



The Impact of Demand Management Policies On Domestic and Foreign Direct Investment in Case of Pakistan: A Time Series Analysis

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Abstract

This study has examined the impact of demand management policies on domestic investment and foreign direct investment in case of Pakistan over the period of 1980-2015. ADF unit root test is used for examining the stationarity of the variables. Auto-regressive distributive lag approach (ARDL) is used for co-integration among the variables of the models. The results of the study show that there exists long run relationship among the variables. The results highlights that fiscal deficit has positive and significant impact on domestic as well as foreign direct investment in Pakistan. While inflation rate is putting inverse impact on foreign direct investment. The results show that interest rate has negative and significant impact on both domestic and foreign direct investment in case of Pakistan. Broad money growth positively and significantly impacts FDI and DI. Real effective exchange rate shows negative effect on both domestic and foreign direct investment. Trade openness shows positive effect on domestic investment. The findings of the study recommended that government should not waste its revenue in order to meet nonproductive expenditures. Rather government should utilize its revenue for productive purposes. This will be helpful in increasing our domestic investment. If people prefer to increase investment in their own countries the investment will increase and will eventually lead to increase the level of employment. The government should try to make effective and efficient policy to encourage foreign investors to invest in Pakistan by giving subsidies and ensure the protection of their capital. The monetary policy makers like banks should also look at their policies to control interest rate because it has negative impact on domestic and foreign direct investment.

Keywords: Demand Management Policies, Domestic Investment, Foreign Direct Investment

JEL Codes: H3, E5, F21, G11

I. Overview

In most emerging countries of the world, significance of demand management policies has been widely explored. Demand management is a planning methodology which is used for estimations, planning and managing the demand for products and services. It has two levels, it can be at macro levels as in economics and at micro levels as in public service organizations both governmental and NGO, industries including energy. Demand management has a much defined set of processes, capabilities and recommended behaviors for corporations that produce all goods and services. Aggregate demand management is a policy in which governments attempt to control the aggregate level of spending in the economy. For the demand management the government adopts two types of policies; called fiscal and monetary policy. The inflow of foreign capital, in the form of foreign direct investment (FDI), has considerably increased in developing countries during the last few decades. FDI inflow fulfills the rising investment requirements to boost economic growth at higher pace and helps for macroeconomic stability in the economy. This non debt foreign inflow eases the pressure on balance of payment distortion. Technological transfer from developed countries to developing countries occurs through FDI which paves the way for economic development in developing countries. Interaction between foreign and domestic investment is of paramount importance and both can cause each other in an economy. The increase in private investment signals high return on investment in the domestic economy whereas public investment shows the improvement in infrastructure and thereby reduction in cost of doing business. These roles of domestic investment motivate the foreign investors to reap the benefits of high return. However foreign capital inflow may also be beneficial for the investors of host country. The impact of FDI on domestic investment is ambiguous; that is, FDI may have crowding out or crowding in impact on domestic investment. Crowding out impact of FDI means it is meaningless for FDI recipient country but crowding in impact of FDI on domestic investment is beneficial for the host country.

II. Introduction

Fiscal policy is the use of government expenditure and tax system to affect the economy. Fiscal policy is the government's decision regarding collection of revenue, through taxation and about spending the revenue. When a government wants to stimulate the growth in economy, it will increase the expenditures for goods and services, therefor, demand goes up and production must go up because of demand. Companies hire more people for production, therefor, unemployment decreases and that is called expansionary fiscal policy but if the government thinks that economy grows too fast and it will create inflation the government may decrease spending. A decrease in government spending is called contractionary fiscal policy. Fiscal policy impact in Pakistani government expenditure constitutes a major part of total expenditure in Pakistan. Because the increase in government expenditure has direct impact on the economy, therefore, it can impact monetary policy. Monetary policy involves cutting or raising interest rates. Monetary policy is how central bank manages the money supply to guide healthy economic growth. The money supply is credit, cash, cheques and money market mutual funds. The important tools of monetary policy are: reserves requirement; the reserve requirement is the amount of money which banks must have as reserves each night. The federal government can easily manage bank reserves with the federal funds rate. This is called the interest rate that banks charge to each other in order to store their excess cash overnight. The federal bank uses open market operations to buy and sell treasuries from its member bank. Many central banks use inflation, targeting to set expectations about inflation because people buy more if they know prices are rising. Demand management is a unified method of controlling and tracking business units' requirements and internal purchasing operations. This is possible only with the help of demand management policy tools like fiscal and monetary policy. So, the researcher used fiscal and monetary policy impact on foreign direct investment because these are the only main tools of demand management policy.

The fiscal and monetary policies are the policies that Pakistan relied upon in inspiring the economic activity, where Pakistan has sought to adopt a free market policy, where it used the quantitative monetary policy to affect the economic activity through the re-discount rate policy and the mandatory cash reserve. Pakistan also worked on the adoption of open market operations, through the issuance of certificates of deposit, selling and purchasing to affect economic activity. Beside, that, the fiscal policy is used through tax policy and government spending to affect economic activity. The monetary experts in Pakistan use the quantitative monetary policy for affecting the foreign and domestic investment by raising the re-discount rate, as well as the mandatory cash reserves. They also sell certificates to affect the cash reserves of banks and limit the credit facilities for financing foreign and domestic investment. They also follow the contractionary fiscal policy by increasing taxes and reducing government spending. So this study aims to prove the impact and effectiveness of the tools of fiscal and monetary policy at the domestic and foreign direct investment.

Like other developing countries, Pakistan is also a recipient country of bulky FDI inflow since more than three decades. This is an important source of external finance considering the deteriorated position of balance of payment. Moreover, FDI minimizes the dependence on foreign debt. Although considerable FDI inflow has been recorded in last many years, this is far less compared to other developing countries. Pakistan is also enjoying the foreign direct investment inflow during the past three to four decades. The implication of FDI has crucial importance for developing economies like Pakistan because if it crowds out the domestic investment, it will squeeze the growth of the domestic capital stock; alternatively, if it crowds in the domestic investment, it will expand the domestic investment.

The foreign direct investment means that a firm from one country owns a company in another country. According to Department of Commerce in the United State if a foreign company acquires 10 percent or more of a firm is called foreign direct investment. FDI is a measure of foreign ownership of production assets. FDI has been observed to have increasing trend in developing and emerging market economies (EMEs) by policy makers as an instrument to finance development, escalation efficiency and import new technologies. The last two decades of the 20th century have seen major changes in the size of cross-border capital flows (FDI) to emerging countries and economies in transition have proved to be the source of economic growth. Domestic investment is defined as investment in the companies and products of some one's own country rather than in those of foreign countries. In this paper we see the impact of demand management policies on domestic and foreign direct investment. There are many factors affecting the choices of international investors in choosing a destination for FDI, fiscal policies as a factor among others affecting FDI decisions.

In this context the importance of fiscal policies for FDI decisions should be measured that fiscal policy is one of many policies in host countries likely to influence FDI decisions. Many studies in European countries depict that the tax system has a comparatively low effect on FDIs as the outcome of reduced influence of taxes on transfer costs (Edmiston et al., 2003). Ajisafe and Folorunso (2002) noted that objectives of monetary policy include rise in Gross Domestic Product (GDP) growth rate, enhancement in the balance of payments, reduction in the rates of inflation and unemployment, accumulation of financial savings and external reserves as well as stability in exchange rate, the policy as well as instruments applied to achieve these objectives, as well as impact on domestic and foreign direct investment through monetary policy instruments. Alawneh et al. (2015) studied the impact of fiscal and monetary policy on domestic and foreign direct investment in Jordan but nobody checked the impact of these policies in case of Pakistan. In this study I have investigated impact of these policies in case of Pakistan. So, we are going to investigate the impact of demand management policies on domestic and foreign direct investment. This model consists of two equations and empirically investigates the impact of demand management policies on domestic and foreign direct investment through autoregressive distributed lag model. Demand management policies have very important effect in domestic and foreign direct investment in Pakistan. So significance of this study is that by studying this topic the government can use demand management policies better for domestic and foreign direct investment. This study will be very useful for us as well as for government. Many researchers have worked topics like monetary policy effect or fiscal policy effect but the combined effect has nobody checked especially in case of Pakistan. And researcher will check the impact of demand management policies in case of Pakistan. And this is the research gap of this study.

III. Literature Review

Ajisafe and Folorunso (2002) analyzed the comparative effectiveness of fiscal and monetary policy for macroeconomic management in Nigeria. The technique they used was co-integration and error correction modeling. They studied the period 1970 to 1998. The outcome of their study showed that monetary policy had a greater impact on economic activity in Nigeria than fiscal policy.

Falki (2009) studied the influence of FDI on Pakistan's economic growth. The purpose of his study was to examine the impact of FDI on economic growth in Pakistan. He covered the period from 1980 to 2006. He employed production function endogenous growth theory. The variables he used included trade, domestic capital and, labor. His findings showed that GDP and FDI inflows in Pakistan had negative and insignificant effect.

Rădulescu and Durica (2014) studied the impact of fiscal policy on FDI in Romania based on monthly data series during 2000 to 2010. The purpose of this article was to give the direction of microeconomic policy in the times of crisis because FDI is considered the best tool of economic recovery. Their findings showed that higher interest rate and higher inflation rates attracted FDI. For determining the monthly net FDI they used linear regression equation.

They included 126 observations and concluded that Romania was a developing country and it needed to attract FDI for the development.

Karim (2010) studied the monetary policy and firm's investment in Malaysia study using the dynamic panel system GMM estimation for the period 1990 to 2008. He covered 650 firms of various sectors. He collected the data from Thomas Data Stream. This study focused on two main channels of monetary policy which were interest rate channel and broad credit channel. The results of this study showed that monetary policy channel's effects to the firm's investment were heterogeneous.

Oktaviani et al. (2010) studied the impact of fiscal and monetary policy on industry and economy Indonesia. They analyzed the influence of both government fiscal policy and central bank monetary policy on industry and Indonesian economic act. They used the Computable General Equilibrium (CGE) model. The variables they used were GDP, investment, consumption, and capital rate of return. Fiscal and monetary policy had a positive influence on Indonesian macroeconomic performance in terms of modification in real GDP, investment, consumption, and capital rate of return, with the biggest influence of fiscal policy.

Attari et al. (2011) analyzed the connection between economic growth and foreign direct investment in Pakistan economy. They examined the effect of FDI on the factors of economic growth like exports, imports and gross domestic product of Pakistan. They used annual time series data for the period of 1981 to 2009. They applied Johansen Cointegration Test, Vector Error Correction Model (VECM) and Granger Causality Test on time series data. Their findings showed that there was a long-run relationship among macro-economic variables. Their findings showed that to influence the foreign investors GDP of Pakistan was still not at the developed stage.

Olweny and Chilwe (2012) studied the effect of monetary policy on private sector investment in Kenya. They used quarterly data for the period 1996 to 2009. They used co-integration testing through a vector error correction model to discover the dynamic connection of short run and long run effects of the variables due to an exogenous shock. The results of their study showed that contraction of Monetary policy by 1 percent had the effect of decreasing investment by 2.63.

Caballero and Lopez (2012) studied the impact of fiscal variables on private investment comparing some Latin-American economies to other advanced ones using data for the period of 1990-2008. They used two dynamic panel models. In one model they included five countries; Mexico, Chile, Brazil, Uruguay and Colombia while in the second model they used six countries; U. S., Spain, Canada, Ireland, Korea and Japan. The results of their study showed that governments with higher expenditure can raise the economy even when they finance expenditure with higher taxes. In Latin America, where income attentiveness was huge, a proposal to increase the economy through higher government expenditure financed with a progressive income tax was even more defensible.

Dornean and Oanea (2014) studied the effect of fiscal policy on FDI in the context of crisis, in the Central and Eastern European countries. They chose variables, such as, GDP, government budget, government debt and foreign direct investment. They estimated the regression model for government expenditure and government revenue. They estimated the FDI function with respect to revenue and expenditure. They used the least square method for the penal data. The period of their study was from 1995 to 2012. The results of their study suggested that expenditures had higher impact on FDI inflows and the impact was negative, while revenue did not have a significant impact.

Alawneh et al. (2015) checked the impact of fiscal and monetary policy on domestic and foreign direct investment in Jordan for the period of 2000 to 2011. They used two models. In one model they checked the impact of monetary and fiscal policy on domestic investment. In the second model they checked the impact of monetary and fiscal policy on FDI. They used multiple regression models to check the impact of independent variables on the dependent variables. They concluded that there was a need to adopt the literary persuasion to direct banks to strengthen their role in domestic investment. There was also a need for the fiscal policy to encourage domestic investment and using financial instruments for more developed than certificates of deposits.

Jawadi et al. (2015) analyzed the impact of fiscal and monetary policy in Brazil, Russia, India, China and South Africa (BRICS) using a Panel Vector Auto-Regressive (PVAR) model for quarterly data from 1990:1 to 2013:2. The results of their study showed that monetary contractions led to a reduction in real economic activity and tighten liquidity market conditions, though government spending shocks had solid Keynesian effects.

IV. The model and Econometric Methodology

To study the association between demand management policies, foreign direct investment and domestic investment the followings models were specified:

$$FDI=f(\text{Fiscal Deficit, inflation, interest rate, Money supply, Exchange rate}) \dots\dots\dots(1)$$

$$\text{LogDI}=f(\text{fiscal deficit, Money supply, interest rate, exchange rate, trade openness})\dots\dots\dots(2)$$

Equations (1) and (2) can be written in the estimable form as below:

$$FDI = \alpha_0 + \alpha_1 FD + \alpha_2 INF + \alpha_3 R + \alpha_4 MS + \alpha_5 ER + u \dots\dots\dots(3)$$

$$\ln DI = \beta_0 + \beta_1 FD + \beta_2 MS + \beta_3 R + \beta_4 ER + \beta_5 TO + v \dots\dots\dots(4)$$

Where

FDI= foreign direct investment

lnDI=Natural log of Domestic investment

FD=Fiscal deficit

INF=Inflation rate

R=Rate of interest

MS=money supply

ER= exchange rate

TO= trade openness

u, v= error terms

The data was collected from world development indicators, published by World Bank, Statistical year book, State bank reports and Pakistan economic survey. The study covered the time period from 1980 to 2013. All the data used in this study is taken as the percentage form. One of the main problems with the time series data, there may be unit root in the data and regression results of that data become spurious (Nelson and Ploser, 1982). There are number of unit root tests available for removing non-stationarity problem in time series data. In this study we use Augmented Dickey-Fuller (ADF) (1981) without and with time trend. The possible equation of ADF are as follow:

$$\Delta X_t = \delta X_{t-1} + \sum_{j=1}^q \phi_j \Delta X_{t-j} + e_t \quad (5)$$

The null hypothesis in the data is non stationary. With the help of OLS compute τ statistic of X_{t-1} and compare it with critical τ values. If calculated τ is greater than the critical τ reject null hypothesis and accepts the alternative. We can conclude that the data is stationary and vice-versa is non-stationary. After confirming the stationarity and lag order, ARDL bound testing approach to cointegration of Pesaran et al., (2001) is used for examining the cointegration of the model's variables. It is the most advanced cointegration methods, which has number of advantages over traditional co-integration techniques. It can be applied on mix order of integration and it gives better results for small sample size data. Autoregressive distributed lag model follows this procedure:

$$y_t = \alpha_0 + \alpha_1 t + \alpha_2 y + \alpha_3 x_{t-1} + \alpha_4 z_{t-1} + \dots + \sum_{k=0}^p \phi_k \Delta y_{t-k} + \sum_{m=0}^p \phi_m \Delta x_{t-m} + \sum_{n=0}^p \phi_n \Delta z_{t-n} + u_{it} \quad (6)$$

$$H_0 : \alpha_2 = \alpha_3 = \alpha_4 = \dots = 0 \text{ (No co-integration among the variables)}$$

$$H_A : \alpha_2 \neq \alpha_3 \neq \alpha_4 = \dots \neq 0 \text{ (co-integration among variables)}$$

Calculated F-Statistic is compared with upper bound value of Pesaran and Pesaran (1997) or Pesaran et al., (2001). If calculated F-test statistic is greater than the upper bound value, the null hypothesis of no co-integration is rejected. Then it is concluded that there is cointegration among the variables of the model. Vector Error Correction Model (VECM) has been used for short dynamic among the variables. VECM procedure is as under:

$$\begin{aligned} \Delta y_{it} = & \alpha_0 + \alpha_1 t + \sum_{h=1}^p \beta_h \Delta y_{t-h} + \sum_{j=0}^p \gamma_j \Delta x_{t-j} + \sum_{k=0}^p \phi_k \Delta z_{t-k} \\ & + \sum_{m=0}^p \phi_m \Delta y_{t-m} + \sum_{n=0}^p \phi_n \Delta x_{t-n} + \sum_{f=0}^p \phi_f \Delta z_{t-f} + \omega ECT_{t-1} + u_t \end{aligned} \quad (7)$$

ECT_{t-1} represents lagged error correction term. ECM explains the speed adjustment from short run to long run. For investigating the optimal lag length Schwarz Information Criteria (SIC) or Akaike's Final Prediction Error (FPE) are used.

V. Empirical Results and Discussion

In ARDL approach it is not necessary to test the stationarity of the variables as we know that ARDL can be applied whether the variables are integrated of order one, zero or both but it cannot be applied if variables are integrated of higher order, such as, I(2) or I(2) etc. So in order to confirm the order of variables different unit root tests are applied. In this study augmented dickey fuller (ADF) test was used to check the stationarity of variables. To test the selected hypothesis, the following steps were taken. Firstly, application of unit root stationarity test and then ARDL technique was applied. To test the unit root ADF test was used. Since we dealt with time series data, therefore, the variable must had been tested for stationary before proceeding with the estimation. We used the ADF test for testing the stationarity of the variables. This test is well suited for analyzing time series data. The results of ADF test are reported in table 1.

Table 1 Results of ADF Tests

Variable	Order of integration	t-statistic	Prob.
FDI	1 st difference	4.82	0.0007
lnDI	1 st difference	5.86	0.0000
Fiscal deficit	1 st difference	6.14	0.0000
inflation	1 st difference	6.89	0.0000
Interest rate	1 st difference	5.19	0.0002
MS	Level	4.75	0.0005
ER	1 st difference	7.49	0.0000
TO	1 st difference	7.91	0.0000

The results show that all variables are stationary at 1st difference except MS which is stationary at level. As none of the variables is integrated of higher order, therefore, we can apply ARDL technique in order to examine the impact of demand management policies on domestic and foreign direct investment. We examined the effect of demand management policies on both domestic investment and foreign direct investment. Optimal lag length is required to estimate the equation through ARDL technique. The optimal lag length was selected through Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion.

Table 2 Optimal Lag Length

Lag	Log	LR	FPE	AIC	SC	HQ
0	-509.589	NA	3981461	32.224	32.499	32.3154
1	-376.829	207.436*	9825.318*	26.177	28.101*	26.81454*
2	-336.787	47.551	9850.510	25.924*	29.497	27.10846

* indicates the optimum lag order selected by the criterion

The results revealed that the optimal lag length according all criteria, except AIC, was 1 for model 1. Therefore, we included only one lag in our model. The next step was to test the null hypothesis that no long-run relationship existed among variables with the alternative hypothesis that long-run relationship existed. The null hypothesis was to be rejected if the F-value was more than the upper bound. Table 4.3 shows the long-run relationship of bound test.

Table 3 Bound Test for Long-run Relationship

F value	5% significant level		10% significant level	
	Lower bound	Upper bound	Lower bound	Upper bound
5.742157	2.62	3.79	2.26	3.35

The results of table 3 showed that the F value of 5.74 was greater than the upper bound at 1 percent level of significance. So these results expressed that long-run relationship existed among the variables.

Table 4 Estimated Long run Coefficients

Selected Model: ARDL (1, 1, 1, 1, 0, 0) selected based on Schwarz Bayesian Criterion. FDI is dependent variable.

Variable	Coefficient	Std. Error	t-Statistic	Probability
Fiscal deficit	0.407910	0.094186	4.330898	0.0002
Inflation (consumer price Index)	-0.073795	0.054209	-1.361309	0.1866
Interest rate	-0.356809	0.087248	-4.089580	0.0005
Broad money growth annul	0.032813	0.019971	1.643065	0.1140
Real effective exchange	-0.011139	0.003277	-3.399579	0.0025

Source: Generated by the author using data from sources described in section 4.

Table 4 indicates the long-run coefficients of the variables by applying the ARDL technique. The fiscal deficit has positive and highly significant effect on FDI in the long run. In the long run 1 percentage increase in fiscal deficit leads to 0.40 units increase in FDI. Inflation has negative and insignificant effect on FDI in the long run. This finding is in accordance with the results of Arbatli (2011) who also reported negative effect of inflation on FDI. Interest rate was also found to have negative but significant impact on FDI. One percentage increase in interest rate leads to 0.35 units decrease in FDI in the long run. Growth of broad money has positive and insignificant impact on FDI in the long run. Real effective exchange rate has negative and significant impact on FDI in the long run. After analyzing the long-run estimates of the model we estimated the short-run coefficients. The results are reported in table 5.

Table 5 Short-run Estimates and Error Correction Mechanism

Regressor	coefficient	Std. error	t-ratios	Prob.
D(Fiscal deficit)	0.110	0.036931	2.959791	0.007
D(Inflation consumer price)	0.005	0.024	0.204	0.840
D(interest rate)	-0.101	0.079	-1.276	0.215
D(Broad money growth annual)	0.017	0.009	1.954	0.063
D(real effective exchange rate)	-0.006	0.002	-2.643	0.015
ECM(-1)	-0.518	0.134	-3.857	0.001
R-squared	0.676264	Adjusted R-squared		0.549585
S.E. of regression	0.333436	F-statistic		5.338393
Mean dependent var	0.010030	S.D. dependent var		0.496828
Sum squared resid	2.557136	Log likelihood		-4.624245
Akaike info criterion	0.886318	Schwarz criterion		1.339805
Durbin-Watson stat	2.022651			

$$ECM = FDI - (0.4079*FD + 0.0328*MS - 0.0738* - 0.3568*R - 0.0111*ER + 3.4811)$$

The process of short-run adjustment can be observed from the error correction model. The ECM ensures that the error correction process converges monotonically to the equilibrium path. In this model the coefficient of ECM is -0.52 and is statistically significant. This indicates that 52% of the disequilibrium of the previous period will be adjusted in the current year in this model. The results show that fiscal deficit has significant and positive impact on FDI. One percentage point increase in fiscal deficit leads to 0.11unit increase in the FDI. Inflation has positive and insignificant effect on FDI. Interest rate has negative and insignificant effect on FDI. Broad money growth has been taken as a proxy of money supply. Broad money growth has positive and significant effect on FDI. Real effective exchange rate shows negative and significant effect on FDI. The results of this study are consistent with the findings of Banga (2013) who also showed negative impact of exchange rate on FDI. Adjusted R square measures the predictive accuracy of the fitted model as it shows the variations in the dependent variable from its mean caused by the independent variables selected for the model. The value of R square for in our model is 0.55 which indicates that 55 percent of the total variation in foreign direct investment is explained by the independent variables. The value of F statistics is 5.33 and the value of Durbin Watson statistics is 2.02. For the robustness of results, the diagnostic tests were applied. The outcomes show that the functional form is correctly specified. The LM trial of serial correlation and the Heteroscedasticity has been corrected by applying HAQ Newey West.

Table 6 Diagnostic Tests

Problems	F-statistic	Prob.
serial correlation	6.839954	0.0052
Functional form	1.450278	0.2581
Heteroscedasticity	2.299445	0.0518

Optimal lag length is required for estimation of the equation through ARDL technique. The optimal lag length is selected through Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion.

Table 7 VAR Lag order Selection Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-451.046	NA	102561.4	28.565	28.840	28.656
1	-339.644	174.066*	961.584*	23.853*	25.776*	24.490*
2	-314.439	29.931	2436.949	24.527	28.100	25.711

The results reveal that the optimal lag length suggested by all criteria is also 1 for model two. So, in this study we took the optimal lag length as 1. The next step is to test the null hypothesis that no long-run relationship exists among variables against the alternative hypothesis that long-run relationship exists. The null hypothesis is to be rejected if the calculated F-value is higher than the upper bound and if the calculated F-value is lower than lower bound the null cannot be rejected. Table 8 shows the results of bound test for model 2.

Table 8 Long-run Relationship of Bound Test

5% significance level			10% significance level	
F value	Lower bound	Upper bound	Lower bound	Upper bound
6.717394	2.62	3.79	2.26	3.35

The results of table 4.8 show that the calculated F-value is greater than the upper bound at 1 percent level of significance. So these results express that the long-run relationship does exist among the variables. After making sure that long-run relationship exists in our model we obtained the estimates of long-run coefficients. The results are reported in table 9.

Table 9 Estimated long run Coefficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FD	0.092619	0.022406	4.133656	0.0004
R	-0.043631	0.025282	-1.725743	0.0967
MS	0.014345	0.005379	2.666978	0.0132
RE	-0.000168	0.000877	-0.191504	0.8497
TO	0.006141	0.019415	0.316280	0.7544

Table 9 indicates the long-run coefficients of the variables by applying the ARDL technique. The fiscal deficit has positive and highly significant effect on DI in the long run. In the long run one percentage increase in fiscal deficit leads to 9 percent increase in DI. Interest rate was found to have negative and marginally significant impact on DI. The results of Khan et al. (2008) are consistent with this result for interest rate. One percentage increase in interest rate leads to 4 percent decrease in DI in the long run. Broad money growth as a proxy for money supply has positive and significant impact on DI in the long run. Real effective exchange rate has negative and insignificant impact on DI in the long run. Trade openness has positive but insignificant impact on DI in the long run.

The ECM ensures that the error correction process converges monotonically to the equilibrium path. In this model the coefficient of ECM is -0.707 and is statistically significant. This indicates that 71% of the disequilibrium of the previous period will be adjusted in the current period in this model. The results show that fiscal deficit has significant and positive impact on DI. Interest rate has negative effect on DI and it has marginally significant effect

on DI. The findings of Khan et al. (2008) are consistent with this result for interest rate. The coefficient of interest rate shows that one percentage increase in interest rate results in 0.03 percent decrease in DI. Broad money growth was taken as a proxy for money supply. It has positive and significant effect on DI. Real effective exchange rate shows negative and insignificant effect on DI. Trade openness shows positive and insignificant effect on DI. Adjusted R-squared measures the predictive accuracy of the fitted model as it shows the variations in the dependent variable from its mean caused by the independent variables selected for the model. The value of adjusted R-squared for the model is 0.52 which indicates that 52 percent of the total variation in the domestic investment has been explained by the independent variable. The value of F-statistic is 5.87 and is statistically significant. The value of Durbin Watson statistic is 2.43 which shows absence of autocorrelation in the model. For the robustness of results, the diagnostic tests were applied. The consequences showed that the data is not suffering from the problem of Heteroscedasticity as the null hypothesis of no heteroscedasticity has not been rejected. The serial correlation test shows that there is no serial correlation. The results also confirm that functional form of the model is also correct.

Table 10 ARDL Estimates (Dependent Variable: LDI),

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FD)	0.028	0.013	2.105	0.046
D(R)	-0.031	0.018	-1.717	0.098
D(MS)	0.010	0.003	3.044	0.005
D(RE)	-0.0001	0.001	-0.192	0.850
D(TO)	0.004	0.014	0.315	0.755
Coint. Eq(-1)	-0.707	0.137	-5.152	0.000
R-squared	0.622	Adjusted R-squared		0.516
S.E. of regression	0.128	F-statistic		5.877
Mean dependent var.	-0.014	S.D. dependent var		0.183
Sum squared resid.	0.407	Log likelihood		25.715
Akaike info criterion	-1.073665	Schwarz criterion		-0.710876
Durbin-Watson stat	2.437206			

$$ECM = LDI - (0.0926*FD-0.0436*R+0.0143*MS-0.0002*RE+0.0061*TO+1.3419)$$

Table 11 Results of Diagnostic Test

Problems	F statistics	Probabilities
serial correlation	0.692548	0.5104
Functional form	0.382928	0.6861
Heteroscedasticity	1.008652	0.4488

VI. Conclusions and Policy Recommendations

The objective of this study was to examine the impact of demand management policies on domestic and foreign direct investment in case of Pakistan. The study covered the period from 1980 to 2013. Autoregressive distributive lag approach was utilized for this study. The main results of the study are as follows. Long run equilibrium relationship existed among the variables. In Pakistan fiscal deficit affected domestic and foreign direct investment positively and significantly. While inflation affected foreign direct investment negatively and interest rate was also found to negatively affecting FDI and DI. Broad money growth positively and significantly affected DI. Real effective exchange rate showed negative and insignificant effect on domestic investment but had significant effect on foreign direct investment. Trade openness showed positive effect on domestic investment. The findings of the study recommended that government should not waste its revenue in order to meet nonproductive expenditures. Rather government should utilize its revenue for productive purposes. This will be helpful in increasing our domestic investment. If people prefer to increase investment in their own countries the investment will increase and will eventually lead to increase the level of employment. First and foremost, government should try to make effective and efficient policy to encourage foreign investors to invest in Pakistan by giving subsidies and ensure the protection of their capital. The monetary policy makers like banks should also look at their policies to control interest rate because it has negative impact on domestic and foreign direct investment. Government should build the investors' confidence and try to produce the import substitutes because higher per capita income increases imports of luxury items. The government should convince the people to invest their money in Pakistan. Financial development is also a key factor affecting the investment decision of investors. Good financial facilities help the

investors to invest their capital with confidence. Government should provide loans to investors at lower interest rate. We also need to create an environment to encourage domestic investment so that our imports may decrease and our exports may increase. There is also the need to improve infrastructure in Pakistan because it has negative impact on foreign direct investment in the short run. In the nutshell, a continuous struggle is required to remove all the hurdles in the way of improvement in terms of trade and foreign direct investment because both are important for development and growth.

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