"THE DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN PAKISTAN"

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ABSTRACT

The paper empirically identifies the determinants of growth in foreign direct investment (FDI) in Pakistan over the period 1961 to 2003. Our main interest is to study how different variables or indicators reflecting trade, fiscal and financial sector liberalization attract FDI in Pakistan. The study uses the Cointegration and error-correction techniques to identify the variables in explaining the FDI in Pakistan. The study considers the tariff rate, exchange rate, tax rate, credit to private sector and index of general share price variables if they explain the inflow of foreign direct investment. Also included wages and per capita GDP to test for relative demand for labor and market size hypotheses. All variables indicated correct signs and are statistically significant except for wage rate and share price index. The study clearly emphasizes the role of these policy variables in attracting FDI and determining its growth in both short and long run in Pakistan. The study also indicates a positive and significant impact of reforms on FDI in Pakistan.

Key words: FDI, International factor movement, International Business

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THE DETERMINANTS OF FOREIGN DIRECT INVESTMENT IN PAKISTAN[1]

1. INTRODUCTION

The significance of foreign direct investment (FDI) flows is well documented in literature for both the developing and developed countries. Over the last decade foreign direct investment have grown at least twice as rapidly as trade (Meyer, 2003). As there is shortage of capital in the developing countries, which need capital for their development process, the marginal productivity of capital is higher in these countries. On the other hand investors in the developed world seek high returns for their capital. Hence there is a mutual benefit in the international movement of capital.

The ongoing process of integration of the world economy and liberalization of the economies in many developing countries have led to a fierce competition for inward FDI in these countries. The controls and restrictions over the entry and operations of foreign firms in these countries are now being replaced by selective policies aimed at FDI inflows, like incentives, both fiscal and in kind. The selective policies not only improve the fundamentals of the economy but they aim at attracting more foreign investments in the country.

Accordingly during early 1980s, the government in Pakistan has initiated market-based economic reform policies. These reforms began to take hold in 1988, and since than the government has gradually liberalized its trade and investment regime by providing generous trade and fiscal incentives to foreign investors through number of tax concessions, credit facilities, and tariff reduction and have also eased foreign exchange controls (see Khan, 1999). In the 1990s, the government further liberalized the policy and opened the sectors of agriculture, telecommunications, energy and insurance to FDI. But, due to rapid political changes and inconsistency in policies the level of FDI remained low compared to other developing countries. Nevertheless, the time series data on FDI inflows and stocks has shown remarkable progress over time particularly during the reform period of the 90's (see Table 1).

Extensive empirical literature on determinants of inward FDI emphasizes the economic conditions or fundamentals of the host countries relative to the home countries of FDI as determinants of FDI flows. This literature is in line with Dunning's eclectic paradigm (1993), which suggests that it is the locational advantages of the host countries e.g., market size and income levels, skills, infrastructure and political and macroeconomic stability that determines cross-country pattern of FDI. Following this approach Nishat and Anjum (1998), have estimated that political stability, peaceful law and order situation, level of technical labour force and mineral resources and liberal policies of the government attracted foreign investors in Pakistan.

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However, it has been argued that the location specific advantages sought by foreign investors are changing in the globalised more open economies of today. Accordingly, in his path breaking work Dunning (2002) finds out that FDI from more advanced industrialised countries depends on government policies, transparent governance and supportive infrastructure of the host country. However, very few studies exist that have empirically estimated the impact of selective government policies aimed at FDI.

The present study adds to the existing literature by empirically examining the response of FDI to selective policies, namely tax and tariff policy, fiscal incentives offered and exchange rate policies in Pakistan. More specifically, the objective of this study is to find out the effectiveness of these policies during the reform period. From this study we would be able to see which specific government policy is attracting or distracting FDI in Pakistan. This study would be of interest to policy makers in many developing countries where structural reforms are being implemented.

The rest of the paper is organized that section 2 reviews the literature and describes the theoretical framework. Section 3 describes the econometric model and data followed by estimation and interpretation of results in section 4. The summary and concluding remarks are provided in section 5.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

An extensive set of determinants has been analyzed in the literature on the determinants of FDI. Numerous empirical studies (Agarwal, 1980; Gastanaga et. al., 1998; Chakrabarti, 2001; and Moosa, 2002) on the determinants of FDI lead us to select a set of explanatory variables that are widely used and found to be significant determinants of FDI. For example Markusen and Maskus (1999), Lim (2001), Love and Lage-Hidalgo (2000), Lipsey (2000) and Moosa (2002) highlight how the domestic market size and differences in factor costs can relate to the location of FDI. To foreign investors who operate in industries characterized by relatively large economies of scale, the importance of the market size and its growth is magnified. This is because they can exploit scales economies only after the market attains a certain threshold size. The most widely used measures of market size are GDP, GDP/capita and growth in GDP. The signs of these coefficients are usually positive.

Discussing the labor cost which is one of the major components of the cost function, it is mentioned that high nominal wage, other things being equal, deters FDI. This must be particularly true for the firms, which engage in labor-intensive production activities. Therefore, conventionally, the expected sign for this variable is negative. The studies that find no significant or a negative relationship of wage and FDI are: Kravis and Lipsey, 1982; Wheeler and Mody, 1990; Lucas, 1993; Wang and Swain, 1995; and Barrell and Pain, 1996. Nonetheless, there are other researchers who have found out that higher wages do not always deter FDI in all industries and have shown a positive relationship between labor costs and FDI (Moore, 1993; and Love and Lave-Hidalgo, 2000). Because higher wages indicate higher productivity, hi-tech research oriented industries in which

the quality of labor matters, prefer high-quality labor to cheap labor with low productivity.

Recently, a few researchers have also studied the impact of specific policy variables on FDI in the host countries. These policy variables include openness of trade, tariff, taxes and exchange rate. Gastanaga, Nugent, and Pashamova (1998) and Asiedu (2002) focus on policy reforms in developing countries as determinants of foreign direct investment inflows. They find corporate tax rates and degree of openness to foreign direct investment to be significant determinants of FDI. Similarly many recent models highlight the effect of tariffs on FDI within the context of horizontal and vertical specialization within MNEs (Ether, 1994 and 1996; Brainard, 1997; Carr, Markusen, and Maskus, 2001).

The horizontal FDI can be associated with market seeking behaviour and is motivated by lower trade costs. Hence high tariff barriers induce firms to engage in horizontal FDI, and thus, replace exports with production abroad by foreign affiliates This "tariff jumping" theory implies a positive relationship between import duty and FDI. While a typical vertical FDI can be characterized by individual affiliates specializing in different stages of production of the output. The semi-finished products, in turn, are exported to other affiliates for further processing. By fragmenting the production process, parent firms and affiliates take advantage of factor price differentials across countries. The MNEs, which set up vertical production networks may be encouraged to invest in a country with relatively low tariff barriers due to lower cost of their imported intermediate products. Therefore, the expected sign of import duty variable is negative in this case. With the decline in tariff rate due to trade liberalization in the developing countries, imports have increased by MNC's. For Pakistan, Khan (1999) confirms that imports have increased by MNC's as trade is being liberalized as a result of the recent structural reforms.

For foreign investors the fiscal incentives and taxation structure is very important. The tax rate affects the profitability of investment projects. Therefore foreign investors seek locations where taxes are low. Various tax break regimes are often offered to multinationals as an incentive to attract FDI inflows. Empirical studies indicated a negative relationship between taxes and the location of businesses (Newman and Sullivan (1988); Gastanaga et al. (1998); Billington, 1999; Shah and Masood, 2002; and Bora 2002. On the other hand Carlton (1983), Hines and Rice (1994) and Hines (1996) found no support on the impact of taxes on FDI. Interestingly, Swensen (1994) empirically finds a significant positive effect of taxes on inward FDI.

Likewise the effect of exchange rate movements on FDI flows is a fairly well studied topic, although the direction and magnitude of influence is far from certain. Froot and Stein (1991) claimed that a depreciation of the host currency should increase FDI into the host country, and conversely an appreciation of the host currency should decrease FDI. Similarly, Love and Hidalgo (2000), also acknowledge that the lagged variable of exchange rate is positive which indicates that a depreciation of the peso encourages US direct investment in Mexico after some time. Contrary to Froot and Stein (1991), Campa (1993), while analyzing foreign firms in the US puts forth the hypothesis that an appreciation of the host currency will in fact increase FDI into the host country that

suggests that an appreciation of the host currency increases expectations of future profitability in terms of the home currency.

3. ECONOMETRIC MODEL SPECIFICATION AND THE DATA

In the light of above discussion following model is formulated to determine the impact of various types of selective government polices and other variables to attract FDI in Pakistan during 1961-2002:

$$FDI_t = f(GDP_t, WAGE_t, TARIF_t, TAX_t, CREDIT_t, EX_t, INDEX_t, DUM1_t, DUM2_t)$$

where

FDI	=	*Growth in FDI inflows(deflated by GDP deflator)*
GDP	=	*Log of GDP/Capita*
WAGE	=	*Log of Average Annual wages of factory workers in perennial industries(deflated by GDP deflator)*
TARIF	=	*Ratio of custom duties to total value of imports*
CREDIT	=	*Share of credit of the private sector in total credit to public and private sectors*
EX	=	*Average Annual Exchange Rate as rupees / $*
INDEX	=	Log of *General Share Price Index*
DUM1	=	*1 for the period 1972 to 2003, 0 otherwise*
DUM2	=	*1 for the period 1989 to 2003, 0 otherwise*

We expect that the coefficient of GDP would be positive because foreign investors are only interested where there is a big market of their product. The coefficient for WAGE would be negative as there is low level of skilled labour force in Pakistan and only labour intensive FDI would be forthcoming as wages are low. It has been observed that as trade is being liberalized and tariffs are being eliminated on the import of machinery, FDI has increased in Pakistan. Therefore, we expect a negative relationship between FDI and TARIF. As credit to foreign investors is an investment incentive, we expect a positive sign for coefficient of CREDIT. The coefficient for exchange rate (EX) is ambiguous in many studies. As it could be positive if foreign investors are considering it as lower cost of capital and negative if they are expecting a higher return on their investments. In case if the sign of INDEX is negative it indicates that the government pursues policies to attract FDI when capital market is sluggish. However, a positive sign for INDEX suggests that the foreign investors are concerned with the investment climate of the country.

The data used in the empirical investigation covers annual data for the period from 1961 to 2003. The data of FDI is collected from various issues of "Assets, Liabilities and Foreign Investment" published by State Bank of Pakistan. The exchange rate is extracted from the electronic data of "International Financial Statistics". The data of all the other variables are from "50 Years of Pakistan" and various issues of "Pakistan Statistical Year Book" published by Federal Bureau of Statistics, Government of Pakistan.

4. ESTIMATION AND EMPIRICAL RESULTS

To investigate the nature of any long-run relationship between FDI inflows and the variables suggested in our model, we now proceed to examine whether the series are cointegrated, implying that any deviations from any long run equilibrium relationship that exists between them will themselves be stationary. Unless series are cointegrated, there is no equilibrium relationship between variables and inference is worthless. Our justification for employing the techniques of co-integration in this instance amount to two related reasons; First, discovering that variables are co-integrated, allows for the use of error-correction models which allow for the separation out of long run and short run impacts; see Alogoskoufis and Smith, (1991). Second, the presence of co-integration between two variables ensures that an OLS regression in levels yields consistent parameter estimates; Engle and Granger, (1987). This would in effect signify whether there is a stable long run relationship between the variables. An empirical work by Dickey, Jansen and Thornton, (1991) indicates that Johansen's (1988) maximum likelihood estimator of a vector autoregressive (VAR) model is superior. Testing for cointegration using a single equation model is problematic if more than one cointegrating relationship is present.

4.1. Unit Root Test

To test for cointegration, we first verify that all the above-mentioned variables that we expect to be cointegrated with growth in FDI flows are each individually I(1).In this section we perform unit root tests for stationarity on the levels and the first differences of all eight variables. The Phillips Perron unit-root test both with and without trend show the existence of unit roots (Table2), and therefore non-stationarity, in the levels of some variables (TARIF, TAX, CREDIT, IIDEX, GDP and WAGE). However, the first differences of these six variables are stationary at 1% significance level. Hence we conclude that these variables are integrated of order 1. The FDI is stationary at the level, and is therefore an I(0) variable. The variable EX is stationary in levels with out trend and stationary at first difference with trend.

4.2. Estimation of a Cointegrating Vector

In order to identify a cointegration relation among the variables mentioned in the previous subsection, we employ the Johansen cointegration test. Before undertaking the cointegration tests, we first specify the relevant order of lags (*p*) of the vector autoregressions (VAR) model.

Since the sample size is relatively small, we select 1 for the order of the VAR (Pesaran and Pesaran, 1997). The results of rank and trace statistics obtained from the Johansen-Juselius (JJ) method using the assumption of linear deterministic trend in the data are presented in Table 3.

The trace and the rank tests suggest r = 1 at 5 and 10 percent significance levels respectively. Therefore, our annual data appear to support the proposition that in Pakistan there exists a long-run relation between growth of FDI and its determinants.

4.3. Estimation of an Error-Correction Model

After confirming the long run relationship among the variables, we can proceed to model the short run adjustment behaviour of the variables as further confirmation of our results. Following Love and Lage-Hidalgo (2000), we can choose to estimate the short run VAR in error correction form (VECM). The VECM model is intended to describe the short-term dynamics of growth of FDI inflows in Pakistan. This type of model explains the immediate short-term changes in dependent variable by means of deviations from a particular equilibrium relationship between the dependent variable and the explanatory variables. The common approach is to reformulate the long run relationship to include lagged values of first differences in the relevant variables with the error correction term explicitly included.

So now we use deviations from the cointegration relation estimated in the previous section as the error-correction term when building the ECM. Two error correction models with and without dummies are estimated to distinguish the behaviour of foreign direct investment during non-reform and reform periods. In particular, two dummies are used to reflect the changes in the government measures, which could have affected the growth of FDI. One DUM1 reflects the structural break reflecting a massive devaluation of rupee of about 58% in 1972, it takes the value of 1 for 1972 and onwards and the other DUM2 which reflects the liberalization measures taken under the structural reforms of 1988, takes the value of 1 for 1989 and onwards. The results of estimation of the ECMs are shown in Table 4.The lags of the explanatory variables are chosen in according to Akaike Information Criteria and indicate lags upto two periods.

4.4. Interpretation of Empirical Results

The analysis of the results of these two ECM models presented in Table 4 suggest that model 2 has more explanatory power with adjusted R= 0.84, and satisfies the relevant diagnostic checks for serial correlation, functional form, non-normality and heteroscedasticity and thus has the desirable properties for OLS estimation. The results of model 2 indicate that the error correction coefficient, estimated at –1.87 is statistically significant at the 1 per cent level, has the correct sign, and suggests a good speed of convergence to equilibrium. As indicated all the variables except the average wage and index of general share prices are statistically significant and have the expected signs. Furthermore, the lagged dependent variable included in the error-correction model has positive sign and is statistically significant. This means that the short-run dynamics of inward FDI are influenced by the previous development of FDI influx by means of the “agglomeration” or “clustering effect”. Thus our results give some evidence that reducing import tariffs and corporate tax rate would positively affect the growth of FDI. Moreover, the coefficient of exchange rate is positive implying that when rupee appreciates, FDI increases as investors see it as a good sign for the economy and expect high returns.

However, DUM1 is positive and significant which also indicates that devaluation had decreased the cost of assets in Pakistan and attracted foreign investment or perhaps since the data on FDI is in rupees, there is just a nominal jump in the data. Additionally, encouraging private sector through its generous credit policy would accelerate the growth of FDI. More importantly, the statistical significance of our dummy DUM2 reinforces our results that the liberalization measures taken to attract FDI have positive impacts on the growth of FDI in Pakistan.

5. SUMMARY AND CONCLUDING REMARKS

The paper empirically identifies the determinants of growth in foreign direct investment (FDI) in Pakistan over the period 1961 to 2003. Our main interest is to study how different variables or indicators reflecting trade, fiscal and financial sector liberalization attract FDI in Pakistan. The study uses the Cointegration and error-correction techniques to identify the variables in explaining the FDI in Pakistan. The study considers the tariff rate, exchange rate, tax rate, credit to private sector and index of general share price variables if they explain the inflow of foreign direct investment. Also included are wages and per capita GDP to test for relative demand for labor and market size hypotheses. All variables indicated correct signs and are statistically significant except for wage rate and share price index. The study clearly emphasizes the role of these policy variables in attracting FDI and determining its growth in both short and long run in Pakistan. The study also indicates a positive and significant impact of reforms on FDI in Pakistan.

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TABLE - 1

FDI IN PAKISTAN

	Averages						
	1970'S	1980'S	1990'S	2000	2001	2002	2003
FDI Inflows in Million $	18.00	88.83	500.27	305.10	385.40	823.00	1405.33
FDI Stock as % of GDP		3.06	8.93	11.31	9.68	9.99	10.66
FDI Inflows as % OF GFCF	8.89	16.54	54.93	3.62	5.01	10.32	15.42

TABLE - 2

PHILLIPS-PERRON UNIT ROOT TEST

	With No Trend		With Trend	
	Level	First Difference	Level	First Difference
FDI	-6.25*	-	-6.27*	-
TARIF	-1.30	-5.53*	-2.30	-5.53*
TAX	-1.20	-7.68*	-3.06	-7.85*
CREDIT	-2.69	-6.81*	-2.75	-6.69*
EX	5.39*	-	1.06	-5.82*
INDEX	-0.10	-6.50*	-2.23	-6.47*
GDP	-0.79	-10.17*	-4.02	-10.51*
WAGE	-1.36	-.6.47*	-2.63	-6.44*

* Significant at 1 percent
** Significant at 5 percent

TABLE - 3

JOHANSEN'S COINTEGRTAION TEST RESULTS

Null	Alternative Trace	Alternative Rank	Trace Test Statistic	Rank Test Statistics
r=0	$r \geq 1$	r=1	160.97**	48.42***
$r \leq 1$	$r \geq 2$	R=2	112.55	39.837
$r \leq 2$	$r \geq 3$	r=3	72.71	23.391
$r \leq 3$	$r \geq 4$	r=4	49.32	21.48
$r \leq 4$	$r \geq 5$	r=5	27.84	12.89
$r \leq 5$	$r \geq 6$	r=6	14.95	9.25
$r \leq 6$	$r \geq 7$	r=7	5.70	5.09
$r \leq 7$	$r \geq 8$	r=8	0.61	0.61

** Significant at 5 percent
*** Significant at 10 percent
See O. M. Lenum,(1992), for critical values

TABLE - 4

VECTOR ERROR CORRECTION MODELS

	Model 1	Model 2
Error Correction:	D(FDICG)	D(FDICG)
CointEq1	-1.36* (-4.34)	-1.87* (-9.85)
D(FDI(-1))	0.38 (1.48)	0.42* (3.10)
D(FDI(-2))	0.30 (1.36)	0.19 (1.62)
D(TARIF(-1))	-35.67**(-2.46)	-21.34**(-2.64)
D(TARIF(-2))	-25.68 (-1.60)	-16.06 (-1.67)
D(TAX(-1))	28.91 (1.20)	-47.74* (-3.38)
D(TAX(-2))	6.88 (0.30)	-36.22**(-2.59)
D(CREDIT(-1))	-1.16 (-0.05)	48.69* (3.37)
D(CREDIT(-2))	45.94** (2.22)	43.82* (3.70)
D(EX(-1))	-0.55 (-1.02)	-0.65*** (-2.00)
D(EX(-2))	1.47*** (2.05)	-0.64 (-1.53)
D(INDEX(-1))	-5.81*** (-1.88)	-1.70 (-0.91)
D(INDEX(-2))	2.45 (0.89)	-2.49 (-1.44)
D(GDP(-1))	53.23* (3.08)	35.84* (3.69)
D(GDP(-2))	-14.05 (-0.69)	23.11*** (1.87)
D(WAGE(-1))	-3.16*** (-1.81)	-1.30 (-1.34)
D(WAGE(-2))	-4.00*** (-1.73)	0.01 (0.01)
C	-1.79 (-1.54)	-15.95* (-9.09)
DUM2		6.71* (6.39)
DUM1		16.88* (13.40)
R-squared	0.72	0.92
Adj. R-squared	0.50	0.84
RESET	0.71 (0.409)	.04 (0.85)
LM	3.51 (0.050)	0.99 (0.39)
WHITE	2.96 (0.149)	1.11 (0.58)
JB	0.78 (0.47)	1.13 (0.57)

* Significant at 1 percent
** Significant at 5 percent
*** Significant at 10 percent