

Host Country Characteristics and FDI: Are OIC Countries Different?

Muhammad Tariq Majeed and Eatzaz Ahmad*

Using a panel data for 75 developing countries-including 25 OIC countries-over the period 1970-2004, this paper analyzes a variety of host country characteristics that determine FDI inflows. The results show that GDP, economic growth and domestic absorption positively affect FDI, a result consistent with market seeking behavior of multinational corporations (MNCs). External debt and BOP deficit negatively affect FDI, since these indicators reflect fragile financial conditions in the host economies. Open economies provide a platform for exports and allow imports of plant machinery which attract MNCs and our results confirm openness as an important determinant of FDI. We find a trade-off between domestic and foreign investment that is also supported by the negative influence of credit facilities on FDI since credit facilities promote domestic investment. In a separate modeling for OIC countries, our results show that similar host country characteristics also matter for FDI in OIC countries. However, the trade-off between domestic and foreign investment is not valid in OIC countries. The role of exchange rate and official development assistance is comparatively more crucial in OIC countries.

1. Introduction

As most developing countries experience a shortage of capital, this is reflected in their respective savings-investment and import-export gaps, which implies that developing countries have insufficient savings and/or foreign exchange to finance their investment needs. In addition, developing countries also face the problem of fiscal deficits. To bridge these gaps they need inflow of foreign capital. FDI is an important source of external funding for developing countries.

*The authors are respectively Lecturers (PhD student at University of Glasgow) and Professor, Department of Economics, Quaid-i-Azam University, Islamabad.

In the 1960s and 1970s many countries maintained a rather cautious and sometimes an outright negative, position with respect to foreign investment. In the 1980s, however, the attitudes shifted radically towards a more welcoming policy stance. This change was mainly due to economic problems facing the developing world. While FDI is surging, other forms of capital flows to developing countries are diminishing. Aid has continuously declined as a share of capital inflows since the 1960s. Commercial loans, a major source of capital flows in the 1970s have virtually disappeared since the debt crisis of the 1980s.

The assumption is generally made that FDI can contribute to economic growth and restructuring in developing economies. However, there is increasing competition between developing (and developed) countries to attract FDI flows in order to either enter into, or consolidate their position within, an increasingly integrated world production, trading and investment system. In this study we focus on the inflow of FDI in developing countries including OIC countries. In order to overcome constraints in the supply of FDI, we identify the most important host country characteristics that determine FDI inflows. In this study we follow panel data estimation procedure for 75 developing countries.

In earlier literature the determinants of FDI were described theoretically without giving empirical results [see, for example, Lall (1978)]. Latter on, the studies based on empirical analysis have increasingly appeared in the literature. These studies differ from the earlier studies on the basis of theory. Earlier the pure economic theory, that of international trade and the theory of firm were adopted as the theoretical base for empirical study of FDI determinants. These theories assume the presence of perfect competition and identical production function and attribute FDI flows to difference in the interest rates across countries. However, these theories hardly explain the large volume of FDI flows across countries.¹

Recent theories as a base for FDI, and in particular of MNCs (multinational corporations) growth, have turned to the explanations based on market imperfections, oligopolistic interdependence and the possession of the monopolistic advantage. It is assumed that for FDI to

¹The FDI flows to developing countries increased manifold, rising from us \$ 33.7 billion in 1990 to \$ 172.9 billion in 1997[Government of Pakistan (2000-2001)].

take place a necessary condition is that the investing firms have some monopolistic advantages, not possessed by local competitors.

Wang and Swain (1995) point out that most literature published in both the West and East on the determinants FDI and joint ventures (jvs) in Eastern Europe and China is of rather general nature and is based on the author's own experience and news paper clippings. These "quick – shut" studies are not very useful for the purpose of building up a good research base. They, therefore, design to shed light on these issues by exploring and analyzing the factors that explain foreign capital inflow into Hungary and China during the period 1978-92. More specifically, they test the relative importance of independent variables, including market size, cost of capital, labor costs, tariff barriers, exchange rates, import volumes and economic growth in OECD countries as well as political stability, within the framework of a one-equation model.² Time series data between 1978 and 1992 for Hungary and China were fitted into one equation models and were estimated by ordinary least squares (OLS) regression. Estimates suggest that the size of host country market plays a positive role, while the cost of capital variable and political instability are negatively correlated with investment inflows. These results support the hypotheses that low-cost labor and currency depreciation are important factors in explaining how much capital inflow in to a particular country. There is little evidence to support classical hypotheses concerning tariff barriers and import variables.

In a survey article, De Mello (1997) discusses the latest development in literature on the determinants of FDI and impact of inward FDI on growth in developing countries. The study argues that policy regime of the host countries is a potentially important FDI determinant. The recent literature has provided policy makers in developing countries with more adequate tools and more accurate benchmarks for cross-country comparisons and policy evaluation. The foreign investors are motivated primarily by international rent seeking under standard profit maximizing

² Except the cost of capital and the average growth rates in home countries, most of these independent variables could be found in Agrawal's (1980) article. Many empirically studies (for example, Petrochilos1989; Huang1992) have supported Jorgenson's (1963) hypotheses that FDI is determined by cost of capital. Other suggests that faster growth of the home countries has played a role in promoting FDI in host countries (Jeon1992). A variable OECD growth rate is, therefor, applied to test whether economic prosperity in the major FDI home countries helps directly or indirectly parent firms to get bigger and accumulate assets for both licensing and FDI in both Hungary and China.

assumptions. The most important factors explaining the FDI inflows into the developing countries in recent years have been the foreign acquisition of domestic firms in the process of privatization, the globalization of production, and increased economic and financial integration.

Mello (1997) also present a brief summary of the case studies such as O, Sullivan (1993), Bajorubio and Sovilla-Rivero (1994), Wang and Swain (1995), Milner and Pentecost (1996), and Lee and Mansfield (1996), which specify inflation, exchange rate, domestic expenditures, and net trade ratio as important determinants of FDI.

Zhang and Markusen (1999) explain characteristics of the host countries that attract FDI. Main motivating factor for study was the empirical observation that the poorest countries attract a far smaller share of FDI. The study offers at least two explanations, one involving direct costs and factor requirements of firms and the other indirect requirements. The first involves multinationals' for local skilled-labor and the second involves public or private infrastructure. The study find that the number of multinational firms active in the DCs relative to that country's GNP bears an inverted U-shaped relationship to the relative endowment differences between the two countries.

In a recent study, Majeed and Ahmad (2008) analyze FDI determinants for 23 developing countries. Their study finds human capital, market size, government spending, military spending and urbanization as determinants of FDI. However, results of this study base on a small sample of developing countries. In the present study we extend the sample of developing countries up to seventy five countries.

In empirical literature FDI determinants have been examined at both micro and macro levels. Studies mainly focus the following variables such as market size, openness, exchange rate, wage rate, borrowing cost and infrastructure variables. Many variables like domestic absorption, savings, official development assistance, dependency ratio, no of telephones and televisions, to our knowledge, are still unnoticed. At the same time studies do not incorporate maximum number of developing countries for panel data estimation and also studies do not conduct separate analysis for OIC countries.

The present study aims to find out a variety of host country characteristics that potentially explain the FDI flows in a large set of countries. In this study we follow panel data estimation procedure for 75 developing countries. The rest of the paper is organized as follows: section II explains the model and framework of analysis and section III describes data set and the construction of variables. Section IV presents findings from empirical analysis while section V presents a summary with some policy implications.

2. Methodology

In this chapter, we formulate a framework of analysis to determine the effects of various factors on FDI in developing countries, which we have taken in our sample. The underlying objective is to explain the rationale behind foreign direct investment. It is generally believed that MNCs invest in those countries where they expect higher rates of return on their investments. We have introduced a variety of host country characteristics, which determine the profits of firms on foreign direct investment.

Justification of FDI Determinants

Market size

The market size hypothesis argues that inward FDI is a function of the size of the host country market, usually measured by GDP. We take gross domestic product as a proxy for market size. High demand, prospects for economies of scale, good economic health and absorptive capacity are the factors that give green signal to foreign investors. Combined effect of such factors can be captured by market size. Large market size is expected to have a positive influence on FDI. The positive influence is also justified in literature by a number of studies such as Reuber (1973), Schneider and Fry (1985), Wheeler and Mody (1992), Zhang and Markusen (1999), and Majeed and Ahmad (2007, 2008).

Growth of GDP

Market size exhibits existing demand in an economy while growth represents the future potential of the economy. A high level of economic

growth is a strong indicator of potential market opportunities. The growth of the host market is deemed to be significant for expansionary direct investment (Clegg and Scott-Green, 1998). Growth is also important because of higher rates of economic growth are usually associated with an increase of the profitability of corporations (Gold, 1989). There exists relatively little support in the existing literature for this determination of FDI as compared to market size variable (Goldberg, 1972; Scaperlanda and Balough, 1983; Culem, 1988 and Clegg, 1995).

Domestic Absorption

Higher the domestic absorption higher will be the inflow of FDI [De Mello (1999)]. We measure the domestic absorption as a sum of GDP and trade deficit. Since GDP is already present among the determinants of FDI, any variations in domestic absorption that are not explained by GDP, must be explained by trade deficit. In other words keeping GDP constant, changes in trade deficit translate one to one into changes in domestic absorption. Hence we expect the positive impact of this variable.

Exchange Rate

Exchange rate influences FDI in several ways. Froot and Stein (1991) explain relative wealth effect of exchange rates. A rise in the exchange rate in terms of host country currency over the home country currency implies a depreciation of the host country currency. A real depreciation of the host country currency favors home country purchases of host country assets and thereby leading an increase in inward FDI in the host country. Gushman (1985, 1987) and Culem (1988) emphasize the effect of exchange rate changes on relative labor cost. A real depreciation of the host country currency allows home country investors to hire more labor for a given amount of the home country currency, and therefore is associated with an increase in inward FDI in the host country. The study of Klein and Rssengren (1994) supports the significance of the relative wealth effect but fails to support the relative labor cost effect.

Balance of Payment Deficit

It is measured by current account balance. The expected sign of the coefficient of BOP is negative, because it indicates that larger deficit in accounts mean a country is living beyond its means and foreign investors feel the danger of restrictions on free capital movement and the profit of the firms will be difficult to transfer. (Schneider and Frey (1985)).

External Debt Burden

Another important determinant of FDI is the external debt burden that reflects external imbalances. Higher debt burden creates constraints not only in terms of new private lending but also in terms of FDI flows (Nunnenkamp (1991)). Hence it is expected to discourage FDI and the coefficient on external debt could be negative.

Openness

Higher the degree of openness is the cause of higher flow of FDI. The main reason underlying is the fact that more MNCs are export oriented. They acquire the benefits of export expansion policies and import the machinery for production procedure from the home country (see, for example, Majeed and Ahmad (2006, 2007)). We expect positive effect of this variable. Kravis and Lipsey (1982) report positive impact for host country 'degree of openness' on the location decisions of multinationals.

Savings

Feldstein and Horioka (1980) proposed that there should be no relationship between domestic saving and domestic investment. Saving in each country responds to the worldwide opportunities for investment while investment in that country is financed by the worldwide pool of capital. Conversely, if international savings tend to be invested in the country of origin, differences among countries in investment rates should correspond closely to saving rates. This relationship between domestic savings and domestic investment is an indirect approach to test the degree of capital mobility. We expect favorable effect of savings on FDI.

Domestic Investment

It may be a substitute or a complement for FDI it depends upon the investment climate of the host country and the types of FDI. However, the literature shows the mixed results. When domestic investment increases marginal productivity of investment decreases, if marginal productivity of FDI will also decrease then relationship will be substitute. This may happen when domestic investment dominates in production sector. On the contrary, if marginal productivity of FDI increases then relationship will be compliment. This may happen when domestic investment dominates in infrastructure. Further if domestic investors and foreign investors compete for joint ventures then this relationship will be substitute (see, for example, Buffie (1993)).

Credit Facilities

Credit facilities create investment climate for domestic investors. Better credit facilities mean more domestic investment. In this situation there will be little room for foreign investors. So we expect the negative influence of this variable on FDI.

Government Consumption

Government consumption leads to higher level of fiscal deficit that in turn generate macroeconomic instability and poor credit position of an economy. A rise in government consumption also leads to higher rate of interest, which crowds out investment including foreign investment (see, for example, (Majeed and Khan (2008))). Hence we expect adverse effect of this variable on FDI.

Official Development Assistance

Official development assistance expenditures are the indicator of development activities. Such expenditures favorably determine infrastructure and also indicate the good terms with international institutes that buildup the confidence of foreign investors. Luger and Shetty (1985) have presented suggestive evidence issue.³

³ See for more detail Luger and Shetty (1985)

Indirect Taxes

It is expected to have negative effect on FDI because high taxes increase the cost of production that is a disincentive for supply decisions of MNCs [Coughlin, Terza and Arromdee (1991)]. However, in empirical literature the effect of this variable is controversial.⁴

Communication Facilities

Communication facilities have profound and enduring effects on a society. A society seems to be developed and industrialized, if it has a sophisticated and widespread communication system. The presence or lack of these facilities shapes the boundaries of the nations, states and local governments. [Coughlin, Terza and Arromdee (1991)].

Urbanization

The extent of urbanization is a social variable, which is expected to have positive impact on FDI as proposed by Root and Ahmad (1979). Urban demand for manufacturing is higher than rural. Moreover, if a country covers a vast area under urbanization, the production environment for MNCs would be better. However urbanization also creates overcrowding, crime, and burden existing facilities, hence its negative influence on FDI is also expected.

Dependency Ratio

Higher dependency ratio means vacuum of skilled labor force. In developing countries the issue of dependency ratio has a great concern. A single person runs the living expenditures of a large family. Such persons do over work that has adverse effect on their health and productivity. Higher dependency ratio is an indicator of underdevelopment. We can expect the negative influence of dependency ratio on investment decisions.

⁴Evidence of conflicting results is plentiful. For example, Carlton (1983) concludes that taxes did not have major effects on the location of new plants. However, Bartik finds that taxes deter the location decisions of MNCs.

The model, which we have developed, takes into account those factors, which play an important role in the determination of FDI in the developing countries. Thus we have a single equation model:

$$FDI_{it} = f(EXP_{it}, X_{it}, \dots, X_n, \xi_{it})$$

where FDI_{it} represent the endogenous variable, FDI, while X_{it} is the vectors of exogenous variables. The subscript I (=1, n) represents country and t (= 1, ...T) period of time (years). Notice that the vectors X_{it} , would generally contain some overlapping variables.

We identify the explanatory variables in the FDI equation. We select a large set of developing countries for empirical investigation. As for as, our explanatory variables are concerned, they are not enriching with observations all over the countries.

$$FDI = f(GDP_{it}, GROW_{it}, DA_{it}, EXCH_{it}, BOP_{it}, ED_{it}, OPEN_{it}, SAV_{it}, DI_{it}, CRED_{it}, GC_{it}, OD_{it}, IT_{it}, TV_{it}, TP_{it}, UP_{it}, DEP_{it}, FDI_{it-1})$$

Where,

FDI = Foreign Direct Investment as a percentage of GDP,

GDP = Gross domestic production in constant prices of 1989,

$GROW$ = Annual percentage of growth rate of GDP in percentage,

DA = Domestic absorption is equal to GDP plus trade deficit,

$EXCH$ = Real exchange rate. It is obtained by multiplying the nominal exchange rate with US CPI and then divided by domestic CPI,

BOP = Balance of payments as a percentage of GDP,

ED = External debt as a percentage of GDP,

- OPEN* = Openness measured as export plus import as percentage of GDP,
- SAV* = National savings as a percentage of GDP,
- DI* = Domestic investment as a percentage of GDP,
- CRED* = Credit facilities to domestic sector as a percentage of GDP,
- GC* = General government consumption expenditures as a percentage of GDP,
- OD* = Official development assistance as a percentage of GDP,
- IT* = Indirect taxes as a percentage of GDP,
- T* = Number of televisions per 1000 persons,
- TP* = Number of telephones per 1000 persons,
- UP* = Urban population as a percentage of total population,
- DEP* = Dependency ratio measured as the percentage of non working population to the working population,
- FDI (-1)* = Foreign Direct Investment as a percentage of GDP in the previous year,

3. Data and Estimation Procedure

The data for this study have been taken from world development indicators (WDI) 2005. Originally a sample of 155 countries was selected but after screening process 75 countries were chosen for which data on most of the variables were available for at least 15 years. All the variables are measured in US dollar at current prices.

Gross foreign direct investment is measured as percentage of GDP. Gross foreign direct investment is inflows of foreign direct investment recorded in the balance of payments financial account. We measure the domestic absorption as a sum of GDP and trade deficit. Since GDP is already present among the determinants of FDI, any variations in

domestic absorption that are not explained by GDP, must be explained by trade deficit.

Official exchange rate is measured as the number of local currency units per US\$, period average. Official exchange rate refers to the actual principal exchange rate and is an annual average based on monthly averages determined by country authorities or on rates determined largely by market forces in the legally sanctioned exchange market. We converted the nominal exchange rate into real exchange rate. For this we multiplied the nominal exchange rate with US CPI and then divided it by domestic CPI.

Balance of payments is the current account balance that includes the credit minus debit of goods, income and current transfers, given as percentage of GDP. Total external debt is measured as percentage of GDP. It is debt owed to nonresidents repayable in foreign currency, goods, or services. Total external debt is the sum of public, publicly guaranteed, and private non-guaranteed long-term debt, use of IMF credit, and short-term debt. Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt.

The variable openness is measured as exports plus imports and dividing by GDP. This variable measures the degree of trade liberalization. Gross national savings are measured as percentage of GDP. It includes net current transfers is equal to gross domestic savings plus net income and net current transfers from abroad.

Gross domestic investment is measured as percentage of GDP. It consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including commercial and industrial buildings, offices, schools, hospitals, and private residential dwellings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales.

Credit to private sector is measured as percentage of GDP. It refers to financial resources provided to the private sector-such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable-that establish a claim for repayment. For some countries these claims also include credit to public enterprises.

General government consumption is measured as percentage of GDP. General government consumption includes all current spending for purchases of goods and services (including wages and salaries). It also includes most expenditure on national defense and security, but excludes government military expenditures that are part of government capital formation.

Official development assistance and net official aid record the actual international transfer by the donor of financial resources or of goods or services valued at the cost to the donor, less any repayments of loan principal during the same period. Aid dependency ratios are computed using values in U.S. dollars converted at official exchange rates.

Net indirect taxes are measured as percentage of GDP. These taxes are the sum of indirect taxes less subsidies. Indirect taxes are those taxes payable by producers that relate to the production, sale, purchase or use of the goods and services. Subsidies are grants on the current account made by general government to private enterprises and unincorporated public enterprises.

We now discuss estimation procedure for our model. The use of pooled time-series and cross-section data provide large sample that is expected to yield efficient parameter estimates. Since political, structural and institutional characteristics vary from country to country, imposing a single relationship to all units is likely to suppress information. In order to overcome this problem we will use the approach of uniform shifts. The econometric literature suggests two approaches for uniform shifts [Green (1993), Kmenta (1986) and Maddala (1977)] the fixed effects and random effects model. In the present study we will follow fixed effects model.

The Fixed Effects Model

This approach assumes that the shifts are deterministic. Here the intercept term is allowed to vary while random variations are assumed to be independent across the cross sections. The formulation of the model for FDI is

$$FDI_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it}$$

Where α_i is country specific fixed effects. In this form X_{it} is vectors. By applying OLS with dummies is called fixed effects model.

4. Empirical Results and Interpretation

In this section we report the empirical results based on pooled data for 75 developing countries over the period 1970 to 2004. We select a large set of developing countries for empirical investigation. The panel data model is estimated by allowing the deterministic shifts across the countries. Since the model uses panel data, it is likely to suffer from autocorrelation as well as heteroskedasticity. Both are removed by applying appropriate econometric techniques. The results of estimation are presented in Tables 1a and Table 1b.

Table 1 (a): The Parameter Estimates of the Fixed Effects Model

Variables	Fixed Effects	Variables	Fixed Effects
GDP	8.79E-11 (11.05)*	CRED	-0.001 (-3.46)*
GROW	0.214 (11.05)*	GC	-0.385 (-3.11)*
DA	0.055 (1.65)**	OD	1.567 (1.42)
EXCH	-4.65E-07 (-0.79)	IT	-0.022 (-0.32)
BOP	-0.612 (-4.14)*	TV	1329.1096 (2.00)*
Ed	-0.059 (-3.30)*	TP	-1413.9848 (-1.01)
OPEN	0.346 (8.55)*	UP	0.0039 (4.45)*
SAV	0.188 (12.20)*	DEP	-0.479 (-8.78)*
DI	-0.182 (-1.6)***	FDI (-1)	0.508 (15.34)*
R²	0.68	Adjusted R²	0.64
F Statistics	274	D W	2.2311867

Note: The numbers in parentheses are the computed t-values. *, **, and *** denote statistically significant at the 1 %, 5%, and 10% levels, respectively

Table 1 (b): Intercepts of the Fixed Effects Model

Countries	Fixed Effects	Countries	Fixed Effects	Countries	Fixed Effects	Countries	Fixed Effects
Angola	0.567 (0.73)	Sri Lanka	0.599 (1.23)	Algeria	1.023 (1.32)	Paraguay	0.698 (0.96)
Argentina	0.908 (0.79)	Lesotho	0.530 (0.17)	Ecuador	0.940 (1.34)	Senegal	0.604 (1.22)
Burundi	0.386 (1.68)**	Madagascar	0.419 (1.0)	Egypt, Arab Rep.	1.128 (1.62)**	Sierra Leone	1.226 (1.89)**
Benin	0.338 (0.94)	Mexico	0.694 (0.78)	Fiji	2.624 (3.02)*	El Salvador	0.452 (0.76)
Burkina Faso	0.348 (0.92)	Mali	0.558 (1.30)	Gabon	2.359 (2.52)*	Swaziland	1.757 (2.28)*
Belize	1.165 (1.44)	Mozambique	0.493 (1.65)**	Ghana	0.438 (1.03)	Chad	0.635 (1.66)**
Bolivia	1.401 (1.79)**	Mauritania	0.333 (0.78)	Gambia, The	0.378 (0.61)	Thailand	0.391 (1.16)
Brazil	0.248 (0.36)	Mauritius	0.333 (0.82)	Guatemala	1.014 (1.53)	Togo	0.774 (1.53)
Botswana	1.654 (1.89)**	Malaysia	1.582 (2.07)*	Guyana	1.683 (2.02)*	Trinidad and Tobago	1.954 (2.21)*
Chile	1.292 (1.23)	Niger	0.628 (1.86)**	Honduras	0.805 (1.31)	Tunisia	0.719 (0.95)
China	0.215 (0.70)	Nigeria	1.085 (1.95)*	Haiti	0.407 (0.93)	Turkey	0.329 (0.91)
Cote d'Ivoire	0.793 (1.68)**	Nicaragua	0.968 (1.81)**	Indonesia	0.510 (1.11)	Tanzania	0.662 (1.68)**
Cameroon	0.676 (1.22)	Nepal	0.378 (1.10)	India	0.291 (0.89)	Uganda	0.649 (2.06)*
Congo, Rep.	1.215 (1.69)**	Pakistan	0.749 (1.44)	Iran,	0.776 (0.86)	Venezuela, RB	0.867 (0.76)
Colombia	0.791 (0.85)	Panama	2.263 (2.77)*	Jamaica	0.845 (1.38)	South Africa	1.154 (1.69)**
Cape Verde	1.048 (0.97)	Peru	0.940 (1.03)	Jordan	1.362 (1.33)	Zambia	1.333 (2.22)*
Costa Rica	1.054 (1.69)**	Philippines	0.495 (0.78)	Kenya	0.485 (1.34)	Zimbabwe	0.458 (1.09)
Czech Republic	0.465 (0.28)	Papua New Guinea	1.169 (2.09)*	Korea, Rep.	0.228 (0.11)		
Dominican Republic	0.630 (0.77)	Poland	0.830 (0.95)				

Note: The numbers in parentheses are the computed t-values. The statistics significant at 5 % level are indicated by *.

The variables that are statistically significant in the fixed effect model of panel data estimation are gross domestic product, GDP growth rate, urbanization, savings, trade deficit, dependency ratio, trade openness, external debt, balance of payments, indirect taxes, and communication.

One of the most important determinants which is found to have significant favorable effect on FDI in all the estimated equations is real gross domestic product. It is the most commonly used proxy for market size. This result emphasizes the necessity of large market size for efficient utilization of resources and exploitation of economies of scale. Large market size offers higher demand and absorptive capacity in an economy and therefore, foreign investors are attracted to put their stake in that concerned economy. MNCs are particularly attracted by large market size because they do not reship most of their products to parent countries. Once these foreign firms get established they can take the oligopolistic advantages due to their large size, technical know-how and other facilities they possess. These relative advantages pay them in the form of higher profits. Market size is also helpful in perpetuating foreign direct investment.

Unlike some empirical studies⁵, economic growth is also highly significant in affecting FDI. Therefore, our results are consistent with prior expectations. Growth is also important because higher rates of economic growth are usually associated with an increase in the profitability of corporations.⁶ The effect of government consumption on FDI is negative and significant. It implies that other things remaining the same, FDI decreases with rise in government consumption and vice versa. It can be interpreted that rise in government consumption leads to higher level of fiscal deficit and so instability and poor credit position of the economy which cause hindrance for foreign investment. In our estimation the positive and significant coefficient for saving implies that higher domestic savings lead to easy availability of funds and credible position of the concerned economy at international level.

⁵ See e. g. findings on the insignificant growth rate are in line with those presented by Clegg (1995) and Clegg And Scott-Green (1998). And findings on significant growth rate in line with those presented by Root and Ahmad (1979),

⁶ See gold, 1989, p. 213

The variable urbanization is quite consistent with prior expectations and an empirical study conducted by Root and Ahmad (1979). Urbanization creates effective demand for industrialization. Moreover, a higher degree of urbanization implies that public facilities are available. On the other hand congested population causes high level of domestic prices. All these factors are attached with the proposition that urbanization attracts foreign investors.

The variable official development assistance is considered favorable for FDI in the literature. Our estimates, however, show that association is insignificant, though positive. The reason for insignificance is the low level of structural development in LDCs, which dominate over sample of countries. It may be due to lack of revenues and high expenditures for debt servicing and defense.

Our results conclude negative insignificant parameter estimate for indirect taxes. It can be interpreted that foreign investors such as MNCs can shift these indirect taxes forward to consumers thereby minimizing their role in investment decisions MNCs. MNCs also avoid taxes by artificially inflating the prices they pay for intermediate products. This phenomenon, known as “transfer pricing” is a major practice of MNCs. Hence MNCs contribute little in the form of taxes.

The effect of balance of payment deficit is significant with negative sign, because adverse balance of payment implies that a country is living beyond its means. Furthermore, it indicates that a country is facing macroeconomic instability. In such countries governments and government policies are not stable and consistent. Therefore foreign investors hesitate to invest. The effect of external debt on FDI is negative and significant. The debt burdens adversely affect the investment climate of a country. In the long-run, external debt discourages or at least foreign investors hesitate to invest, because their profits are expected to be taxed at high marginal rate to finance debt repayments. The pronounced reaction of investors from other capital exporting countries indicates that solution to debt burden is required in order to improve the developing countries access to FDI significantly.

Communication facilities are measured with the number of televisions and telephones. The affect of television on FDI is significant with positive sign. Television is the source of advertisement for manufacture

products. The demand for production has a great deal with advertisement approaches. However the effect of telephone variable turns out to be insignificant.

The variable labor force is an important determinant of FDI. If we analyze only the size of labor force this may blur the true results because the quality of labor force is also important, besides the size of labor force. Keeping in view this fact we employ the variable dependency ratio for labor quality. Because higher dependency ratio implies lower the quality of labor force and vice versa. The effect of dependency ratio is negatively significant in explaining FDI inflows. This variable reflects the general phenomena of single person dependent families in the developing countries. In such situation productivity of labor force is negatively affected. Our empirical results are consistent with this phenomenon.

The effect of openness is highly significant with positive sign. Trade openness identifies the magnitude of trade liberalization in respective countries, this factor hold much importance because the developing countries are basically used as terminal. The MNCs are attracted to the countries to take the location advantages with the motive of exporting their products to large markets. Less trade barriers make imports of raw material, such as plant machinery, convenient. On the other hand they can easily export their intermediate and final products. Moreover, due to liberalization policy the MNCs also take advantage of export promotion facilities. With these factors in mind, we can conclude that our positive relation between openness and FDI is theoretically sound.

Unlike other empirical studies our results show inverse but insignificant, relationship between FDI and real exchange rate (RER). This result is consistent with Moore (1993). Usually devaluation is used as a tool to eliminate the deficit in the BOP, assuming that devaluation raises the price of import and lowers the price of export. So during devaluation we do not concentrate on the capital inflows and outflows. The devaluation raises the value of out standing foreign debt pushing the country into debt trap shaking the confidence of foreign investors, which will lead to unresponsive behavior of foreign investors. Further, regular devaluation creates the uncertain environment for foreign investors.

The effect of credit facilities in the host country is negative and significant. Such facilities promote the level of domestic investment. Higher level of domestic investment leaves little room for foreign direct investment and vice versa. The effect of domestic investment is negatively significant that means domestic investment and FDI are substitutes. Higher domestic investment mean there is little room for FDI.

The effect of domestic absorption is found to have significant favorable affect on FDI. We measure the domestic absorption as a sum of GDP and trade deficit. Since GDP is already present among the determinants of FDI, any variations in domestic absorption that are not explained by GDP, must be explained by trade deficit. In other words keeping GDP constant, changes in trade deficit translate one to one into changes in domestic absorption. Our results are consistent with prior expectations. In literature De Mello (1999) also proposes positive impact of domestic absorption on FDI.

Table 2: The Parameter Estimates of the Fixed Effects Model for OIC Countries

Variables	Fixed Effects	Variables	Fixed Effects
GDP	1.21 (4.04)*	CRED	-0.01 (-2.76)*
GROW	0.01 (1.17)	GC	-0.04 (-3.03)
EXCH	-0.0003 (-3.09)*	OD	2.36 (1.77)***
BOP	-0.04 (-4.32)*	TP	.001 (0.062)
Ed	-0.003 (-1.61)***	UP	5.46E-08 (2.27)**
OPEN	0.007 (1.61)***	DEP	-2.91E-08 (-2.47)*
SAV	-0.01 (-1.32)	FDI (-1)	0.61 (14.83)*
DI	0.002 (0.87)		
R²	0.70	Adjusted R²	0.67
F Statistics	25.10	D W	1.7

Note: The numbers in parentheses are the computed t-values. *, **, and *** denote statistically significant at the 1 %, 5%, and 10% levels, respectively.

In a separate modeling for selected OIC countries, our results show that most of the host country characteristics are similar to the parameter estimates for all selected developing countries. However in some cases differences have been noted such as domestic investment, exchange rate, official development assistance, economic growth and savings. The trade-off between domestic investment and FDI is not valid in the OIC countries. The effect of exchange rate was insignificant in full sample of countries while it is significant in OIC countries implying that the exchange rate is a crucial variable to determine the capital flows to OIC countries. The effect of official development assistance turns out to be significant in this sample while it was insignificant in full sample of developing countries. However, savings do not seem to affect FDI inflows in OIC countries contrary to the parameter estimates of full sample of countries.

5. Conclusion

The objective of this study has been to find out the main factors that are important in determining the location decisions of MNCs in developing countries. For this purpose we selected a sample of panel observations for 75 developing countries including 25 OIC countries over the period 1970-2004. The data are driven from the *World Development Indicators (WDI) 2005*. Fixed effects (country specific intercepts) model is employed for the estimation of the relationship of FDI with its potential determinants based on panel data. A number of conclusions can be drawn from the study, which are summarized as follow.

The variable GDP, which is a suitable proxy for market size, turned out to be significant. The effect of growth rate is also significant. The variable growth is much important because higher rates of economic growth are usually associated with an increase in the profitability of MNCs. The trade openness of developing countries, which indicates how much the borders of a country are free from restrictions on imports and exports and how much it is liberal, is also conducive in affecting FDI. The variables external debt and BOP have negative impact for FDI flow. The increasing debt burdens and persistent deficit in BOP mean a country is suffering financial crises. Further more debt service charges create financial disturbance. Such situation reflects that government will

less spend on development activities and increase debt burden and import duties that create negative effect for foreign investors.

The effect of domestic investment in explaining FDI flow is negative. This is so because an increase in domestic investment leaves little room for FDI. This inverse effect is also supported by variable credit facilities. The effect of credit facilities is also negative that implies higher credit facilities push up domestic investment.

The variables government consumption is significant with negative signs. The expansionary trends of this variable discourage market friendly approaches. Foreigner investors explore those countries where market friendly approaches are adopted. The effect of savings is also significant because savings are the source of capital inflow. Saving in each country responds to the worldwide opportunities for investment while investment in that country is financed by the worldwide pool of capital.

The official development assistance is significant in explaining FDI. The flow of such expenditures from international institutes buildup the confidence of foreign investor. Such expenditure has positive effect on infrastructure growth that has a favorable effect for export FDI flows. The impact of communication facilities is also turned out to be significant with positive signs in explaining FDI flow. Such facilities are helpful in exploring and access to new markets.

Finally, in a separate modeling for selected OIC countries, our study identifies the importance of above noted host country characteristics, however some differences hold in OIC countries. The trade-off between domestic and foreign investment is not valid. The effects of exchange rate and official development assistance are not significant in all developing countries but both of these variables turn out to be significant in OIC countries.

The policy implications that we are offered are:

- It is of critical importance to maintain a high and sustainable economic growth rate. The study shows that a sustainable growth patterns attract FDI.
- The developing countries can attract greater FDI inflows by removing the artificial barriers and control on exports and imports.
- Widening of the net of communication facilities is also instrumental in attracting FDI inflows. To this end subsidies may be provided to the communication sector.

References

- Aggarwal, J. P. (1980). "Determinants of FDI: A Survey", *Weltwirtschaftliches Archive*, 116: 739-773.
- Bajorubico, O. and S. Sosvilla-Rivero (1994). "An Econometric Analysis of FDI in Spain", *Southern Economic Journal*, 61: 104-120.
- Bartik, T. J. (1985). "Business Location Decisions in the United States: Estimates of the Effects of Unionization, Taxes, and Other Characteristics of States", *Journal of Business and Economic Statistics*, 3: 14-22.
- Buffie, S. E. (1993). "Direct Foreign Investment, Crowding out and Underemployment in the Domestic Economy", *Oxford Economic Paper*, 45: 639-667.
- Carlton, D. W. (1983). "The Location and Employment Choices of New Firms: An Econometric Model with Discrete and Continuous Endogenous Variables", *this Review*, 65: 440-490.
- Clegg, J. (1995). "The Determinants of United States Foreign Direct Investment in the European Community: A Critical Reappraisal", Paper Presented at the 21st Annual Conference of the European Business Academy, University of Urbino.
- Clegg, J. and S. Scott-Green (1998). "The Determinants of Japanese Foreign Direct Investment Flows to the European Community, 1963-1990", in J. -L. Mucchielli, ed., *Multinational Location Strategy*, 6: 29-49.
- Coughlin, C. C., J. V. Terza and V. Arromdee (1991) "State Characteristics and the location of FDI within the United States", *Review of Economics and Statistics*, 73: 675-683.
- Culem, C. (1988). "The Locational Determinants of Direct Investment among Industrial Countries", *European Economic Review*, 32: 885-904.

- Cushman, D. (1985). "Real Exchange Rate Risk, Expectations, and the Level of Direct Investment", *Review of Economics and Statistics*, 67(2): 297-308.
- Cushman, D. (1987). "The Effects of Real Wages and Labor Productivity on Foreign Direct Investment", *Southern Economic Journal*, 54(1): 174-185.
- De Mello L. R. (1999) "Foreign Direct Investment – Led Growth: Evidence from Time Series and Panel Data", *Oxford Economic Papers*, 51: 133-151.
- De Mello, L. R. (1997). "FDI in Developing Countries and Growth: A selective survey" *The Journal of Development Studies*, 34 (1): 1-34.
- Feldstein, M. and C. Horioka (1980). "Domestic Saving and International Capital Flows", *Economic Journal*, 30: 314-329.
- Froot, K. A. and J. C. Stein (1991). "Exchange Rates and Foreign Direct Investment: An Imperfect Capital Market Approach", *Quarterly Journal of Economics*, 106(4): 1191-1217.
- Gold, D. (1989). "Foreign Direct Investment", in A. P. Harvey, ed., *International Corporate Finance*.
- Goldberg, M. A. (1972). "Determinants of U.S. Direct Investment in the EEC: Comments", *American Economic Review*, 62: 692-699.
- Government of Pakistan, Economic Survey. Islamabad: Economic Advisors Wing Ministry of Finance. (Various Issues).
- Green, R. (1972). "Political Instability as a Determinant of US Foreign Investment", *Bureau of Business and Economic Research Studies on Marketing*, No. 7, Austin: University of Texas.
- Green, W. H. (1993). "Econometric Analysis", Second Edition, New York: MacMillan.

- Huang, G. (1992). "Comparative Analysis of US and Japanese Overseas Direct Investment", Unpublished Ph.D. theses, Pennsylvania: University of Pennsylvania.
- Jeon, Y. D. (1992). "The Determinants of Korean Foreign Direct Investment in Manufacturing Industries", *Weltwirtschaftliches Archiv*, 128: 527-541.
- Jorgenson, D. W. (1963). "Capital Theory and Investment Behavior", *American Economic Review*, 53: 247-259.
- Klein, M. W. and E. Rosenjgren (1994). "The Real Exchange Rate and Foreign Direct Investment in the United States", *Journal of International Economics*, 36: 373-389.
- Kmenta, J. (1986). "Elements of Econometrics", Second Edition, New York: MacMillan.
- Kravis, I.B. and Robert, E. Lipsey (1982). "The Location of Overseas Production and Production for Export by US Multinational Firms", *Journal of International Economics*, 12: 201-223.
- Lall, S. (1978): "Transnationals, Domestic Enterprises and the Industrial Structure in Host LDCs: A Survey", *Oxford Economic Papers*, 30: 217-248.
- Lee, J.Y. and E. Mansfield (1996). "Intellectual Property Protection and US Foreign Direct Investment", *Review of Economics and Statistics*, 30: 217-248.
- Luger, M. I. and S. Shetty (1985) "Determinants of Foreign Plant Start-Ups in the United States: Lessons for Policymakers in the Southeast", *Vanderbilt Journal of Transnational Law*, 18: 223-245.
- Maddala, G. S. (1977). "Econometrics", New York: McGraw-Hill.
- Majeed, M. Tariq and Eatzaz Ahmad (2006). "Determinants of Exports in Developing Countries", *The Pakistan Development Review*, Vol. (45) No.4

- Majeed, M. Tariq and Eatzaz Ahmad (2007). "Exports and FDI in Developing Countries: Theory and Evidence", *The Pakistan Development Review*, Vol. (46) No.4
- Majeed, M. Tariq and Eatzaz Ahmad (2008). "Human Capital Development and FDI in Developing Countries", *The Journal of Economic Cooperation*, Vol. (29) No.3
- Majeed, M. Tariq and Saniya Khan (2008). "The Determinants of Private Investment and the Relationship between Public and Private Investment in Pakistan", *NUST Journal of Business and Economics*, Vol. (1) No.1
- Milner, C. and E. Pentecost (1996). "Locational Advantage and US Foreign Direct Investment in UK", *Applied Economics*, 28: 605-615.
- Moore, M. O. (1993). "Determinants of German Manufacturing Direct Investment: 1980-1988", *Weltwirtschaftliches Archive*, 129: 120-138.
- Nunnenkamp, P. (1991). "Developing Countries' Attractiveness for Foreign Direct Investment, Debt Overhang and Sovereign Risk as Major Impediments?" *The Pakistan Development Review*, 3(4): 1145-1158.
- O'Sullivan, P. J. (1993). "An assessment of Ireland's Export-Led Growth Strategy via Foreign Direct Investment, 1960-1980", *Weltwirtschaftliches Archive*, 129: 139-158.
- Petrochilos, G. A. (1989). "Foreign Direct Investment and the Development Process: The Case of Greece", Avebury: Gower Publishing Company Ltd.
- Petrochilos, G. A. (1989). "Foreign Direct Investment and the Development Process", *The Case of Greece*, Avebury, Gower Publishing Company Ltd.

Ragazzi, G. (1973) "Theories of Determinants of Direct Foreign Investment", IMF Staff Papers, 20(2): 471-499.

Reuber, G. (1973). "Private Foreign Investment in Development", Oxford: Clarendon Press.

Root, F. and A. Ahmed (1979). "Empirical Determinants of Manufacturing Direct Foreign Investment in Developing Countries", Economic Development and Cultural Change, 27: 751-767.

Scaperlanda, A. E. and R. S. Balough (1983). "Determinants of U.S. Direct Investment in the E. E. C. Revisited", European Economic Review, 21: 381-390.

Schneider, F. and B. S. Frey (1985) "Economical Political Determinants of FDI" World Development, 13(2): 161-175

Wang, Z.Q. and N. J. Swain (1995) "The Determinants of Foreign Direct Investment in Transforming Economies: Evidence from Hungary and China", Weltwirtschaftliches Archive, 131: 359-382.

Wheeler, D. and A. Mody (1992). "International Investment Location Decisions: The Case of US Firms", Journal of International Economics, 33: 57-76.

World Bank (1991). World Development Report, New York: Oxford University Press, Various Issues.

Zhang, K. H. and J.R. Maskusen (1999). "Vertical Multinationals and Host Country Characteristics", Journal of Development Economics, 59: 233-252.