



Volume and Issues Obtainable at Center for Sustainability Research and Consultancy

Journal of Accounting and Finance in Emerging Economies

ISSN: 2518-0318 ISSN (E) 2518-8488

Volume 6: Issue 2 June 2020

Journal homepage: www.publishing.globalcsrc.org/jafee

What Factors Lead to Affect Foreign Direct Investment in Pakistan? A Sector Level Empirical Investigation

¹Somia Iram, ²Fatima Farooq, ³Imran Sharif Chaudhry, ⁴Maaz Ud Din

¹Ph.D Scholar, Department of Economics, Bahauddin Zakariya University Multan, Pakistan,

somia_iram@yahoo.com

²Assistant Professor, School of Economics Bahauddin Zakariya University Multan, Pakistan,

fatimafarooq@bzu.edu.pk

³Professor, School of Economics Bahauddin Zakariya University Multan, Pakistan, imran@bzu.edu.pk

⁴Ph.D Scholar, Department of Management Sciences, University of Swabi, KP- Pakistan,

maazyousafzai12@gmail.com

ARTICLE DETAILS

History

Revised format: May 2020

Available Online: June 2020

Keywords

Foreign direct investment,

Pakistan, ARDL,

Determinants

JEL Classification

G01, G12, G34

ABSTRACT

This study investigates the factors that lead to affect foreign direct investment (FDI), using Pooled data for five sectors namely, mining and quarrying, manufacturing, transport, storage and communication, construction and trade and commerce for 1972 to 2018 in Pakistan. This study also investigates that whether the determinants of FDI are same or different across sectors? To further analyze the role of policy variables, dummy for privatization and liberalization have been introduced. Using Autoregressive distributed lag model (ARDL), this study found the presence of long run relationship among variables. Further, the results of panel as well as individual time series regression suggest that in the long run, variables such as agglomeration, market size, market growth, domestic investment, labor productivity, financial performance, political instability, privatization and liberalization are deep determinants of FDI across sectors. Results also show that in the short run, only agglomeration, market size, market growth and dummy of political instability are significant variables. Moreover, the importance of policy variables (privatization and liberalization) cannot be denied. The result of this study recommends coherent and sound policy measures for further policy formulation of FDI inflows across sectors. With reference to policy formulation, special attention should be given to manufacturing sector-based infrastructure, research and development and outward looking export orientated policies to improve manufacturing sector performance. Political stability is most desirous phenomenon to attract FDI.



© 2020 The authors, under a Creative Commons Attribution-NonCommercial 4.0

Corresponding author's email address: fatimafarooq@bzu.edu.pk

Recommended citation: Iram, S., Farooq, F., Chaudhry, I. S., & Din, M. (2020). What Factors Lead To Affect Foreign Direct Investment In Pakistan? A Sector Level Empirical Investigation. *Journal of Accounting and Finance in Emerging Economies*, 6(2),497-508

1. Introduction

Recognizing the importance and contribution of FDI being as source of filling economic gaps that helps in the convergence and modernization of economy, the idea of FDI has gained crucial importance all over the world and especially in case of developing countries (Tariq and Ahmad, 2007). The unprecedented demand of FDI has increased its global financial flows. As most of the developing countries are wrecked by the conditions of high macroeconomic instability, lacking financial capital, mounting debt burden, widening resource gaps, aggravating socioeconomic indicators, deteriorating balance of trade and low level of employment, so they require foreign investment in order to fill the resource gaps in the economy. Foreign capital inflow is considered as a boon for the growth of developing countries especially when the capital inflow is in the form of FDI, which is considered as most stable and non-debt creating constituent of foreign inflow for the developing countries (UNCTAD, 1995).

Pakistan is attracting relatively improved FDI inflows, yet the inflows are not disseminated similarly among the sectors attracting FDI. In the current decade, FDI inflow remains concentrated in services sectors (transport, communication and financial business). Domestic demand-oriented services sectors are the most targeted sectors and the FDI inflows in manufacturing sector lagged behind. So, this situation is needed to be investigated both supply and demand side factors across each sector for further policy implications.

In this regard following questions arise in mind that what factors are responsible for inward FDI flow at disaggregate level? Moreover, whether they are same or different across sector? How these factors should be treated to improve the sector-wise composition of FDI and to bring improvement in the quality of growth augmenting determinants of FDI at disaggregated level? The main objective of this study revolves round these possible questions. The answer to the above stated questions will attract the attention of policy makers and researchers towards further liberalization of FDI.

The present study examines the determine of FDI inflow at sector level of Pakistan over the period of 1972-2018. Further it examined the role of Policy variables (privatization and liberalization) in determining the FDI inflows. This study is helpful in filling the research gap of empirical literature by providing new evidence at sector level.

Although there have been extensive studies regarding theoretical as well as empirical determinants of foreign direct investment, FDI at sector level is not studied to the great extent. This study is the first attempt to investigate the sector level determinants and growth effects of FDI in case of Pakistan. The present study also investigated sector specific characteristics of FDI under policy regime (Liberalization and privatization). The results of this study have identified those factors that empirically determine the extent to which FDI in different sectors reacts to same characters of economy. Furthermore, the results also help to formulate better policy recommendations for micro level treatment of FDI inflows explaining which factors are needed to improve and which sectors should open up for the sustainable economic growth of Pakistan in context of FDI.

2. Literature Review

FDI is divided in to four main types: resource seeking, market seeking, efficiency seeking and strategic asset seeking. The key reason of resource seeking FDI is the gaining of cheap factors of production available in the host country in order to reduce the cost of production such as cheap labor and other raw material. The aim of market seeking FDI is to either to reap the benefits of size and growth of new market in the host country¹. Being the non-tradable in nature, most of the market seeking FDI is directed towards the services sector. But manufacturing industries are also attracting the market based FDI inflows to serve the local market. This type of inflows not only helps in avoidance of trade barriers, but also the higher transport cost. The efficiency seeking FDI mostly reap the benefits of economies of scale and common ownership. That's why efficiency seeking FDI is concentrated in industrially developing countries. Strategic asset seeking FDI prevents the loss of resources to a competitor. On the basis of

¹ See Agarwal (1980).

types of FDI the possible determinants of FDI based on motivation is discussed briefly. In the literature, traditional classical variables have been considered the important determinants of FDI. Many classical variables, such as lower unit labor cost, market size, market growth are the important factors responsible for FDI inflow (Root and Ahmad, 1979; Wheeler and Moody, 1992; Jun and Singh, 1996; Spatz and Pater (2002). Ali and Guo (2005) briefly examine the literature on FDI focusing on possible determinants of FDI in case of China. They found market size and labor cost as important variable for undertaking the investment decision especially for local, export-orientated Asian firms. Ang (2008) found the market size an important factor responsible for FDI inflow in Malaysia. Besides proving the validity of market size hypothesis results of his study suggested that real GDP is also found to have a significant positive impact on FDI inflows. But the impact of GDP growth rate on inward FDI was limited. Goodspeed et al (2006) expanded the existing empirical literature on foreign direct investment by introducing variables other than classical variables responsible for FDI inflows, such as government expenditures (infrastructure expenditure), policy variables (taxes), institutional factors that may hinder business investment (corruption), and agglomeration. By using unbalanced panel of 47 countries, he revealed that lower taxes, lower corruption, and better infrastructure are responsible for attracting more FDI. Further, investigating the role of government expenditure, the author empirically found that impact of government consumption expenditures on FDI inflows is negative and significant. Besides the traditional above stated classical variables, agglomeration variable has also gained much importance. Agglomeration and quality of the bureaucracy exclusively matters in FDI inflow (Kinoshita and Campos, 2002). However, agglomeration economies arise from the availability of skilled labor force along with other firms and industries (Venables, 1996). In case of OECD countries agglomeration variable proved to be significant for attracting FDI (Agiomirgianakis et al, 2006). The role of policy related variables such as taxes, exchange rates, inflation, cost of capital as well as privatization policy are important determinants for ensuring the greater surge of capital (Taylor, 2000; Kumar, 2002; Aqeel and Nishat, 2004). Along with the policy variables, infrastructure referred to the long-term expenditure on transport and communication signaling the role of public sector in attracting FDI (Kumar, 1994; Shah and Ahmed, 2003). Policies of host countries are key determinant because it can influence and stimulate foreign investment participation.

Along with policy variables other factors such as political instability, political structure, corruption, enforceable contracts and macroeconomic instability are also important in determining the FDI inflow². Political turmoil seriously erodes the investor's confidence and repels the foreign investors away from investment in host country (Barro, 1991). Corruption erodes the opportunities of attracting foreign capital inflows.

Singh and Jun (1995) empirically analyzed various factors affecting the FDI inflows in case of developing countries by using a pooled data. Findings of their study show that political risk and business-operating environment as well as policy orientation are key factors explaining FDI. Variables determining the inflow of foreign direct investment have varying pattern across the regions and sectors depending on the nature and scope and absorptive capacity³. Artige and Nicoloni (2005) studied the potential determinants of FDI inflows for the group of three European regions. The results of their study suggest that, though, the economic performance and economic environment of regions are comparatively similar yet, they rely on different determinants to attract FDI. The research has reported two important results; first, there is no apparent determinant of FDI performance across regions. Second, all the sectors are not associated with the same determinants.

Recent research on FDI determinants has focused on the sector level determinants, because overall results can be misleading because of the presence of linkage and absorptive capacity. Ho (2004) argued that the determinant of FDI varies across regions. At provincial level these determinants do not react similarly with FDI inflows. Rather these determinants have varying characteristics across sectors.

² See Leave all et al; 2004

³ For detail see Hirschman (1958)

Further, higher labor cost deters the FDI inflows in different sectors. Kolstad and Villanger (2004) argued that institutional variables at sector level are negatively association with FDI in secondary industries. Wang and Swain (1995) identified the political and economic factors responsible for growth of FDI in Chinese and Hungarian economy by relying on single equation technique over the period of 1978-92. They found the market size, growth rate, cost of capital and political instability as important determinates of FDI. Labor cost and exchange rate were important factors responsible for FDI inflow toward the Chinese economy. Whereas, FDI inflows found more sensitive to average real growth rate is Hungarian economy. In both Hungry and China FDI inflows were supporting the market size hypothesis and Jorgenson cost of capital hypothesis. Their results also indicate that China’s bigger market sizes as well as low wages are the source of comparative advantage especially in comparison with Hungry for attracting FDI. Buch et al (2003) analyzed the factors determining the FDI inflow across sectors and found that FDI inflows have varying patterns by sector.

Resmini (1999) analyzed the sector level patterns of FDI flows. Regression evidence explained that FDI inflows report differences in factors attracting FDI among sectors. Market size, wage differential, stage of transition economy and degree of openness found to be significant. However, agglomeration variable showed the non significant result. Progress toward the market economy is relevant only in scale intensive and science-based sectors. Whereas, labor cost was potentially attractive determinant of FDI inflow for labor intensive sectors.

The issue of possible determinants of FDI in case of Pakistan has been extensively investigated (Khan, 1997; Akhtar, 2001; Ahmad and Qazi, 2003; Aqeel and Nishat, 2004). In the series of review studies stated above though the determinants of FDI are explained vividly yet literature on determinants of FDI across sectors limited and even confined to few studies even review suggest no evidence of sector level determinants in case of Pakistan. It is imperative to understand sector specific determinants of FDI across sectors because of sector specific heterogeneity. In case of Pakistan this issue is strongly needed to investigate especially for the sector specific policy formulation.\

3. Model Specification

The literature on FDI issue reveals that there are scores of factors responsible for FDI inflow. However, these variables have varying characteristics across the countries and even across the different regions as well as sectors. In case of Pakistan, huge literature is available on the determining factors of FDI inflow under time series framework (Aqeel and Nishat, 1998 and 2004; Akhtar, 2001; Ahmad and Qazi, 2003; but the issue of investigating the determinants of FDI inflow at disaggregate level has not been researched in case of Pakistan, however. This study is first attempt of using pool data of 5 sectors of Pakistan in order to investigate the determinants of FDI at sector level. To capture the relationship between variables at sector level for Pakistan, the empirical equation of the FDI and its determinants is being modelled as:

$$LFDI_{it} = \lambda_0 + \lambda_1 LFDI_{it-1} + \lambda_2 Size_{it} + \lambda_3 Growth_{it} + \lambda_4 DINV_{it} + \lambda_5 LABP_{it} + \lambda_6 FINP_{it} + \mu_{it} \dots \dots \dots (1)$$

In the model dependent variable is LFDI (log of FDI) whereas, LFDI(-1) is agglomeration variable, Size is the percentage share in GDP at sector level, which represents market size, Growth is the growth rate in GDP at sector level is market growth, LABP is labor productivity, FINP is financial sector performance and DINV denotes the domestic investment. This study included the political risk index, dummy of privatization and policy reforms in the models. The empirical equations are specified as:

$$LFDI_{it} = \lambda_0 + \lambda_1 LFDI_{it-1} + \lambda_2 Size_{it} + \lambda_3 Growth_{it} + \lambda_4 DINV_{it} + \lambda_5 LABP_{it} + \lambda_6 LFINP_{it} + \lambda_7 PIt + \mu_{it} \dots \dots \dots (1a)$$

$$LFDI_{it} = \lambda_0 + \lambda_1 LFDI_{it-1} + \lambda_2 Size_{it} + \lambda_3 Growth_{it} + \lambda_4 DINV_{it} + \lambda_5 LABP_{it} + \lambda_6 LFINP_{it} + \lambda_7 PVTt + \mu_{it} \dots \dots \dots (1b)$$

$$\text{LFDI}_{it} = \lambda_0 + \lambda_1 \text{LFDI}_{it-1} + \lambda_2 \text{Size}_{it} + \lambda_3 \text{Growth}_{it} + \lambda_4 \text{DINV}_{it} + \lambda_5 \text{LABP}_{it} + \lambda_6 \text{LFP}_{it} + \lambda_7 \text{reform}_{it} + \mu_{it} \dots \dots \dots (1c)$$

In model 1a the political instability (PI) is introduced into the model. In model 1b, instead PI, this study included the dummy of privatization (PVT). In model 1c, dummy of liberalization reforms (reforms) is included. All the three above stated models are estimated to check the parameter consistency.

4. Analytical Techniques

This study used panel unit root test to check the stationarity of variables. To examine the long run determinants of FDI at sectoral level, this study utilized Panel Autoregressive Distributed Lag (ARDL) framework popularized by Pesaran and Shin (1995).

5. Data

The data of sector-wise FDI inflows is obtained by different sources. The data on mining and quarrying, construction, trade and commerce and transport, storage and communication is from foreign liabilities & assets and investment in Pakistan (various issues) published by State bank of Pakistan (SBP).

However, data of manufacturing sector do not match FDI statistics over the time period. So, FDI data of manufacturing is obtained from the statistical division of SBP and matched by its previous inflows. All the data is converted into local currency units for the ease of interpretation.

In case of sector level data, share of each sector as well as growth rate of GDP of each sector both are used alternatively to find out the most robust results. In this study credit to private sector is used as proxy for financial performance of each sector. Due to unavailability of sector-wise data on investment it is obtained from gross fixed capital formation (GFCF) by subtracting FDI. Sector-wise data of domestic investment is taken as %age of GDP. Macroeconomic instability is captured by using inflation index. Polity index is utilized to capture the impact of autocratic and democratic government. The score of polity index lies between the narrow band of -10 (strong autocracy) to +10 (strong democracy). For policy variables dummies of privatization and reforms are utilized in this study, with dummy variables with 0 in pre reforms and 1 otherwise.

Table 1: Description of the Variables

S.No.	Variables	Notion	Description
1	Market Size	Size	GDP/Per capita GDP
2	Market growth	Growth	GDP growth rate
3	Domestic Investment	DINV	Gross domestic capital formation
4	Labor Productivity	LABP	GDP of each sector/No of labor employed in each sector
5	Financial Performance	LFINP	Log of Domestic Credit to private sector
6	Political instability	PI	GDP/Per capita GDP*Political risk index.
7	Dummy Variable of privatization	PVT	Privatization = 1 Nationalization = 0.
8	Dummy Variable of policy reforms	reforms	Before Policy Reforms = 0 After Policy Reforms = 1.

6. Estimation Results

6.1. Panel Unit Root Test Results

The results of panel unit root tests show that the variables are mix order of integration. Hence, we use ARDL technique to examine the long run relationship among the variables in the models for a pooled sample of 5 sectors. The results of unit root tests are given in table 2.

Table 2: Unit-Root Test Estimation

Variables	Im, Pesaran and Shin W-Stat		Levin, Lin & Chu t-Stat	
	Level	1st difference	Level	1st difference
LFDI⁴	-0.55	-2.40*	-0.54	-2.51**
DINV	-0.04	-3.04*	0.24	-3.60*
Size	-2.65**	-8.52*	-2.44**	-4.99*
LGFCF	-0.84	-3.44*	1.45	-3.60*
FINP	22.44	-2.44***	22.25	2.64**
LABP	-4.04*	-22.94*	-4.84*	-20.18*
Growth	-1.65	-4.50*	-1.44	-3.99*

Notes: *, ** & *** represent significant at 1%, 5% and 10% respectively.

6.2. Autoregressive Distributed Lag Model (ARDL) Lag Selection for Pooled Sample

The significant F value indicates the presence of co-integration among the variables. The estimated F value selected on the basis of lag length is given in table 3.

Table 3: Lag length Selection & Bound Testing for panel Co-integration

lags Order	AIC	HQ	SBC	F-test Statistics
K = 1	67.24	64.32	74.24	3.14**
K =2	62.14*	60.53*	73.17*	4.15*

* Significant at 5% level according to Pesaran et al (2001) & Narayan P (2005)

Three different models are estimated to get the robust results including dummy variables. The results show that all variables are significant and have expected signs. In order to obtain the robust result three models are estimated including different variable specification. Result of all the three models are showing the parameter consistency especially in case of market size (Size) and market Growth (Growth) variables.

The positive coefficient of agglomeration variable shows that LFDI in a current period is largely depends on its previous period inflow because a concentration effect of LFDI in the past is green signal for the present investors. Hence the expected positive sign of the variable is supporting the presence of agglomeration effect in Pakistan at sector level. Growing market shows the increased demand might encourage the investment demand, when import cost is higher (Moore, 1992). Market Growth is important determinant with expected positive sign.

Sector level labor productivity (LABP) is another deep determinant of LFDI in case of Pakistan. Higher productivity indirectly shows cheap and efficient labor hence induce FDI inflow (Huda et al, 2002) The main reason behind the positive impact of LABP on FDI in case of Pakistan is that foreign investors are attracted by the cheap and abundant labor. The results show that financial performance (LFINP) positively affects FDI. As most of the FDI inflow is coming towards the corporate sector which comprises mainly the Private sector of economy. Hence, the private sector credit facilities are improving their performance and providing the impetus to FDI.

Market size is one of the important determinants of FDI in Pakistan. The positive sign of Size means that large market size attracts more FDI in different sectors. Moreover, significant and positive coefficient of market size (Size) indicates the presence of sizeable consumer market. The coefficient of

⁴ L denotes the logarithmic form of variable.

Size is supporting the validity of market size hypothesis in case of Pakistan. All the three models suggest that market size more robust determinant of foreign direct invest.

In model 1a, the coefficient of political instability (PI) is negative and significant, indicates that political instability negatively affects FDI inflows in different sector of the economy because it erodes the investor's confidence. The foreign investors feel shy to invest in the more instable political setup. According to the theory of FDI, foreign investors move to the more protected economy.

The results of model 1b and model 1c show that FDI largely depends on policies and the structure of the host country. It is clear from the results that the reforms of liberalization and privatization positively affect FDI in the county. Liberalization and privatization policies lead towards the increased efficiency.

Results of table 4 are indicating very interesting fact about the determinants of foreign direct investment. Besides indicating the existence of a stable long run relationship among dependent variables and its determining factors, another fact is revealed that although determinants are same across sectors all the three models yet, they have marked difference in the magnitude of the impact of the explanatory variables across models.

Table 4: Panel Data Long Run Estimates:

Dependent Variable LFDI = (log of FDI) ⁵	Model 1a ARDL (2 1 1 0 2 0 0)	Model 1b ARDL (2 1 1 0 2 0 0)	Model 1c ARDL (2 1 1 0 2 0 0)
Variables	Coefficient	Coefficient	Coefficient
LFDI(-1)	0.90**	0.21**	0.24**
Size	0.04*	0.01*	0.01*
Growth	0.04*	0.01*	0.11**
DINV	-0.02**	-0.06**	-0.08***
LFINP	0.41***	0.19***	0.11**
LABP	-0.02**	0.01**	0.01*
PI	-1.29**	--	--
PVT	--	1.41**	--
reforms	--	--	1.54**
Constant	-0.24***	-0.41***	-0.29***
Goodness of Fit Statistics			
R-squared	0.94	0.91	0.94
Adjusted R-squared	0.91	0.94	0.91
AIC info criterion	15.24	15.81	10.14
SBC criterion	15.72	15.71	10.22
F-statistic	212.84	240.45	245.04
Durbin-h stat	1.42	1.15	1.09

Notes: *, ** and *** represent significant at 1%, 5% and 10% respectively.

In the next step, the estimated results for each sector are provided. From the results of table 11 it is clear that determinants of LFDI are almost similar across sectors and they vary in magnitude only. The results show that DINV, LABP, LFINP, Size, Growth, agglomeration, PI and PVT all are the important determinants of FDI across all sectors. The results show that lag term of FDI that is a proxy of the agglomeration, has a statistically significant positive relationship with FDI for each sector except sector 1 (Manufacturing). The insignificant coefficient of lag LFDI shows that agglomeration does not determine inflow of foreign investment in sector 1.

Market growth (Growth) is important determinant of FDI across all sectors of economy with expected positive signs and significant coefficients. Showing the growth is an important determinant of FDI yet its coefficients are very small for almost all sectors except sector 5. The coefficient of domestic investment (DINV) has a negative and significant relationship with FDI in Manufacturing, Mining & Queering, Construction as well as Trade and Commerce sectors but its sign is positive for Transport

⁵ For the ease of interpretation all Logarithm form of variables are presented in lower case letter.

storage and Communication. Showing that domestic investment in infrastructure-based sector increases FDI inflows. But in other sectors it is substitute for FDI.

Labor Productivity (LABP) is also one of the important determinants of FDI in each sector. In case of all individual cross sections, LABP positively and significantly affects FDI. The coefficient of market size (Size) has a positive and significant relationship with FDI in all sectors as expected except manufacturing. This implies that large market size attracts more FDI across all sector of the economy. But in case of manufacturing sector results are not supporting the evidence. It is because of declining efficiency and growth of manufacturing sector of Pakistan. The results of model1a show that the political instability (presented by PI) has a strong negative impact on FDI across sectors. Moreover, in model 1b the dummy variable of Privatization has a positive impact on FDI across all sectors except manufacturing. The impact of FDI is not significant because most of the privatization was under taken in services sector. The impact of reforms is also significant and positive across all sectors. The results are given in the following table 5.

Table 5: Sector-wise Long Run Estimates: ARDL Approach (5 sectors*36 years (1972-2018))

Dependent Variable LFDI	Sector 1 ARDL (2 2 1 1 2 0 0)	Sector 2 ARDL (2 0 1 1 1 0 0)	Sector 2 ARDL (2 1 1 0 1 0 0)	Sector 2 ARDL (2 1 1 1 1 0 0)	Sector 5 ARDL (2 2 1 0 2 1 0)
Variables	Model 1a	Model 1a	Model 1a	Model 1a	Model 1a
LFDI(-1)	0.16**	0.20	0.72*	0.17**	0.07*
Size	0.01*	-0.27	0.17*	0.17*	0.17*
Growth	0.01*	0.01*	0.07**	-0.01*	0.17**
DINV	-0.02**	-0.07**	-0.07**	0.01**	-0.02
LFINP	0.70**	-0.12	0.17**	0.07**	0.77**
LABP	0.21*	0.02**	0.01**	0.07***	0.17*
PI	-1.01*	-1.20*	-1.01*	-1.01*	-1.02
PVT	--	--	--	--	--
Constant	-1.17***	-0.71**	-1.07**	-0.12**	-1.10*
R-squared	0.61	0.61	0.72	0.61	0.62
Adjusted R-squared	0.60	0.60	0.71	0.61	0.61
AIC info criterion	1.00	1.76	10.62	10.06	1.06
SBC criterion	1.21	2.17	10.76	10.02	1.02
F-statistic	116.11	107.01	117.67	117.12	177.12

Notes: * Percent significant at 1%, ** Percent significant at 2% and *** Percent significant at 10%.

Note: Sector 1; Mining & Queering, sector 1; Manufacturing (Large scale manufacturing+ small scale), Sector 2; Construction, Sector 2; Transport, storage and communication, Sector 5; Trade and Commerce.

In the next section, the results of ECM are presented in table 6. The sign of estimated lagged error correction term EC (-1) is negative and significant at 1 percent level of significance in case of all three models. The speed of adjustment towards long run equilibrium is 86 percent 83 percent and 83 percent in case of Model 1a, 1b and 1c respectively. In the short run lag of LFDI, market size, market growth and Political instability significantly affect FDI. However, the other variables, LABP, FINP, DINV, the dummy variable of privatization (PVT) and the dummy variable of reforms are insignificant. In the next step, I estimated short run coefficients using ARDL Approach for the each sample separately. The results are given in the following table 6.

Table 6: Error Correction Representation for the selected ARDL Model (5 sectors*36 years (1972-2018))

Dependent Variable Δ LFDI	Model 1a ARDL (1 1 1 0 1 0 0)	Model 1b ARDL (1 1 1 0 1 0 0)	Model 1c ARDL (1 1 1 0 1 0 0)
Variables	Coefficients	Coefficients	Coefficients
Δ LFDI (-2)	0.06**	0.02**	0.02
Δ Size	0.20***	0.20**	0.20**
Δ Growth	0.02*	0.02*	0.02
Δ DINV	-0.06	-0.02	-0.06
Δ LFINP	0.02	0.02	0.02
Δ LABP	0.02	0.02	0.02
Δ PI	-2.06**	--	--
PVT	--	2.22	--
reforms	--	--	2.02
Constant	2.02	2.02	2.02
EC(-2)	-0.66*	-0.62*	-0.62**
Goodness of Fit Statistics			
R-squared	0.62	0.62	0.62
Adjusted R-squared	0.62	0.60	0.62
Short Run Diagnostic Tests			
Ser. Cor. LM Test	3.03 (0.36)	3.23 (0.07)	2.67 (0.23)
ARCH Test	3.06 (0.03)	3.73 (0.30)	3.67 (0.07)
W-Hetero. Test	7.03 (0.37)	6.30 (0.33)	6.02 (0.37)
Ramsey RESET	22.33 (0.06)	6.23 (0.02)	27.03 (0.37)

7. Conclusion and Policy Implication

This study investigates the deep determinants of FDI inflow at sectoral level of Pakistan for the period of 1972 to 2018. We used ARDL model to capture the long run determinants of sector level FDI for each sector individually and for a pooled sample of 6 sectors in a dynamic panel model. Further, to find out the magnitude of determinants of FDI, the time series data for each sector has been used.

The significant F value suggests the presence of long run relationship among the variables. In order to check the parameter consistency three sub models are estimated for each parent model using different variables specification.

The results of panel regression suggest that in the long run variables agglomeration, Size (market size), DINV (domestic investment), LABP (labor productivity), LFINP (Financial performance), and PI (political instability), dummy variable of privatization (PVT) and dummy variable of reforms (reforms) used in model 1a, 1b and 1c all are significant with expected signs. Hence, all variables are important determinant of FDI across sector in Pakistan. The negative and significant coefficient of political instability (PI) indicates that PI negatively affects foreign direct investment (FDI) inflows in Pakistan across all the sectors. Political instability erodes the investor's confidence and foreign investors feel shy to invest in the instable political setup because of higher risk. The results show that FDI also largely depends on the structure of the economy. This study also investigated the role of policies across sectors, it is clear from the results that the policy reforms of liberalization and privatization determines FDI inflows positively in the county. The positive and significant elasticity of market size variable is suggesting the validity of market size hypothesis in all sectors of Pakistan economy.

Short run dynamics are estimated by error correction (ECM) version of ARDL. The coefficient of lagged error correction term EC_{t-1} is negative and significant in case of all models. In the short run lag of LFDI, size, Growth and Political instability significantly affect FDI. However, the other variables, LABP, FINP, DINV, the dummy variable of privatization (PVT) and the dummy variable of reforms are insignificant.

In the next step, I estimated the coefficients using ARDL approach for each sample separately. The results of long run determinants for each sector show that agglomeration, has a positive impact on FDI in each sector except sector 2. Moreover, domestic investment positive has a positive impact on FDI in Manufacturing, Mining & Queering, Construction and Trade and commerce. Labor productivity is also

one of the important determinants of FDI in each sector. Market size has a positive impact on FDI in all sectors as expected. This implies that large market size attracts more FDI. The results also show that political instability (represented by PI) has a strong negative impact on FDI all sectors. Moreover, privatization has a positive impact on FDI inflows in Mining & Quering sector and Construction sectors, but in case of manufacturing sectors it is insignificant. The reason of this insignificant variable is that most of the privatization proceeds lie in services sector. Reforms are important determinants of FDI. Moreover, the results also suggests though minimal but positive impact of FDI on growth in case of manufacturing sector. Whereas, as concerned the services sector FDI, though coming toward infrastructure-based services sector but not contributing to growth remarkably. Special attention should be given to manufacturing sector-based infrastructure, Research and development and outward looking export orientation to improve manufacturing sector performance

This study further provides the guidelines that which sectors should be open up to foreign inflows and to what extent. Besides economic factors, government policies such as liberalization and privatization can improve FDI inflow even in the presence of high macroeconomic and political instability.

References

- Agarwal, S., & Ramaswami, S. N. (1992), "Choice of foreign market entry mode: impact of ownership, location and internalisation factors", *Journal of International Business Studies*, 23, 1-27.
- Agiomirgianakis, G., Asterious, D. and Papatoma, K., (2006), "The Determinants Of Foreign Direct Investment: A Panel Data Study For The OECD Countries", www.econpaper.repec.org.
- Agmond, T. and Lessard, D. R. (1977), "Investor Recognition of Corporate International Diversification", *Journal of Finance*, 32: 1049-55.
- Akhtar, M. H., (2001), "Determinants of manufacturing foreign direct investment in Pakistan", *Pakistan Journal of Economics and Management* pp.3-16
- Ali, S. and Guo W., (2005), "Determinants of Foreign Direct Investment in China" *Journal of Global Business and Technology*. Pp 21-33
- Ali, S., Iram S., and Ali, A., (2008), "Whether Fiscal Stance or Monetary Policy is Effective for Economic Growth In case of South Asian Countries?", Presented at 24th Annul General Meeting and Conference under the Pakistan Institute of Development Economists.
<http://www.pide.org.pk/psde24/pdf/23.pdf>
- Ang, J.B., (2008), "Determinants of foreign direct investment in Malaysia", *Journal of Policy Modeling*, 30: 185-189.
- Aqeel, A. and Nishat, M., (2004), "The Determinants Of Foreign Direct Investment In Pakistan", *The Pakistan Development Review*, 43(2): 651-664.
- Artige, L., Nicolini, R., (2005), "Evidence on the determinants of foreign direct investment: the case of three European regions", UFAE and IAE Working Papers.
- Barro, R. J. (1991), "Economic Growth in a Cross-Section of Countries", *Quarterly Journal of Economics*, 106(2), pp 407 – 443
- Buch, M.C., Kleinert. J. and Toubal, F., (2003). "Determinants Of German FDI: New Evidence From Micro Data", SSRN Working Paper Series.
- Compos, A., Nauro, F. & Kinoshit, Y., (2002), "Foreign Direct Investment as Technology Transferred: Some Panel Evidence from the Transition Economies," CEPR Discussion Papers 3417.
- Goldberg, M. A., (1972), "The Determinants of US Direct Investment in the EEC: comments", *The American Economics Review*, 62:4.
- Goodspeed T, Martinez-Vazquez J, Zhang L. (2006) "Are Government Policies More Important Than Taxation in Attracting FDI." ISP Working Paper Number 06-14, International Studies Program working paper series
- Grubel, Herbert G. (1968), "International Diversified Portfolios. Welfare Gains and Capital Flows", *The American Economic Review*, 58: 1299-1314.
- Hines, J. (1995), "Forbidden Payment: Foreign Bribery and American Business After 1977", NBER Working Paper 5266, Cambridge.

- Hirschman, A.O., (1958), "The Strategy of Economic Development", Yale University Press, New Haven.
- Ho, O. C.H., (2004). "Determinants Of Foreign Direct Investment In China: A Sector Level Analysis". www.business.uwa.edu.au
- Holtz-Eakin, D., Newey, W. and Rosen, H.S. (1988), "Estimating Vector Autoregression with Panel Data", *Econometrica*, 56 (4): 1371-1395.
- Hsiao, F. S.T. & Hsiao, M. W., (2004), "The chaotic attractor of foreign direct investment Why China? A panel data analysis", *Journal of Asian Economics*, 15 (4): 641-670.
- Im, K.S., M.H. Paseran and Y. Shin , (2003), "Testing for unit roots in heterogeneous panels". *J. Econ.*, 115: 53-74.
- Jun, K. W., & Singh, H. (1996). The determinants of foreign direct investment in developing countries, *Transnational Corporations*, 5, 67-105.
- Khan, A. H., (1997), "FDI in Pakistan: Policies and Trends", *The Pakistan Development Review*, 36(4): 959-985.
- Kinoshita Y., and Campos N.F., (2002), "The location determinants of foreign direct investment in transition economies", Department of Economics, Hunter College, City University of New York, University of Michigan William Davidson Institute and CEPR, Group3-9. [project.iss.utokyo.ac.jp/nakagawa/members/.../3\(9\)kinoshita.final.pdf](http://project.iss.utokyo.ac.jp/nakagawa/members/.../3(9)kinoshita.final.pdf)
- Klasra, M. A., (2009), "Foreign direct investment, trade openness and economic Growth in Pakistan and turkey: an investigation using bounds test", on line Research note.
- Kolstad, I. and Villanger, E., (2004). "How does social development affect FDI and domestic investment?", mimeo, Chr Michelsen Institute.
- Kumar, N., (1994), "Regional Trading Blocs, Industrial Reorganizations and Foreign Direct Investments- The Case of Single European Market", *World Competition* 18 (2):35-55.
- Kumar, N., (2002), "Globalization and the Quality of Foreign Direct Investment: Role of Host Country Characteristics and Emerging WTO Regime", New Delhi: Oxford University Press.
- Levin, A. and C. Lin, (1992), "Unit Root Tests in panel data: Asymptotic and finite sample properties", University of California, San Diego Working Paper, pp: 23- 92.
- Lipsey, R. E. (2000), "Interpreting Developed Countries Foreign Direct Investment." NBER Working Paper No. 7810.
- Liu, X., H. Song, Y. Wei, and P. Romilly, (1997), "Countries Characteristics and Foreign Direct Investment in China: A Panel Data Analysis, "Weltwirtschaftliches Archive, 133 (2), pp. 313-329.
- Majeed M.T., and Ahmad E., (2006), "Determinants of Exports in Developing Countries", *The Pakistan Development Review*, Pakistan Institute of Development Economics, vol. 45(4), pages 1265-1276.
- Moore, M.O., (1993), "Determinants of German Manufacturing Direct Investment: 1980-1988", *Weltwirtschaftliches Archive*, 30: 16-18.
- Pesaran, H. M. (1997), "The role of economic theory in modeling the long-run", *Economic Journal*, 107, 178-191.
- Pesaran, H. M. and Y. Shin. (1995), "Autoregressive distributed lag modeling approach to cointegration analysis", DAE Working Paper Series, No. 9514, Department of Economics, University of Cambridge.
- Pesaran, H. M. and Y. Shin. (1999), "An Autoregressive distributed lag modeling approach to cointegration analysis, in: S. Storm, ed". *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, Cambridge University Press.
- Pesaran, M. H., Y. Shin and R. Smith. (1996), "Testing for the existence of a long-run relationship", DAE Working Papers 9622, Department of Applied Economics, university of Cambridge.
- Political Risk Services, International Country Risk Guide (ICRG), New York, various issues.
- PRS Group (2005a), About ICRG: The Political Risk Rating, Internet Posting: <http://www.icrgonline.com/page.aspx?page=icrgmethods>.

- PRS Group (2005b), International Country Risk Guide: Political Risk (Table 3b), Internet Posting: <http://www.icrgonline.com/default.aspx>.
- Razin A, Sadka E, (2007), "Productivity and Taxes as Drivers of FDI", NBER Working Paper No. W13094.
- Resmini, L. (1999), "The Determinants of Foreign Direct Investment into the CEECs: New Evidence from Sectoral Patterns", LICOS, Discussion Paper 83.
- Root, F.R. and Ahmed, A.A., (1979), "Empirical determinants of manufacturing direct foreign investment in developing countries", *Economic Development and Cultural Change*, 27(4): 751-767.
- Shah, and Ahmed (2002), Measurement of the Cost of Capital for Foreign Direct Investment: A Neo-classical Approach. *The Pakistan Development Review* 41:4.
- Shah, Zahir. Ahmed, Qazi Masood (2003), "The Determinants of Foreign Direct Investment in Pakistan: An empirical Investigation", *The Pakistan Development Review* 42: 4, 697–714.
- Solow, R. M., (1956). "A Contribution to the Theory of Economic Growth", *The Quarterly Journal of Economics*, 70: 65-94.
- Spatz, J. and Peter, N., (2002), "Globalization of the Automobile Industry: Traditional Locations under Pressure?", Institute for World Economics, Kiel Working Papers 1093. Kiel.
- Taylor, Christopher T. (2000), "The Impact of Host Country Government Policy on U.S. Multinational Investment Decisions," *World Economy*. 23: 635-648.
- UNCTAD. (2007), Transnational Corporations, Extractive Industries and Development, United Nations, New York.
- UNCTAD. (1995). Foreign Direct Investment in Africa. United Nations, New York.
- Wang, Z. Q. and N. J. Swain (1995), "The Determinants of Foreign Direct Investment in Transforming Economies: Evidence from China and Hungary", *Weltwirtschaftliches archive*: 131, 359-382
- Wei, S-J. (1997), "Why is Corruption So Much More Taxing Than Tax? Arbitrariness Kills", NBER working paper No 6255.
- Wheeler, D. and Moody, A., (1992), "International investment location decisions: the case of US firms", *Journal of International Economics*, 33: 57-76
- World Investment Report, (1999), "Foreign Direct Investment and the Challenge of Development", United Nations (UNCTAD), New York.