that ratified treaties can tie the government's hands through *ex post* costs of violating treaties – an institutionalist argument, or send a signal that the government observes investors' property rights and is therefore trustworthy – a realist argument.[4] He tests two main hypotheses. First, bilateral investment treaties tie governments' hands and therefore encourage FDI flows from protected investors. Second, bilateral investment treaties send widely a credible PRP signal, and therefore encourage FDI flows from both protected and unprotected investors by the treaty.

[4] Elkins et al (2006) perceive bilateral investment treaties tying the hands of the government by a) specifying the contractual obligations of the host government regarding the protection of foreign investments; b) explicitly involving the home country's government thereby increasing the possibility of severing diplomatic relations as the foreign investor's home government gets involved in case of investment disputes; c) enhancing contract enforcement and awarding compensation to foreign investors whenever expropriation is established through the dispute settlement body; and d) increasing the reputation costs in the eyes of other non-treaty countries and investors.

3. Empirical model and hypotheses

3.1 Empirical model

The location advantage hypothesis of Dunning's (1981) ownership-location-internalization (OLI) paradigm argues that for a multinational corporation to invest abroad location advantages have to exist in the host market. These advantages include natural and human resource endowments, market size, the level of economic development, degree of openness of the economy, conducive economic policies, and PRP.

Of the many location advantages that characterize the MENA region, natural and human resource endowments stand out.[5] In the MENA region, natural resource endowments include both oil (O) and natural gas reserves (G), which attract resource-seeking FDI. Resource-rich MENA countries in the sample include Algeria (O/G), Egypt (G), Kuwait (O/G), Libya (O/G), Qatar (O/G), Saudi Arabia (O), and UAE (O/G). Table 1 shows oil and natural gas reserves in the MENA region. Some MENA countries are labor abundant, such as Algeria, Egypt, Jordan, Morocco, Tunisia, and Syria.

The empirical model expresses FDI flows as:

$$\ln(FDIFLOWS_{it}) = \beta_0 + \beta_1 \ln(FDIFLOWS_{it-1}) + \beta_2 \ln(INSTITFN_{it}) + \beta_3 BIT_{it} + \beta_4 BITINSTITFN_{it} + \beta_5 \ln(OIL_{it}) + \beta_6 \ln(PRICE_{it}) + \beta_7 \ln(LABOR_{it}) + \beta_8 ln(TRADE_{it}) + \beta_9 ln(INFLATION_{it}) + \beta_{10} ln(WFDIFLOWS_{it}) + \varepsilon_{it} \quad (1)$$

where *FDIFLOWS* is annual FDI inflows, $FDIFLOWS_{it-1}$ lagged dependent variable, *INSTITFN* domestic PRP institutional function, *BIT* bilateral investment treaty entered into force, *BITINSTITFN* is an interaction term between the natural logarithm of domestic PRP institutional function on the one hand and bilateral investment treaties on the other,[6] *OIL* oil production, *PRICE* oil price, *LABOR* labor force, *TRADE* trade, *INFLATION* inflation rate, *WFDIFLOWS* world FDI flows, and ε an error term. The subscripts *i* and *t*

[5] Empirical results show the importance of oil, oil prices, and size of labor force in attracting FDI flows, as discussed in section 5.

[6] It is constructed as $\ln(INSTITFN_{it})*BIT_{it}$.

are country and time indicators with $i=1,...,N$ and $t=1,...,T$. Appendix A provides more information on all variables.

Table 1: Natural and Human Resource Endowments in MENA Region

Natural Resources				Human Resources	
Oil		Natural Gas		Population Size	
Country	Reserves in Thousands bpd (2009)	Country	Reserves in billion cubic feet (2008)	Country	Size in Million (2007)
Saudi Arabia	266.7	Qatar	905.3	Egypt	75.5
Kuwait	104.0	UAE	214.4	Algeria	33.9
UAE	97.8	Algeria	159	Morocco	30.9
Libya	43.7	Egypt	58.5	Saudi Arabia	24.2
Qatar	15.2	Kuwait	56.0	Syria	19.9
Algeria	12.2	Libya	50.1	Tunisia	10.2
Oman	5.5	Oman	30.0	Libya	6.2
Egypt	3.7	Syria	8.5	Jordan	5.7
Syria	2.5	Bahrain	3.3	UAE	4.4
Tunisia	0.4	Tunisia	2.3	Lebanon	4.1
Bahrain	0.1	Jordan	0.2	Kuwait	2.7
Jordan	0.0	Morocco	0.1	Oman	2.6
Morocco	0.0	Lebanon	0.0	Qatar	0.8
Lebanon	0.0	Saudi Arabia	0.0	Bahrain	0.8

Notes: Countries are listed by resource endowments rank. Oil and natural gas reserves data are obtained from the Energy Information Administration website. Population size data are obtained from the United Nations Common Database.

We use annual FDI flows rather than FDI stocks to examine PRP influence, through domestic institutional functions and bilateral investment treaties, on changes in the FDI stock. Also we use the level of FDI flows as opposed to the ratio of FDI flows to GDP in order to capture the change in FDI flows directly and not the relative weight to the host country.[7]

The inclusion of a lagged dependent variable in the empirical model serves two purposes. First, it accounts for the persistence in FDI flows, especially when these flows are related to natural resources. Natural resources require flows of foreign investment

[7] This is similar to Hallward-Driemeier (2003) and Neumayer and Spess (2005).

over time. Second, it mitigates the likely upward bias in the influence of bilateral investment treaties and domestic PRP institutional functions on FDI flows. This bias likely results from the lack of bilateral FDI data and the consequent modeling of bilateral investment treaties as discussed further in the next section. We expect the coefficient of this variable to be positive.

BIT is the total (cumulative) number of bilateral investment treaties entered into force. We use bilateral investment treaties entered into force as opposed to signed treaties to account for actual commitment to PRP by contracting MENA countries. Treaties are expected to strengthen PRP, reduce political risk, and encourage FDI inflows. Therefore the coefficient of *BIT* is expected to be positive.

INSTITFN is domestic PRP institutional function. Because PRP is a multidimensional process, we model PRP using four ICRG political risk components: investment profile, corruption, law and order, and bureaucracy quality. These four functions are outcomes of the legal and judicial systems and government bureaucracy, and are essential to PRP. Investment profile refers to the risk of investment expropriation, profits repatriation, and payment delays, clearly influencing PRP. Corruption is a threat to PRP as it enables people to assume positions of power through patronage rather than ability, constituting a threat to the rights of foreign investors as they facilitate government expropriation of investment or when direct conflicts with those patrons arise. Law and order refers to the strength and impartiality of the legal system as well as the popular observance of the law. Institutional strength and quality of bureaucracy refers to bureaucracy governing without drastic changes in policy when governments change. Higher scores on these political risk indices indicate better performance. Positive coefficient for each of these functions is expected.

BITINSTITFN is an interaction term between domestic institutional functions and bilateral investment treaties. This term is included to allow for the interplay between domestic PRP institutional functions and bilateral investment treaties. A positive coefficient indicates that institutional functions and treaties complement each other, while a negative coefficient indicates if they are rather substitutes.

OIL and *PRICE* are oil production and prices, respectively. Because oil production requires capital and technology, we expect *OIL* coefficient be positive.

Similarly higher oil prices encourage the supply of oil, up to a limit in OPEC countries at least, and thus we expect a positive *PRICE* coefficient similarly.

LABOR is included to account for labor abundance in MENA countries. Some measure of labor productivity or unit labor cost would be ideal if we need to reflect the wage differentials between home and host countries.[8] However data on those measures are largely missing. We would expect a positive *LABOR* coefficient.

TRADE is a measure of the degree of openness of the economy. An open economy is conducive for FDI flows, and therefore we expect a positive coefficient. *INFLATION* is a proxy for macroeconomic stability in the economy. A higher inflation rate is an indicator of lower macroeconomic stability and real incomes, and therefore discourages FDI flows. A negative coefficient is expected.

WFDIFLOWS is included to take into account the business cycle in the global economy. MENA countries are likely to obtain more FDI flows with expansion of the world economy and global FDI flows. A positive coefficient is expected.

3.2 Testable hypotheses

We use the above empirical model provided by equation 1 to test whether the second best approach to PRP, as opposed to the first best approach, has a positive influence on FDI flows to the MENA countries. As mentioned in the introduction, the first best comprises domestic institutional functions, whereas the second best comprises both domestic institutional functions and bilateral investment treaties.

First hypothesis:

Domestic PRP institutional functions have a *positive* influence of FDI flows to MENA countries.

$$H_0: \beta_2 = 0$$

$$H_1: \beta_2 > 0$$

[8] Bellak *et al* (2008) in examining the influence of labor costs on FDI flows to Central and Eastern European countries use unit labor costs and labor productivity.

Second hypothesis:

Domestic PRP institutional functions *and* bilateral investment treaties have a *positive* influence of FDI flows to MENA countries.

$$H_0: \beta_2 = 0; \beta_3 = 0$$

$$H_1: \beta_2 > 0; \beta_3 > 0$$

4. Data and empirical issues and estimation methodology

4.1 Data issues

Because of the fluctuation of FDI flows as reflected in the standard deviation and the range of values shown in table 2, we use the natural logarithm. To get around zeros and negative value, we use the same approach adopted by Blonigen and Davies (2004) and Neumayer and Spess (2005).[9] If the value of FDI flows is zero, we add one dollar and take the natural logarithm, resulting in a value of zero; otherwise we would have obtained no value as the log of zero does not exist. If the value of FDI flows is negative, we take the negative of the natural logarithm of the absolute value of FDI flows. The same approach is used with *INSTITFN* and *OIL*.

Data on bilateral investment treaties are obtained from the UNCTAD FDI online database. We classified contracting partner countries for each of the 13 MENA countries into high income OECD, high income non-OECD, upper middle income, lower middle income, and low income countries. In the classification we used the World Bank 2005 classification instead of the most recent 2009 classification to consistently extend earlier empirical work by the author.

4.2 Empirical issues and estimation methodology

The lack of bilateral data on FDI flows has constituted an empirical challenge for this study. Unlike previous studies which adopt gravity models and use bilateral FDI flows, this study uses FDI flows at the aggregate level. This limitation has affected the consequent modeling approach of the bilateral investment treaties *entered into force* and likely results in an upward coefficient bias of *BIT* (entered into force as opposed to

[9] See Kerner (2009).

signed), if there are positive FDI flows from contracting partner (home) countries with which there are no treaties entered into force.[10]

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
FDIFLOWS	312	1,135.701	3,405.411	-1,174.900	38,222.500
INSTITFN					
Investment Profile	312	7.405	2.299	1.250	11.500
Corruption	312	2.641	0.705	1.500	4.000
Law and Order	312	3.972	1.222	1.000	6.000
Bureaucracy Quality	312	1.964	0.550	0.583	3.000
BIT	312	3.295	3.561	0.000	13.000
OIL	312	1,437.576	2,267.024	-1.464	11096.310
PRICE	312	25.982	17.647	10.030	93.020
LABOR	309	4,630,558.000	5,685,794.000	180,229.600	26,300,000.000
TRADE	282	87.921	36.508	32.685	210.161
INFLATION	310	5.206	7.686	-20.6347	59.484
WFDIFLOWS	312	620,447.300	538,938.200	55,887.160	1,978,838.000
		Variables (Log)			
FDIFLOWS	312	4.464	3.629	-7.069	10.551
INSTITFN					
Investment Profile	312	1.947	0.351	0.223	2.442
Corruption	312	0.936	0.267	0.405	1.386
Law and Order	312	1.320	0.369	0.000	1.792
Bureaucracy Quality	312	0.629	0.318	-0.539	1.099
OIL	312	5.709	2.602	-2.794	9.314
PRICE	312	3.111	0.496	2.306	4.533
LABOR	309	14.596	1.304	12.102	17.086
TRADE	282	4.396	0.399	3.487	5.348
INFLATION	310	1.117	1.290	-3.199	4.086
WFDIFLOWS	312	12.919	0.971	10.931	14.498

The adopted modeling approach implies that bilateral investment treaties are *de facto* assumed to be equal in PRP strength. While this assumption can be argued against, it is not totally unrealistic given the tendency to adopt "standardized" clauses in many

[10] This however would underestimate the influence of signed treaties, as Neumayer and Spess (2005) argue.

treaties. In addition there is not much variation in PRP strength among countries with similar income levels, and therefore we do not expect to have treaties with remarkable differences in the degree of PRP to be achieved.

In estimating the empirical model, endogeneity and multicollinearity have to be considered. Endogeneity in the model results from simultaneity and variable omission mostly associated with unobservable country effects. Simultaneity arises from reverse causality between *FDIFLOWS* on the one hand and *BIT* and *INSTITFN* on the other. While bilateral investment treaties entered into force influence FDI flows, FDI flows may also encourage FDI home country governments to contract investment treaties to protect the property rights of their investors abroad. Simultaneity also arises from reverse causality between FDI flows and the different domestic institutional functions, especially when foreign investors are major multinational corporations, such as those operating in mining, petrochemicals, and financial and telecommunications services in the MENA region. Endogeneity of each of *BIT* and *INSTITFN* has been examined, and the null hypothesis of exogeneity failed to be rejected.[11] Thus we decided not to use an instrumental variable approach.

Variable omission can be associated with unobservable country effects, such as the degree of strength of foreign relationships a GCC country has with the rest of the world, including countries with which BITs are contracted.[12] It can also be associated with omitted variables related to the ownership advantages that foreign corporations have. This in turn results in correlation between the explanatory variables and the error term and in inconsistent OLS estimates. The presence of joint country effects has been detected using F test.

To account for unobservable country effects, an error component model (ECM) along the lines of Baltagi (2005) is initially used

$$y_{i,t} = \beta' X_{i,t} + \mu_i + \nu_{i,t} \qquad \boldsymbol{i = 1,\ldots, N} \quad \boldsymbol{t = 1,\ldots, T} \qquad \textbf{(2)}$$

[11] *BIT* has been instrumented for using lagged *BIT*, lagged democratic accountability, lagged WTO membership. *INSTITFN* has been instrumented for lagged *INSTITFN* (lagged *BIT*), lagged democratic accountability, and lagged WTO. Endogeneity test has been conducted using ivendog command in STATA 9.0.

[12] Unobservable time effects have been tested for the presence of joint time effects has not been detected.

where $y_{i,t}$ is the dependent variable and $X_{i,t}$ is the vector of explanatory variables, and the subscripts *i* and *t* denote country and time periods. The error term comprises the effect of omission of country-specific variables, μ_i, in addition to a disturbance term $v_{i,t}$.

The above model can be treated as either a fixed or random effects model, depending on the treatment of μ_i. In the fixed effects model, the effects of the omitted country variables are treated as fixed constants over time. In the random effects model, the effects of the omitted country variables are treated as random variables. Based on Hausman specification test, these effects are treated as fixed.

Multicollinearity can arise from two main channels in the fixed effects model. The first channel is between the explanatory variables themselves. Oil production can influence GDP and in turn the performance of domestic institutional functions and bilateral investment treaties. The second channel is between the unobservable country effects and the explanatory variables themselves. Multicollinearity, as reflected in the variance inflation factor (VIF), has been detected between some country dummies, namely Bahrain, Morocco, and Saudi Arabia, and *LABOR* in particular.[13] Dropping these dummies has reduced VIF from a range of 30-37 to about 3. Although Bowerman *et al* (2005) consider multicollinearity as "severe" if the largest VIF is greater than 10, which means that R_j^2 is greater than 0.9, and the mean VIF is substantially greater than 1, we must accept some trade-off between having a little higher mean VIF, adopting a theoretically justified empirical model, and accounting for unobservable country effects.

[13] For an independent variable x_j, VIF_j is given by

$$VIF_j = \frac{1}{1 - R_j^2}$$

where R_j^2 is the multiple coefficient of determination for the regress ion model which relates the independent variable x_j to all other independent variables in the model.

5. Empirical results

The estimation results for the fixed effects model are presented in table 3. Each column corresponds to an institutional function. Statistically significant results are highlighted in bold fonts. VIF and F statistics for the testable hypotheses are reported at the bottom of the table. As mentioned above the mean VIF is in the 30-37 range.

The lagged dependent variable is positive and statistically significant in all specifications suggesting persistence in FDI flows to the MENA countries. In the first specification for example, an increase in FDI flows of the previous year by 10 percent increases FDI flows in the current year by about 2.7 percent.

Out of the four domestic institutional functions, *INSTITFN*, investment profile or the risk of investment expropriation matters the most to FDI flows to the MENA countries with positive and statistically significant coefficient. A reduction in the risk of investment expropriation by 10 percent increases FDI flows by nearly 20 percent. The other domestic institutional functions are surprisingly negative but statistically insignificant.

BIT on the other hand has a surprisingly negative influence on FDI flows yet with little statistical significance in specifications 1 and 4, containing investment profile and bureaucracy quality, respectively. The interaction term *BITINSTITFN* is positive but with little if any statistical significance.

Oil prices and labor force play an important role in attracting FDI flows to MENA countries. FDI flows are oil price elastic in all specifications. An increase in the price of oil by 10 percent in specification 4 increases FDI flows by nearly 12 percent. The elasticity of FDI flows to labor force supply is much higher in contrast. In specification 4, an increase in labor force by 10 percent increases FDI flows by 30 percent. These results lend support to Dunning's location advantage hypothesis and clearly underscore the role of these traditional factors in attracting FDI.

Domestic economic policies seem to have no influence on FDI flows. Coefficients of *TRADE* and *INFLATION* have the expected signs but are statistically insignificant. Neither is the coefficient of *WFDIFLOWS*.

Table 3: PRP, Bilateral Investment Treaties and FDI Flows to MENA Countries

Dependent Variable: Log of FDI Inflows - Fixed Country Effects

VARIABLES	(1) IP	(2) C	(3) L&O	(4) BQ
FDIFLOWS(-1)	**0.269a**	**0.282a**	**0.285a**	**0.280a**
	(0.101)	(0.103)	(0.102)	(0.101)
INSTITFN	**1.819a**	-0.542	-0.683	-1.222
	(0.619)	(0.809)	(0.737)	(1.025)
BIT	**-0.169c**	-0.134	-0.093	**-0.199c**
	(0.102)	(0.097)	(0.100)	(0.108)
BITINSTITFN	0.009	0.056	0.011	**0.143c**
	(0.023)	(0.061)	(0.031)	(0.074)
OIL	0.420	**0.492c**	**0.473c**	**0.533c**
	(0.290)	(0.273)	(0.279)	(0.281)
PRICE	**1.046b**	**1.131b**	**1.068b**	**1.170b**
	(0.482)	(0.508)	(0.512)	(0.486)
LABOR	1.700	**2.747b**	**3.126b**	**3.002b**
	(1.282)	(1.240)	(1.281)	(1.348)
TRADE	2.158	1.351	1.207	1.939
	(1.384)	(1.395)	(1.387)	(1.431)
INFLATION	-0.098	-0.163	-0.202	-0.177
	(0.158)	(0.164)	(0.170)	(0.165)
WFDIFLOWS	0.187	0.071	0.143	0.012
	(0.364)	(0.366)	(0.384)	(0.386)
Constant	-42.026a	-49.182a	-54.360a	-54.732a
	(15.335)	(14.832)	(15.844)	(16.144)
Observations	279	279	279	279
R-squared (within)	0.340	0.323	0.323	0.330
F statistic (coefficients=0)	19.91a	20.23a	19.45a	20.09a
F statistic (country effects=0)	3.05a	2.81a	3.05a	3.28a
VIF (mean)	37.37	33.38	34.12	30.71
H0: $\beta_2=0$	8.65a	0.45	0.86	1.42
H0: $\beta_2=0$; $\beta_3=0$	4.76a	0.99	0.95	2.03
H0: $\beta_2=0$; $\beta_3=0$; $\beta_4=0$	3.17b	0.67	0.68	1.62

Notes: "IP", "C", "L&O" and "BQ" are investment profile, corruption, law and order, and bureaucracy quality, respectively. Robust standard errors in parentheses. a,b,c significant at 1%, 5%, 10% level, respectively.

Table 4-6 present the estimation results for the least squares dummy variables approach. Table 4 includes *INSTITFN* only. Table 5 includes *BIT* and *BITINSTITFN* only. Table 6 includes the three variables together. Results of table 4, 5 and 6 show the positive influence of oil prices and labor as determinants of FDI flows to MENA countries. Among the different countries, Qatar consistently attracts FDI flows with positive and highly statistically significant country dummy coefficient.

Tables 4 and 6 assert the positive influence of investment expropriation. FDI flows are elastic to improvements in investment expropriation risk. The two tables also show that the country dummy coefficient for Egypt is statistically significant in the first and fourth specifications. For Syria and Tunisia the coefficient is statistically significant only in the first specification.

6. Concluding remarks

The above empirical evidence highlights the importance of natural and human resources to FDI flows in the MENA region. In fact these two factors have been used by the World Bank in classifying and discussing the challenges of MENA countries. In addition to these two factors, the risk of investment expropriation appears to be the domestic institutional function that matters most.

These results suggest that from an FDI flows perspective the fundamental question of whether MENA countries should undertake institutional reforms is of little relevance. Evidence has shown that FDI flows into these countries regardless of the institutional performance scores these countries have obtained over the years.

A deeper look at the empirical results can hint to the importance of human development and labor productivity to attracting FDI. Case studies at the country or industry levels may useful in better understanding the extent to which labor influences FDI.

Table 4: PRP and FDI Flows to MENA Countries

Dependent Variable: Log of FDI Inflows (Least Squares Dummy Variables)

VARIABLES	(1) IP	(2) C	(3) L&O	(4) BQ
FDIFLOWS(-1)	**0.285a**	**0.302a**	**0.300a**	**0.302a**
	(0.100)	(0.102)	(0.102)	(0.101)
INSTITFN	**1.854a**	-0.238	-0.702	-0.732
	(0.537)	(0.772)	(0.713)	(1.012)
OIL	-0.092	-0.062	-0.050	-0.050
	(0.091)	(0.098)	(0.092)	(0.089)
PRICE	**0.788c**	**0.986b**	**0.949b**	**0.966b**
	(0.440)	(0.472)	(0.461)	(0.447)
LABOR	**0.897b**	**0.788b**	**0.809b**	**0.853b**
	(0.364)	(0.359)	(0.372)	(0.377)
TRADE	**2.097c**	1.734	1.841	2.003
	(1.191)	(1.224)	(1.238)	(1.246)
INFLATION	-0.118	-0.187	-0.214	-0.197
	(0.157)	(0.163)	(0.167)	(0.164)
WFDIFLOWS	0.126	0.442c	0.594c	0.416
	(0.273)	(0.261)	(0.327)	(0.266)
Egypt	**1.595b**	1.161	1.040	**1.136c**
	(0.722)	(0.708)	(0.719)	(0.685)
Oman	0.929	0.971	0.955	1.001
	(0.696)	(0.737)	(0.711)	(0.736)
Qatar	**2.342a**	**2.234a**	**2.397a**	**2.313a**
	(0.831)	(0.789)	(0.876)	(0.852)
Libya	-1.610	-1.995	-2.153	-2.309
	(1.514)	(1.586)	(1.520)	(1.478)
Kuwait	-1.217	-1.336	-1.434	-1.455
	(1.017)	(1.010)	(1.006)	(0.978)
Jordan	-0.729	-0.726	-0.919	-0.803
	(0.735)	(0.785)	(0.799)	(0.765)
Algeria	-0.488	-0.707	-1.138	-0.899
	(0.834)	(0.821)	(0.969)	(0.748)
UAE	-0.674	-0.555	-0.705	-0.581
	(1.202)	(1.219)	(1.212)	(1.212)
Syria	**1.201b**	0.544	0.469	0.147
	(0.607)	(0.544)	(0.533)	(0.633)
Tunisia	**0.718c**	0.683	0.571	0.586
	(0.422)	(0.433)	(0.427)	(0.390)
Constant	-26.296a	-23.990a	-25.833a	-25.428a
	(8.334)	(7.989)	(8.862)	(8.575)
Observations	279	279	279	279
Adjusted R-squared	0.442	0.422	0.424	0.424
F statistic (coefficients=0)	22.16a	19.96a	20.63a	19.93a
VIF (mean)	2.53	2.51	2.63	2.58
H0: β_2=0	11.92a	0.10	0.97	0.52

Notes: "IP", "C", "L&O" and "BQ" are investment profile, corruption, law and order, and bureaucracy quality, respectively. Robust standard errors in parentheses. a,b,c significant at 1%, 5%, 10% level, respectively. Bahrain, Morocco and Saudi Arabia country dummies have been dropped due to serious multicollinearity.

Table 5: Bilateral Investment Treaties and FDI Flows to MENA Countries

Dependent Variable: Log of FDI Inflows (Least Squares Dummy Variables)

VARIABLES	(1) IP	(2) C	(3) L&O	(4) BQ
FDIFLOWS(-1)	**0.300a**	**0.298a**	**0.302a**	**0.299a**
	(0.102)	(0.102)	(0.102)	(0.102)
BIT	-0.125	-0.109	-0.071	-0.153
	(0.099)	(0.092)	(0.099)	(0.102)
BITINSTITFN	**0.040c**	**0.109c**	0.023	**0.141b**
	(0.021)	(0.057)	(0.030)	(0.068)
OIL	-0.085	-0.072	-0.073	-0.094
	(0.105)	(0.103)	(0.104)	(0.106)
PRICE	**1.124b**	**1.136b**	**1.094b**	**1.189b**
	(0.498)	(0.501)	(0.497)	(0.495)
LABOR	**0.960b**	**0.931b**	**0.884b**	**0.981b**
	(0.414)	(0.399)	(0.408)	(0.420)
TRADE	2.044	2.048	1.888	2.074
	(1.248)	(1.244)	(1.244)	(1.263)
INFLATION	-0.164	-0.166	-0.178	-0.173
	(0.159)	(0.161)	(0.162)	(0.162)
WFDIFLOWS	0.482	0.447	0.509	0.519
	(0.334)	(0.337)	(0.334)	(0.329)
Egypt	0.905	1.036	1.122	0.854
	(0.758)	(0.742)	(0.760)	(0.772)
Oman	1.456	1.339	1.238	1.540
	(0.946)	(0.887)	(0.935)	(0.960)
Qatar	**2.524a**	**2.514a**	**2.397a**	**2.557a**
	(0.926)	(0.903)	(0.914)	(0.932)
Libya	-2.021	-2.111	-2.059	-1.948
	(1.537)	(1.539)	(1.545)	(1.547)
Kuwait	-1.144	-1.277	-1.199	-1.085
	(1.073)	(1.053)	(1.066)	(1.073)
Jordan	-0.843	-0.906	-0.772	-0.867
	(0.763)	(0.776)	(0.767)	(0.769)
Algeria	-0.671	-0.613	-0.682	-0.647
	(0.830)	(0.837)	(0.838)	(0.827)
UAE	-0.437	-0.446	-0.428	-0.543
	(1.283)	(1.285)	(1.287)	(1.284)
Syria	0.483	0.486	0.482	0.668
	(0.543)	(0.548)	(0.541)	(0.561)
Tunisia	1.007	0.926	0.878	1.089c
	(0.623)	(0.596)	(0.619)	(0.623)
Constant	-28.842a	-28.136a	-27.368a	-29.858a
	(9.743)	(9.499)	(9.649)	(10.088)
Observations	279	279	279	279
Adjusted R-squared	0.423	0.423	0.421	0.424
F statistic (coefficients=0)	21.09a	20.49a	19.82a	22.06a
VIF (mean)	3.11	3.01	3.10	3.18
H0: $\beta_3=0$; $\beta_4=0$	1.78	1.82	0.33	2.14

Notes: "IP", "C", "L&O" and "BQ" are investment profile, corruption, law and order, and bureaucracy quality, respectively. Robust standard errors in parentheses. a,b,c significant at 1%, 5%, 10% level, respectively. Bahrain, Morocco and Saudi Arabia country dummies have been dropped due to serious multicollinearity.

Table 6: PRP, Bilateral Investment Treaties and FDI Flows to MENA Countries

Dependent Variable: Log of FDI Inflows - (Least Squares Dummy Variables)

	(1)	(2)	(3)	(4)
VARIABLES	IP	C	L&O	BQ
FDIFLOWS(-1)	**0.281a**	**0.297a**	**0.300a**	**0.297a**
	(0.101)	(0.103)	(0.102)	(0.101)
INSTITFN	**2.040a**	-0.387	-0.681	-0.956
	(0.587)	(0.793)	(0.721)	(1.038)
BIT	-0.141	-0.117	-0.057	-0.164
	(0.099)	(0.095)	(0.099)	(0.104)
BITINSTITFN	0.009	**0.114c**	0.024	**0.166b**
	(0.021)	(0.058)	(0.030)	(0.072)
OIL	-0.142	-0.087	-0.063	-0.090
	(0.106)	(0.112)	(0.105)	(0.103)
PRICE	**0.984b**	**1.106b**	**1.007b**	**1.135b**
	(0.481)	(0.510)	(0.510)	(0.485)
LABOR	**1.054a**	**0.919b**	**0.879b**	**1.065b**
	(0.404)	(0.388)	(0.403)	(0.435)
TRADE	**2.302c**	2.042	1.971	**2.450c**
	(1.203)	(1.238)	(1.249)	(1.306)
INFLATION	-0.099	-0.161	-0.201	-0.180
	(0.155)	(0.162)	(0.165)	(0.163)
WFDIFLOWS	0.337	0.438	0.612	0.452
	(0.325)	(0.335)	(0.371)	(0.326)
Egypt	**1.805b**	1.007	0.944	0.710
	(0.820)	(0.747)	(0.788)	(0.739)
Oman	1.506	1.401	1.186	1.646
	(0.935)	(0.940)	(0.922)	(1.002)
Qatar	**2.499a**	**2.431a**	**2.489a**	**2.616a**
	(0.904)	(0.838)	(0.932)	(0.946)
Libya	-1.617	-2.000	-2.132	-2.236
	(1.528)	(1.585)	(1.529)	(1.481)
Kuwait	-0.779	-1.246	-1.337	-1.232
	(1.113)	(1.080)	(1.086)	(1.049)
Jordan	-0.802	-0.893	-0.940	-0.964
	(0.720)	(0.783)	(0.797)	(0.754)
Algeria	-0.462	-0.579	-1.078	-0.860
	(0.832)	(0.829)	(0.982)	(0.752)
UAE	-0.365	-0.457	-0.628	-0.636
	(1.273)	(1.286)	(1.287)	(1.266)
Syria	**1.166c**	0.488	0.425	0.191
	(0.609)	(0.549)	(0.532)	(0.643)
Tunisia	**1.190c**	0.959	0.725	**0.992c**
	(0.636)	(0.615)	(0.626)	(0.587)
Constant	-32.643a	-27.264a	-27.769a	-30.991a
	(9.590)	(8.915)	(9.647)	(10.257)
Observations	279	279	279	279
Adjusted R-squared	0.441	0.421	0.420	0.425
F statistic (coefficients=0)	21.31a	19.62a	19.21a	21.31a
VIF (mean)	3.13	2.99	3.19	3.25
H0: $\beta_2=0$	12.09a	0.24	0.89	0.85
H0: $\beta_2=0$; $\beta_3=0$	6.25a	0.77	0.66	1.38
H0: $\beta_2=0$; $\beta_3=0$; $\beta_4=0$	4.39a	1.29	0.51	1.83

Notes: "IP", "C", "L&O" and "BQ" are investment profile, corruption, law and order, and bureaucracy quality, respectively. Robust standard errors in parentheses. a,b,c significant at 1%, 5%, 10% level, respectively. Bahrain, Morocco and Saudi Arabia country dummies have been dropped due to serious multicollinearity.

Appendix A
Variables, Definitions, and Data sources

Variable	Definition	Source
FDIFLOWS	FDI flows in millions of US$ (log)	UNCTAD's FDI online database.
BIT	Total number of bilateral investment treaties entered into force.	Author's calculation based on UNCTAD's bilateral investment treaties online database.
INSTITFN	Domestic PRP institutional functions. These are a) investment profile, b) corruption, c) law and order, and d) bureaucracy quality (log).	ICRG political risk index.
BITINSTITFN	Interaction term between *BIT* and *INSTITFN* constructed as the product of *INSTITFN* (log form) and *BIT*.	Author's calculation.
OIL	Oil production in thousands of barrels per day (log).	Energy Information Administration
PRICE	Crude oil price measured by the price of Saudi Arabian Light 34 in US$/barrel (log).	Energy Information Administration
LABOR	Labor force (log).	World Bank's World Development Indicators.
TRADE	Sum of exports and imports as a percentage of GDP (log).	World Bank's World Development Indicators.
INFLATION	Inflation rate in percentage (log). Rate is calculated based on the consumer price index, except for Oman and UAE where it is based on GDP deflator.	World Bank's World Development Indicators.
WFDIFLOWS	World FDI inflows in millions of US$ (in log form).	Author's calculation based on UNCTAD's bilateral investment treaties online database.

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