

Mohammad Hanif Akhtar 1

The Determinants of Foreign Direct Investment in Pakistan: An Econometric Analysis

Mohammad Hanif Akhtar*

Abstract

This study contributes to an understanding of locational determinants of FDI in Pakistan. Although there exists a great deal of literature in this area, there is hardly any evidence of such a study in the case of Pakistan. Economy level analyses are carried out to explore the determinants of FDI through multivariate regression analysis. The results of the multivariate regression analyses reveal that market size, relative interest rates and exchange rates are the major determinants of FDI in Pakistan. The variables such as market growth and political instability were consistently insignificant in the analyses. However, mixed findings were revealed by the variables such as consumer goods imports and the political regime in Pakistan.

1. Introduction

Returns on foreign direct investment (FDI), taking the form of profits, expansion of business, market development and innovations, are linked to social, economic, political, financial and cultural factors in the host economy in addition to those internal to transnational corporations (TNCs). The association of returns with these factors makes the latter significant determinants of FDI, with a varying degree of risk attached to them. For this very reason, studies on the determinants of FDI have tended to concentrate on the role of these factors in the overall decision of TNCs to invest overseas. The significance of econometric analysis, as an *ex post* estimation of approaching the issue of what determines the inflows of FDI in an economy, is widely held in the literature. Studies on the determinants of FDI have been invaluable in detecting the factors underlying these inflows.

It is relevant to mention the fact that motives for FDI vary across different types of FDI. The main motives are grouped under market-seeking, resource-seeking and efficiency-seeking reasons. The behaviour of the locational variables or factors determining the inflows of FDI in the host economy will vary according to these motives. For instance, relatively lower wages might be attractive for efficiency-seeking FDI in the host economy. For market-seeking ventures, a high wage rate would be more influential as

* Lecturer in Economics and International Business, Deptt: of Commerce, B.Z. University, Multan, Pakistan.

it reflects a greater spending potential in the economy. Data constraints in Pakistan do not allow the disaggregation of FDI across these motives. Therefore, the behaviour of the location factors or variables determining FDI in Pakistan reflects the joint effect of these motives for FDI. In such a situation, estimated signs of the variables might be counter to those expected while the significance level might also be affected, depending upon the motive which is dominant in overall FDI in the economy.

Increased and continuing support by the government of Pakistan in recent years has resulted in a surge in FDI mainly taking the form of acquisitions through privatisation. An attempt has been made to explore the determinants of FDI in Pakistan using the time-series data for 1972 to 1996. The selection of the time period was largely affected by factors such as general consistency, availability and reliability of the relevant data. The economy level determinants of FDI are explored by using the stock and flow data on FDI in Pakistan.

The rest of the discussion is organised as follows. Section 2 introduces the data set and the estimation method employed in the analysis. Section 3 takes up the definition and explanation of the variables used. Section 4 puts forward the main findings from the empirical analysis while section 5 presents a summary of results with some policy implications. The final part offers the main conclusions.

2. Data and Estimation Method.

An attempt was made to visualise the distributional properties of the data by plotting actual values of the variables against time. In addition to that, each of the explanatory variables was also plotted against the dependent variable and the residuals were also examined by running an initial regression analysis. Such an exploratory data analysis revealed the existence of non-linearity among the variables. Hence, natural scale variables were converted into natural logarithms (indicated by ln) to ensure symmetry and linearity in the data set. This also facilitates the interpretation of coefficients as elasticities.

All the explanatory variables are measured simultaneously with the dependent variables. Lag structures were also tested to find out the lagged response of the dependent variables against the explanatory ones but in every instance these resulted in inferior results¹. Data sources are listed in Table-1 below.

¹ Lags were tried only for those variables that appeared as insignificant or with an unexpected sign.

Table-1: Data Sources

Variable	Sources
FDI _{st}	United Nations, <i>World Investment Report</i> , Various Issues.
FDI _{inf}	(1)- IMF, <i>Balance of Payments Yearbook</i> , Various Issues. (2)- IMF, <i>International Financial Statistics Yearbook</i> , 1997. (3)- SBP, <i>Annual Report</i> , Various Issues.
GDP	IMF, <i>International Financial Statistics Yearbook</i> , 1997.
GR	GoP, <i>Economic Survey</i> , Various Issues.
Imp _{con}	GoP, <i>Economic Survey</i> , Various Issues.
Exch.	IMF, <i>International Financial Statistics Yearbook</i> , 1997.
I _p /I _H	IMF, <i>International Financial Statistics Yearbook</i> , Various Issues.
DPI	1- <i>Political Handbook of the World 1997</i> . 2- <i>The Europa World Yearbook 1997</i> .
DMR	1- <i>Political Handbook of the World 1997</i> . 2- <i>The Europa World Yearbook 1997</i> .

3. Definition and explanation of the variables

3.1. Dependent variables

The dependent variables are constructed mainly from the gross inflows of FDI in Pakistan. Real stock of FDI (FDI_{st}), for the period 1972-96, is composed of the FDI inflows in each year added to or subtracted from the stock of FDI in 1980. Real inflows of FDI (FDI_{inf}) are the annual inflows of FDI for the period 1972-96. Real values of the dependent variables are obtained by deflating the nominal values with constant prices of 1990. In this regard, due to non-availability of the appropriate capital goods price deflator, the GDP deflator is used instead, as rendered by Clegg (1995) and Clegg and Scott-Green (1998) in their in-depth analyses of American and Japanese FDI in the European Community.

3.2. Explanatory variables

Only locational determinants of FDI are explored in the analyses of determinants of FDI in Pakistan. The choice of the explanatory variables was largely affected by the existing literature on FDI determinants taking into account the trends and policies towards economic development and FDI in Pakistan over time. Table-2 below gives the information concerning

definition of the variables and their hypothesised sign. Construction of the variables used in the analyses is explained in the following section.

Table-2: Definition and Hypothesised Relationship of the Variables

Variable	Definitions and proxies	Sign
Ln-FDI-st.	Stock of FDI in Pakistan in million US dollars.	..
ln-FDI-Inf.	Inflows of FDI in Pakistan in million US dollars.	..
ln-GDP	GDP in Pakistan in million US dollars.	+
ln-GR	GDP growth rate of Pakistan economy.	+
ln-Imp _{con}	Imports of consumer goods in Pakistan as a per cent of total imports.	+
ln-Exch.	Exchange rate in Pakistan, rupees per US dollars.	+
ln-I _p /I _H	Interest rate in Pakistan relative to that of the average in home countries.	+
DPI	Dummy for political instability in Pakistan.	-
DMR	Dummy for military rule in Pakistan.	-
μ_t	Random and normally distributed error term with zero mean and constant variance.	..

Note: All monetary variables are in real values.

3.2.1. Real GDP and growth of GDP

As received theory suggests, the absolute size of the foreign market is believed to be positively related to the level of FDI (Buckley and Casson, 1981) because of economies in transaction costs and the benefits of a foreign production location. A large market size enables TNCs to produce and diversify their products according to local tastes and demands. The significance of market size has been generally acknowledged (Scaperlanda and Mauer, 1969; Caves, 1982; Torrissi, 1985; Culem, 1988; Artisien et al., 1991; Moore, 1993; Clegg, 1995; and Clegg and Scott-Green, 1998). Pakistan fits well into the large market argument in terms of its GDP and population size and for many products this market can be served better through local production than by exports from the source country. Real GDP is used as a proxy to estimate the impact of existing market size in Pakistan on FDI as it reflects the demand potential in the economy. The

data for this variable, being in millions of rupees at constant prices of 1990, was converted into dollars using each year's average exchange rate of rupee per US dollar.

A high level of economic growth is a strong indication of market opportunities. The growth of the host market is deemed to be significant for expansionary direct investment (Clegg and Scott-Green, 1998). Market size exhibits existing demand in an economy while growth represents the future potential. Growth is also important because higher rates of economic growth are usually associated with an increase in the profitability of corporations (Gold, 1989, p. 213). There exists relatively little support in the existing literature for this determinant of FDI as compared to the market size variable (Goldberg, 1972; Scaperlanda and Balough, 1983; Culem, 1988 and Clegg 1995²). Growing at an average rate of 5.5 per cent during the period 1972-96, Pakistan's potential future market cannot be overlooked. Taking into account the growth record of Pakistan and existing theoretical strands, it seems plausible to test the growth rate hypothesis in these analyses. Real growth rate of GDP is used to test the proposition that a growing Pakistani market attracts FDI.

3.2.2. Real exchange rate

The exchange rate variable has been widely debated in the literature on FDI determinants with some heterogeneous evidence with regard to its impact e.g. Cushman (1988), Froot and Stein (1991), O'Sullivan (1993), Dewenter (1995) and Clegg (1995). An economy (being served through exports from the home country) with a depreciating currency attracts more FDI as exporting from abroad to it becomes expensive, while it becomes cheaper to produce locally. Hence, exports by the home country are replaced through local production in the host country. Devaluation in the host economy also makes it cheaper to export from this base, adding to the competitiveness of TNCs. Such a situation is attractive for the firms looking for an export base, reducing their production costs and earning higher profits. It also increases the local value of assets (financial and real) of TNCs held in foreign currency.

However, there are certain costs associated with such a scenario of devaluation. Firstly, a devaluing currency lowers the potential for profit repatriation by shrinking the real volume of profits in terms of home currency. Secondly, depreciation of the host currency makes imports expensive, bidding up the prices of necessary inputs imported by affiliates of the TNCs. Thirdly, devaluation also reduces the book value of real

² Clegg's findings for this variable are mixed.

assets considered in terms of the home currency, lowering the assets side of the balance sheet of TNCs. This suggests that the impact of the exchange rate varies across the motives, nature and origins of FDI. In addition, currency fluctuations impel TNCs to guard against losses arising from such swings.

The use of the real exchange rate variable in the analyses, as compared to the nominal exchange rates, is justified on methodological grounds as the latter is affected by inflationary impacts. In this case, the inclusion of a nominal exchange rate variable would result in spurious correlations among some of the explanatory variables, which entail inflationary impacts, leading to the problem of multicollinearity. The use of real exchange rates is also expected to control for the problematic trending in the time-series data. Exchange rate fluctuations are expected to play a greater role in determining or deterring the flows of FDI in future. For instance, significant increases or decreases in FDI might take place in anticipation of an advantageous or disadvantageous exchange rate respectively.

FDI in Pakistan primarily appears to be market-seeking through local presence and a positive sign is therefore, hypothesised. Real exchange rate is the nominal exchange rate (rupees per US dollar) adjusted for relative changes in consumer price index (CPI) based on 1990 prices. The variable is used to test for the effect of changes in the value of the rupee against that of the US dollar. Average exchange rate for each year is used in the analyses.

3.2.3. Relative interest rates

The use of the interest rate variable as the determinant of FDI has not been quite common in the analyses. However, attention of researchers is gradually increasing to use this variable as a financial determinant of FDI, regardless of the absence of strong theoretical reasons within the OLI framework. TNCs can raise funds both at home and abroad to finance their activities, depending upon the relative rates of interest. Local borrowings in the host country might increase when interest rates are lower as compared to those in the home country or elsewhere. So, actual involvement of TNCs would be more than that measured in monetary terms through balance of payments statistics. If FDI is perceived as the total financial involvement of foreign investors in the host country, the recorded FDI might underestimate the true financial foreign investment (Culem, 1988). This may lead to an underestimation of the operations of TNCs. Such a discrepancy in measurement of the true involvement of TNCs' activities can be overcome by using the volume of output produced by their affiliates in the host country. However, the availability of such data is very restricted, leaving us

to the use of the monetary measure of FDI. To overcome this issue of measuring the true financial involvement of TNCs, the relative interest rate variable is used by researchers as a proxy to account for the financial nature of FDI in contrast to the ideal, but unattainable, data on operations of TNCs.

Financing FDI activities in the host countries by the affiliates of TNCs helps them to hedge against the risk of devaluation of the host country's currency. Such a financing mode is advantageous, in terms of costs, if interest rates in the host country are lower than those in the home country or elsewhere. Higher borrowing costs in the host economy, relative to those in the home country, would make the TNCs more competitive in the former, leading to higher inflows of FDI (Grosse and Trevino, 1996). Stated differently, the lower the interest rates in Pakistan relative to those in the home country, the more is the chance of raising funds locally in order to finance new and existing investments of affiliates, thus decreasing the inflows of FDI from abroad.

Nominal interest rates in Pakistan relative to that of the home countries' (USA and the UK) are used to assess the impact of borrowing costs of financing FDI in Pakistan. Long-term government bond rates are used in the analyses, indicating long-term opportunities to TNCs in home country markets and the opportunity cost of financing FDI in the host market. Interest rates in Pakistan reflect the opportunity cost of financing FDI in the economy while for the USA and UK such rates indicate the long-term opportunities for the TNCs in their home country. The variable is constructed by dividing the nominal interest rates in Pakistan by the average of those in the USA and the UK, the largest foreign direct investors in Pakistan. Due to non-availability of disaggregated data on the stocks of direct investment in Pakistan across sources, the rates employed are unweighted, following Culem (1988) and Grosse and Trevino (1996).

3.2.4. Imports in Pakistan

Countries with imports from abroad will attract FDI (Mundell, 1957). Imports in the host economy serve as an indicator of the existing market for the exports of the home country firms. Higher imports in the host economy (source country exports) encourage the TNCs to produce locally for market-seeking ventures (Culem, 1988). Such ventures become more desirable when there are high trade barriers (both tariff and non-tariff) on imports. Thus, TNCs find it attractive to produce locally in order to satisfy domestic demand. It would, however, be relevant to mention that the

TNCs might follow the various routes³ of servicing the host market before moving to FDI as the end result (Buckley *et al.*, 1988, p. 45). This variable⁴ has also been tested by Wang and Swain (1995) and Grosse and Trevino (1996).

In these analyses, consumer goods imports in Pakistan are used as an explanatory variable instead of total imports for two reasons. Firstly, because of market imperfections, such as tariffs, import controls and quotas, resulting from the policy of import-substitution industrialisation (ISI) in consumer goods, foreign firms might find it attractive to produce these goods locally to satisfy domestic demand. This means attracting more FDI in the consumer goods industry in Pakistan. Secondly, total imports include the capital goods imports, the major part of which is initiated by the TNCs leading to the fact that capital goods imports might be a part of FDI. To evaluate this, consumer goods imports, as a per cent of total imports, are included in the analyses of FDI determinants in Pakistan.

3.2.9. Dummy for political instability in Pakistan

Political instability is a qualitative phenomenon (Jun and Singh, 1996), exact measurement of which is a complex issue in terms of what investors perceive as politically risky and a constraint to their investment. For instance, there might be factors that affect or can potentially affect the TNCs' decision to invest abroad. These factors might be perceived as risky in the beginning but may not turn up as such in the end. Hence, exact measurement of this phenomenon is of paramount significance. As a part of their risk diversification strategy, TNCs will invest according to their current portfolios, balancing risks across the world. This leads to the determination of the fact that political risk needs to be seen largely as a global portfolio balancing issue, rather than a single country issue. In a time series analysis such as this, it is not possible to fully account for the effects of such cross sectional issues.

The effects of political instability have been explored through proxies in the form of dummies, (Lucas, 1993 and Wang and Swain, 1995), statistical measures⁵ (Wheeler and Mody 1992) and through commercially available data (Grosse and Trevino, 1996 and Jun and Singh, 1996). However, evidence in the literature, concerning the effects of this variable, is inconclusive (Robinson, 1961; Basi, 1963; Bennet and Green, 1972; Root

³ These include exporting, servicing through agents or the sales subsidiary before starting direct operations.

⁴ Total imports are used as an explanatory variable in these studies.

⁵ Principal components analysis.

and Ahmad, 1979; Schneider and Frey, 1985; Wheeler and Mody, 1992; Wang and Swain, 1995; Jun and Singh, 1996). There are various factors that account for conflicting results with respect to the impact of this variable. Firstly, there seems to be a difference of perception among researchers as to what constitutes political instability and which variable measures it in a most appropriate way. Secondly, there remains inconsistency regarding the variables used and the methodology employed to test the impact of these variables. Thirdly, the degree of risk resulting from such phenomenon might vary across TNCs from different origins, their extent of involvement, portfolio diversification and the nature of industries. Fourthly, the effect of the home countries' guarantees on FDI against risk resulting from political instability in the host countries needs to be taken into account (Agarwal, 1980, p. 761). Such considerations have usually not been taken into account while determining the full effects of the political instability variable in the analysis of FDI determinants.

Political instability in Pakistan has been a frequent phenomenon. It was, therefore, intended to estimate the effect of this conventional factor on FDI flows to a developing country such as Pakistan. An attempt was made to use the commercially available data in the form of political risk ratings for Pakistan. However, such risk ratings were not available for the whole period of analysis i.e. 1972 to 1996. Hence, reliance has to be made on the use of an episodic dummy, acknowledging the fact that it stands as a crude measure of such risk in terms of its construction and does not take into account some of the above-mentioned considerations, mainly due to data and resource constraints. Factors such as civic unrest, political riots and demonstrations, ethnic violence, dismissal of the government (constitutional and non-constitutional) and military coups are taken into account in construction of the dummy. This assumes a value of 1 in the years when the aforementioned factors are present and zero otherwise.

3.2.10. Dummy for military rule in Pakistan

There is hardly any evidence in the literature with regard to the impact of military rule on FDI ventures. Martial law has been a dominant feature in the political history of Pakistan. During the period 1972-96, the country has been under a military regime for nine years. Such a regime is perceived as less open to foreign investors vis-à-vis democracy. Hence, it is intended to test for the overall influence of this kind of regime on the inward FDI in Pakistan. It takes the unit value in case of military rule and zero otherwise.

4. Empirical results

The strength of econometric analysis largely depends upon the measurement of variables, model specification, data consistency, statistical and economic significance of variables in the analysis, number of observations and the fact that all the important variables are included in the analysis. A deficiency on any of these fronts is expected to jeopardise the reliability of estimates.

While regressing the explanatory variables against the dependent variable, an attempt has been made to take into account the number of degrees of freedom. Caution has been taken to avoid any inferior results by not overloading the equations with too many explanatory variables. Statistical findings from the regression analyses under varying specifications, presented in Tables 4 & 5 below, give the estimated equations and conventional tests of significance.

An assessment of the tests of significance and the regression equations indicates that the results of the parameters in the equations are in line with conventional economic theory and are statistically significant. The coefficient of determination (R^2), adjusted for the degrees of freedom, denotes the predictive power of the equations. The magnitude of the adjusted R^2 indicates the fact that the equations have performed reasonably well. The value of the F-statistics, significant at 1 per cent in all the equations, allows us to reject the null hypothesis that all the estimated coefficients are not significantly different from zero. In most cases, the Durbin-Watson statistic is in the acceptable range and there is no serious concern for the presence of positive or negative serial correlation⁶. This indicates that there are no specification errors in the equations.

As many of the macroeconomic variables tend to move together and are interdependent in most cases, it would be difficult to avoid any collinearity among the explanatory variables. Some of the variables have to be included because of strong theoretical reasons (Clegg, 1995). Therefore, it seems to be an unavoidable convention to use such correlated explanatory variables simultaneously in the literature on FDI determinants. There seems to be no evidence of multicollinearity⁷, seriously affecting the quality of

⁶ An explanation is provided where there is some evidence of the lower degree serial correlation.

⁷ This is supported by the fact that variance inflation factor (VIF), a measure of the multicollinearity, remained around 1.0 for most of the variates and closer to 5.0 for a few

results, in the equations. However, if there appeared to be a little evidence of some degree of multicollinearity, remedial measures have been taken to redress the problem. Simple correlation (Table-3) among some of the explanatory variables is not found to be distorting the test statistics or the significance levels at all, as most of the coefficients are significantly different from zero at the 5 per cent level or better.

Table-3: Correlation Matrix: Economy Level Variables

Variable	FDI _{st}	FDI _{inf.}	GDP	GR	Imp _{con}	Exch.	I _p /I _H	DPI	DMR
FDI _{st}	1.00								
FDI _{inf.}	.89	1.00							
GDP	-.32	-.20	1.00						
GR	-.09	-.02	.51	1.00					
Imp _{con}	-.24	-.19	.33	.45	1.00				
Exch.	.90	.74	-.38	-.17	-.39	1.00			
I _p /I _H	.86	.73	-.39	-.20	-.42	.70	1.00		
DPI	.24	.36	-.26	-.46	-.47	.26	.26	1.00	
DMR	-.43	-.33	.69	.37	.45	-.58	-.31	-.23	1.00

of them. A VIF value being larger than 10.0 (a usual threshold) indicates high degree of multicollinearity (Hair *et al.* 1995, p. 152).

Table-4: Economy Level Determinants of FDI in Pakistan 1972-96: FDI Stock as Dependent Variable

Dependent Variable	Constant	Ln_GDP	Ln_GR	Ln_Exch.	Ln_L/L	Ln_Imp	DMR	DPI	R ²	Standard Error	F Statistic	DW Statistic
Ln_FDI_st. (Result 1)	-1.938 (-0.778)	0.399 (2.251)	6.989E-05 (0.002)	0.584 (6.556)	0.413 (6.715)	1.090 (3.579)	-0.095 (-1.828)	0.050 (1.318)	0.94	0.06694	52.235	1.760
Ln_FDI_st. (Result 2)	-1.941 (-0.985)	0.399 (2.524)	—	0.584 (6.746)	0.413 (7.225)	1.090 (4.681)	-0.095 (-1.922)	0.050 (1.417)	0.94	0.06506	64.525	1.760

Notes: 1. Figures in parentheses are t statistics.

2. Significance levels are denoted by: a(1%), b(5%) and c(10%).

Table-5: Economy Level Determinants of FDI in Pakistan 1972-96: FDI Inflows as Dependent Variable

Dependent Variable	Constant	Ln_GDP	Ln_GR	Ln_Exch.	Ln_L/L	Ln_Imp	DMR	DPI	R ²	Standard Error	F Statistic	DW Statistic
Ln_FDI_inf. (Result 1)	-46.146 (-1.946)	3.436 (2.011)	-0.180 (-0.573)	1.675 (2.247)	1.162 (2.141)	2.538 (0.966)	-0.304 (-0.689)	0.249 (0.785)	0.57	0.55910	5.347	2.388
Ln_FDI_inf. (Result 2)	-29.476 (-2.024)	2.775 (1.953)	—	1.782 (2.506)	0.904 (1.984)	—	-0.118 (-0.307)	0.198 (0.725)	0.60	0.54237	7.755	2.133

Notes: 1. Figures in parentheses are t statistics.

2. Significance levels are denoted by: a(1%), b(5%) and c(10%).

4.1. FDI stock as the dependent variable

The equation for the determinants of FDI stock in Pakistan took the following form:

$$\ln_FDI_st. = \alpha + \beta_1 \ln_GDP + \beta_2 \ln_GR + \beta_3 \ln_Exch. + \beta_4 \ln_I_p/I_H + \beta_5 \ln_Imp_{con} + \beta_6 DMR + \beta_7 DPI + \mu_t$$

Results on the stock of FDI ($\ln_FDI_st.$) as the dependent variable are presented in Table-4. The significance of the market size variable is reaffirmed because the traditional proxy on market size is significant at the 5 per cent level. This supports the earlier empirical work by Scaperlanda and Mauer (1969, 1972), Caves (1982), Torrissi (1985), Culem (1988)*, Wang and Swain (1995), Clegg (1995)* and Clegg and Scott-Green (1998)* and also confirms findings of the survey results of the authors' current research. This result is partially strengthened by the significance of \ln_Imp_{con} variable, an indicator of the size of the existing market for the exports of foreign investors.

The insignificance of the growth rate variable in the analyses might be due to uneven growth of the Pakistan economy. The variable was also tested using lags of up to three years but this resulted in inferior results. The growth rate variable appears to have no impact on the stock of FDI and has no contribution to the explanatory power of the equation. This is confirmed by the fact that exclusion of this variable leaves the explanatory power and DW statistic unaffected (Result 2). It would be pertinent to mention that no evidence was found that the effect of this variable is eroded by the other explanatory variables like GDP because of significant moderate correlation (0.51) between the two. Such correlation does not distort the signs and significance of the other variables. Both \ln_GDP and \ln_GR were tried interchangeably, but exclusion of the former did not lead to significance of the latter. Findings on the insignificant growth rate are in line with those presented by Scaperlanda and Mauer (1969), Torrissi (1985), Clegg (1995) and Clegg and Scott-Green (1998).

A high degree of statistical significance is possessed by the relative interest rate variable which has a positive effect on existing stocks of FDI. An increase in the interest rate in Pakistan relative to that in the home countries leads to lower fund raising within the economy as the opportunity cost of raising funds goes up. More funds are raised outside the economy resulting in higher inflows of FDI. The results are in line with the partially

* These findings partially support the hypothesis as the variable appeared significant with the expected sign in some of the specifications.

supported findings by Culem (1988), Clegg (1995), and Clegg and Scott-Green (1998) but contradict those presented by Grosse and Trevino (1996).

The same pattern of significance level is sustained by the other finance-related determinant of FDI: the exchange rate (ln_Exch.). The variable is constructed in a way that an increase in exchange rate translates a devaluation of the Pakistani rupee against the dollar. The positive sign found for the exchange rate supports the hypothesis that a devaluation of the host country's currency attracts FDI (Cushman, 1988; Froot and Stein, 1991; O'Sullivan, 1993; Grosse and Trevino, 1996 and Clegg and Scott-Green, 1998⁸).

Imports of consumer goods (ln_Imp_{Con}) in Pakistan emerge with the highest coefficient value, demonstrating the most significant influence on existing levels of FDI. It also supports the idea that ln_Imp_{Con} attract FDI, strengthening the market-seeking argument. This result supports the earlier analyses by Grosse and Trevino (1996).

The dummy for military rule (DMR) obtains a significant, negative coefficient, which supports the hypothesis that military rule is considered as less welcoming by foreign investors. The dummy for political instability (DPI) appears not only as insignificant but is wrongly signed. This gives the impression that political instability is not found to be influencing the existing investors in Pakistan. This might also be due to the fact that political risk in Pakistan is viewed by investors in the perspective of their global portfolio balancing strategy (as mentioned earlier) rather than as a one country phenomenon. This finding supports the camp (Bennett and Green, 1972; Levis, 1979 and Mody, 1992) which found that political instability does not hinder FDI inflows and is contrary to those who found its reverse impact on FDI (Schneider and Frey, 1985; Lucas, 1993; Wang and Swain, 1995; and Jun and Singh, 1996).

4.2. FDI inflows as the dependent variable

The following equation is tested on the economy-wise determinants of FDI inflows in Pakistan:

$$\text{Ln_FDI_inf.} = \alpha + \beta_1 \text{ln_GDP} + \beta_2 \text{ln_GR} + \beta_3 \text{ln_Exch.} + \beta_4 \text{ln_I}_p/\text{I}_H + \beta_5 \text{ln_Imp}_{\text{con}} + \beta_6 \text{DMR} + \beta_7 \text{DPI} + \mu_t$$

Table-4 presents findings on the determinants of FDI inflows in Pakistan. The same combination of explanatory variables is used in the case

⁸ The variable is significant with hypothesised sign only in the second model EC(9) specification.

of $\ln_FDI_inf.$, as the dependent variable. Variables like \ln_GR , and \ln_Imp_{con} are found to be insignificant while the contrary sign is attached to the \ln_GR variable. The insignificance of the consumer goods imports in Pakistan, uncovers the fact that the local production effect is becoming stronger for inflows of FDI as compared to imports. This might also be due to the fact that the effect of import substitution in consumer goods has become weaker leading to insignificance of \ln_Imp_{con} for flows as compared to stock of FDI in Pakistan.

Variables such as \ln_GDP , $\ln_Exch.$ and \ln_I_p/I_H appear with the correct hypothesised sign and are significant as well. The large value of the coefficient on \ln_GDP suggests that market size is the prime determinant of FDI inflows in Pakistan. It is followed by the financial variables i.e. $\ln_Exch.$ and \ln_I_p/I_H in terms of strength of their effects on FDI inflows. Taking into account the elasticity values of $\ln_Exch.$ for the stock vis-à-vis inflows of FDI, it emerges that the latter is more responsive to exchange rate fluctuations as its coefficient value is higher. The lower response from the existing investors might reflect their cautious approach towards FDI as a result of the exchange risk linked with profit repatriation, import prices and value of the existing assets held in local currency.

Both the dummies DMR and DPI appear to be insignificant with only DMR being signed correctly. This produces no evidence that these factors contribute towards the inflows of FDI in Pakistan.

A smaller degree of negative serial correlation is found to be present in the first case (Result 1) as indicated by the value of Durbin-Watson statistics. This is because of the negatively signed insignificant growth rate variable and the insignificant \ln_Imp_{con} . Hence, inclusion of these variables does not seem to be necessary for the proper specification of equation 2. Estimates of FDI inflows obtained without \ln_GR and \ln_Imp_{con} variables result in a higher adjusted R^2 (0.60) and a more appropriate DW Statistic (2.133), eliminating the problem of negative serial correlation as well (Result 2). This suggests that the growth rate and consumer goods imports in Pakistan are not seen as playing any role in FDI decisions of the TNCs.

5. Summary and Policy implications

5.1. Summary of the results

An attempt has been made to examine the empirical relevance of the various hypotheses proposed in the literature and discussed in section 3. The findings of this study suggest that economic variables are more significant and consistent determinants of FDI in Pakistan than political

ones. The study conforms to the earlier findings in the literature on the market size, relative interest rates and exchange rates as the determinants of FDI.

FDI in Pakistan largely seems to be driven by the market-seeking behaviour of TNCs. Substantial differences do emerge among the FDI inflows and stocks in terms of elasticities for \ln_GDP . The same stands true for the financial variables such as $\ln_Exch.$ and \ln_I_p/I_H . This reflects the fact that the FDI inflows seem to be more sensitive to these location-related factors vis-à-vis \ln_FDI_st .

Market growth is not found to be as attractive to TNCs in Pakistan. It is an unexpected result which manifests the fact that scope for the future market development in Pakistan is slim. Inconsistent policies and an unstable macroeconomic environment might be reasons for this, leading to fluctuations in Pakistan's growth rate.

A consistent and overwhelming pattern of significance is exhibited by the exchange rate and interest rate variables which focuses attention on the role of monetary policy in Pakistan as FDI inflows are quite sensitive to financial variables. This demonstrates that financial considerations do possess greater weighting in the investment decisions of TNCs in Pakistan.

The significance of \ln_Imp_{Con} in the stock data analysis and its insignificance in the inflow data represents the fact that the former is driven by the exports from the home country while the latter concentrates on local production. This might be showing the significance of scale economies in local production by TNCs in Pakistan.

Mixed results are obtained from the findings on the nature of the political regime dummy (DMR). It leads to the partial conclusion that TNCs prefer civil rule rather than military rule in Pakistan.

Evidence on the issue of political instability (DPI) is consistently insignificant which might be accounted for for two reasons. Firstly, it might be possible that the full effects of political instability, being a rather complex phenomenon, are not being captured by the dummy (as the portfolio balance effect cannot be captured by the time series methods). A comprehensive treatment, in terms of using the most appropriate measure of political risk in Pakistan might lead to an answer for this paradoxical result. Commercially available data on the political risk in Pakistan might help in this regard, but its non-availability for the whole period of analyses is another limitation. Secondly, it might be possible that such a factor is disregarded by TNCs while making investment in Pakistan. This is a likely possibility in a situation where the

degree of such risk is low or its effect is undermined by the strong locational or other advantages. However, the latter argument does not seem to be convincing in the case of Pakistan with substantially lower inflows of FDI.

5.2. Policy implications

Some of the policy implications emerging from the above analyses are mentioned below.

- Consistently insignificant performance by the growth rate variable unveils the fact that there is a great need to improve and stabilise the growth rates of the economy. Policy consistency and a stable macroeconomic environment are expected to ensure a persistently growing market. This, in turn, can enhance and reflect the true potential of Pakistan in attracting larger inflows of FDI.
- A stable exchange rate policy has to be ensured in order to avoid the exchange rate risk attached to the assets, import prices and profit considerations of direct investors in Pakistan.
- A military regime is deemed to be unattractive for the TNCs and civil rule is considered to be more appropriate in terms of its openness.
- Given the insignificant dummy for political instability and the lower levels of FDI in Pakistan, it can be deduced that locational advantages in Pakistan are not strong enough to attract larger inflows of FDI. Hence, there is a need to improve the locational strength of Pakistan. Factors like incentives, policy consistency and a more open and less regulatory investment regime can be of immense value in this regard.

6. Conclusion

Results of the study indicate there is a great need for improving the locational factors in Pakistan to attract the market-seeking FDI. High and stable growth, exchange rate stability accompanied by political stability, are the main areas of concern in providing an attractive investment environment to TNCs in Pakistan.

The study of the location factors in Pakistan, as the determinants of FDI, was the main objective of these analyses. There remains great room for further research to explore how geography influences the use of ownership and internalisation (OI) advantages in a national context or how the use of OI factors helps to exploit an existing locality. A comprehensive and extensive treatment of such factors is expected to lead to a better and deeper understanding of the determinants of FDI in Pakistan.

References

- Bajo-Rabio, O. and S. Sosvilla-Rivero, 1994, "An econometric analysis of foreign direct investment in Spain, 1964-1989", *Southern Economic Journal*, 61 (1), pp. 104-120.
- Brunetti, A., 1997, "Political variables in cross-country growth analysis", *Journal of Economic Surveys*, 11 (2), pp. 163-190.
- Bryman A. and D. Cramer, 1997, Quantitative Data Analysis with SPSS for Windows, London: Routledge.
- Buckley, Peter J. and Mark C. Casson., 1981, "The Optimal Timing of a Foreign Direct Investment", *Economic Journal*, 91, pp. 75-87.
- Buckley, Peter J., G. D. Newbould and J. C. Thurwell, 1988, Foreign Direct Investment by Smaller UK Firms: The Success and Failure of First-Time Investors Abroad, London : Macmillan.
- Buckley, Peter J. and Jeremy Clegg, 1991, Multinational Enterprises in Less Developed Countries, Basingstock and London: Macmillan.
- Chase, C. D., J. L. Kuhle and C. H. Walther, 1988, "The Relevance of Political Risk in Direct Foreign Investment", *Management International Review*, 28 (3), pp. 31-38.
- Cho, K. R., 1986, "Determinants of Multinational Banks", *Management International Review*, 26 (4), pp. 10-23.
- Clegg, Jeremy, 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, Jeremy and Susan 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, Vol. 6 in the series Research in Global Strategic Management edited by Rugman, A.M. (Greenwich, Conn.: JAI Press), pp. 29-49.
- Culem, C., 1988, "The Locational Determinants of Direct Investment among Industrialised Countries", *European Economic Review*, 32, pp. 885-904.

- Cushman, D. O., 1988, "Exchange-Rate, Uncertainty and Foreign Direct Investment in the United States", *Weltwirtschaftliches Archiv*, 127, pp. 322-336.
- Daniels, J. D., 1977, Recent Foreign Direct Manufacturing Investment in the United States. New York, Praeger.
- Dewenter, K. L., 1995, "Do Exchange Rate Changes Drive Foreign Direct Investment?", *Journal of Business*, 68 (3), pp. 405-433.
- Dunning, John H., 1973, "The Determinants of International Production", *Oxford Economic Papers*, 25 (3), pp. 289-336.
- 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), pp. 1191-1217.
- Gold, D., 1989, "Foreign Direct Investment", in A. P. Harvey, ed., *International Corporate Finance*.
- Government of Pakistan (various issues). *Pakistan Economic Survey* Islamabad: Finance Division.
- Grosse, R. and L. J. Trevino, 1996, "Foreign Direct Investment in the United States: An analysis by country of origin", *Journal of International Business Studies*, 27 (1), pp. 139-155.
- Hair, J. F.(Jr.), R. E. Anderson, R. L. Tatham and W. C. Black, 1995, *Multivariate Data Analysis*, Englewood Cliffs: Prentice Hall.
- Holland, D., and N. Pain, 1998, "Accession, Integration, and the Diffusion of innovations: A study of the determinants and impacts of FDI in Central and Eastern Europe", Presented at the Royal Economic Society Conference, University of Warwick.
- IMF, 1997, *International Financial Statistics Yearbook* Washington, D.C.: IMF.
- International Labour Office (various issues). *Yearbook of Labour Statistics* (Geneva: ILO).
- Jeon Y-D., 1992, "The Determinants of Korean Foreign Direct Investment in Manufacturing industries", *Weltwirtschaftliches Archiv*, 128 (13), pp. 527-542.

- Jong, N. de and R. Vos, 1994a, What is Measured in Studies on the Determinants of Direct Foreign Investment? Hague: The Institute of Social Studies.
- Jong, N. de and R. Vos, 1994b, Theoretical and Empirical Approaches to Direct Foreign Investment: A Survey of Literature, Hague: The Institute of Social Studies.
- Jun, K. W. and H. Singh, 1996, "The Determinants of Foreign Direct Investment in Developing Countries", *Transnational Corporations*, 5 (2), pp. 67-105.
- Kyrilis, D. and P. Pantelidis, 1997, "Location Advantages and Inward Foreign Direct Investment in Greece", in Klaus Macharzina et. al., eds., Global Business in the Information Age, Proceedings of the 23rd Annual Conference of the European Business Academy, Vol. 1.
- Levis, M., 1979, "Does Political Instability in Developing Countries Affect Foreign Investment Flow? An Empirical Examination", *Management International Review*, 19 (3), pp. 59-68.
- Lucas, R. E. B., 1993, "On the Determinants of Direct Foreign Investment: Evidence from East and Southeast Asia", *World Development*, 21 (3), pp. 391-406.
- Moore, M. O., 1993, "Determinants of German Manufacturing Direct Investment: 1980-1988", *Weltwirtschaftliches Archiv*, 129 (1), pp. 20-138.
- Mundell, R. A., 1957, "International Trade and Factor Mobility", *American Economic Review*, 47, pp. 321-35.
- Nunnenkamp, P., 1997, Foreign Direct Investment in Latin America in the Era of Globalized Production, *Transnational Corporations*, 6 (1), pp. 51-81.
- O'Sullivan, Patrick J., 1993, "An Assessment of Ireland's Export-Led Growth Strategy via Foreign Direct Investment: 1960-1980", *Weltwirtschaftliches Archiv*, 129 (1), pp. 139-158.
- Organisation of Economic Cooperation and Development (various issues). *OECD Economic Outlook* (Paris: OECD).
- Banks, A. S., A. J. Day and T. C. Muller, 1997, Political Handbook of the World 1997, New York: CSA Publications.

- Sagari, S. B., 1992, "United States Foreign Direct Investment in the Banking Industry, *Transnational Corporations*, 1 (3), pp. 93-123.
- Scaperlanda, A. E. and L. Mauer, 1969, "The Determinants of U.S. Direct Foreign Investment in the EEC", *American Economic Review*, 59, pp. 558-568.
- Schneider F. and B. S. Frey, 1985, "Economic and Political Determinants of Foreign Direct Investment", *World Development*, 12 (2), pp. 161-175.
- State Bank of Pakistan (various issues). Foreign Liabilities & Assets and Foreign Investment in Pakistan, Karachi.
- Europa Publications, 1997, *The Europa World Yearbook 1997*. London: Europa Publications.
- Tsai, Pan-Long, 1991, "Determinants of Foreign Direct Investment in Taiwan: An Alternative Approach with Time-Series Data", *World Development*, 19, pp. 275-85.
- Tu, J.-H. and C. Schive, 1995, "Determinants of Foreign Direct Investment in Taiwan Province of China: A new approach and findings", *Transnational Corporations*, 4, pp. 93-103.
- United Nations, 1991, *World Investment Report 1991; The Triad in Foreign Direct Investment* New York: United Nations.
- United Nations, 1992, *World Investment Report 1992: Transnational Corporations as Engines of Growth*, New York: United Nations.
- United Nations, 1994, *World Investment Report 1994: Transnational Corporations, Employment and the Workplace*, New York: United Nations.
- United Nations, 1995, *World Investment Report 1995: Transnational Corporations and Competitiveness*, New York: United Nations.
- Wang, Z. Q. and N. J. Swain, 1995, "The Determinants of Foreign Direct Investment in Transforming Economies: Empirical Evidence from Hungary and China", *Weltwirtschaftliches Archiv*, 131 (2) pp. 359-382.

Wheeler, D. and A. Mody, 1992, "International Investment Location Decisions, the Case of US Firms" *Journal of International Economics*, 33, pp. 57-76.

World Bank (various issues), *The World Tables*, Washington, D.C.: World Bank.

Yoshida, M., 1987, "Macro-Micro analysis of Japanese Manufacturing Investments in the United States", *Management International Review*, 27, pp. 19-35.