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FOREIGN DIRECT INVESTMENT AND CURRENT ACCOUNT BALANCE OF PAKISTAN

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Abstract. This study investigates the impact of foreign direct investment (FDI) inflows on current account balance excluding current transfers (CABECT), and income outflows (IO) of balance of payments (BOP) of Pakistan for the period 1983-2011 by employing autoregressive distributive lag (ARDL) approach. Total FDI inflows in Pakistan from 1983 to 2011 were US $ 32.26 billion out of which 72.03 percent (US $ 23.23 billion) were received in last seven years (2005-2011) mostly in the services sector. Results of the study show that increase in FDI causes increase in IO and worsens CABECT of Pakistan in the long-run. Error correction terms in both short-run models have negative and significant coefficients thus confirming long-run relationship of FDI inflows with IO and CABECT.

Keywords: Current account balance, Foreign direct investment, ARDL approach

JEL classification: C23, F21, F32

I. INTRODUCTION

Foreign Direct Investment (FDI) is considered to be an important source to build up physical capital, create employment opportunities, develop productive capacity, enhance skills of local labour and managers through

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transfer of technology, and integration with rest of the world.[1] According to State Bank of Pakistan (SBP) data on International Investment Position, total stock of FDI in Pakistan up to the end of year 2011 was US $ 21.88 billion (see Table 1). Figure 1 shows that annual FDI inflows in Pakistan remained less than US $ 1 billion up to year 2003. Annual FDI inflows in year 2007 and 2008 were recorded US $ 5590 million and US $ 5438 million respectively.

TABLE 1

International Investment Position of Pakistan (Million US$)

International Investment Position Components	Stock as on 31 December				
	2007 (R)	2008 (R)	2009 (R)	2010 (R)	2011 (P)
International Investment Position – net	(50,754)	(52,298)	(54,822)	(59,164)	(61,366)
A. Assets	22,769	17,993	23,374	26,158	26,564
1. Direct investment abroad	1,249	1,960	1,851	1,362	1,432
2. Portfolio investment	330	142	153	178	192
3. Financial derivatives	–	–	27	21	11
4. Other investment	5,654	6,258	6,203	6,649	7,309
5. Reserve assets	15,536	9,633	15,140	17,949	17,620
B. Liabilities	73,523	70,291	78,196	85,322	87,930
1. Direct investment in Pakistan	25,621	16,473	17,674	19,828	21,876
2. Portfolio investment	6,767	4,723	3,548	4,488	4,014
3. Financial derivatives	–	–	57	51	41
4. Other investment	41,135	49,095	56,917	60,955	61,999
of which Loans	*39,038*	*46,602*	*51,605*	*55,194*	*56,231*

Source: State Bank of Pakistan

The decline in FDI in Pakistan after 2008 was mainly due to deteriorated law and order situation, political instability, energy crisis, weak economic activity along with global recession. A detailed analysis of FDI reveals that

[1]According to Balance of Payment Manual 05 (BPM-05) FDI is the category of international investment that reflects the objective of a resident entity in one economy obtaining a lasting interest in an enterprise resident in another economy.

major decline was recorded in telecommunication and oil and gas exploration sectors. The decline in telecom is obvious as this sector has already reached a saturation point in the country. In case of the oil & gas exploration, a growing circular debt and the deteriorating law & order situation seem to be the major hurdles in attracting fresh FDI.

FIGURE 1

FDI Inflows in Pakistan Since CY 1983 (Million US $)

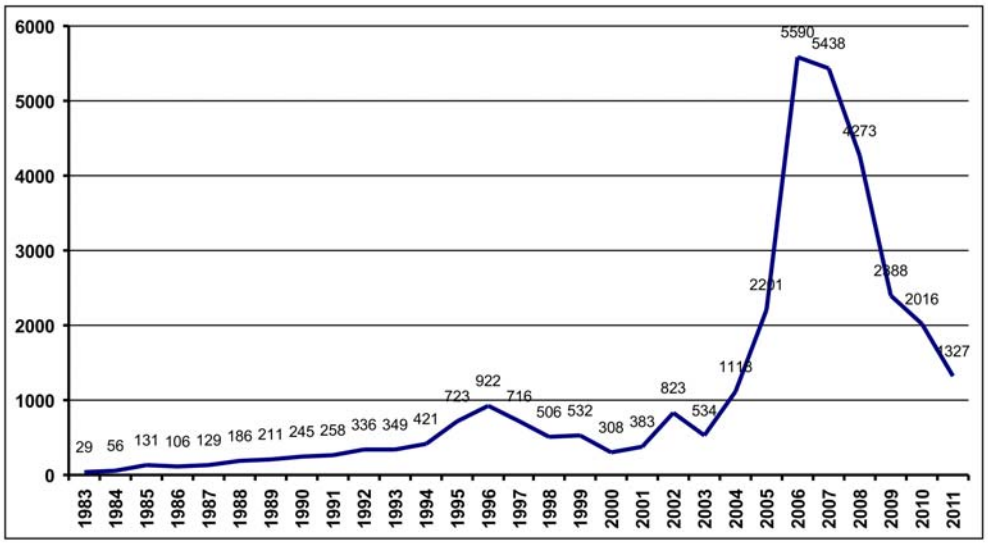
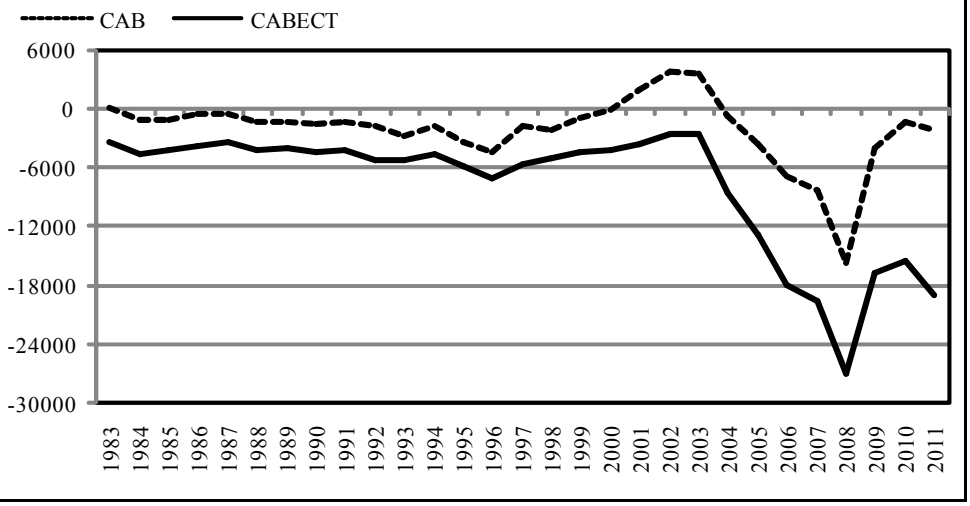
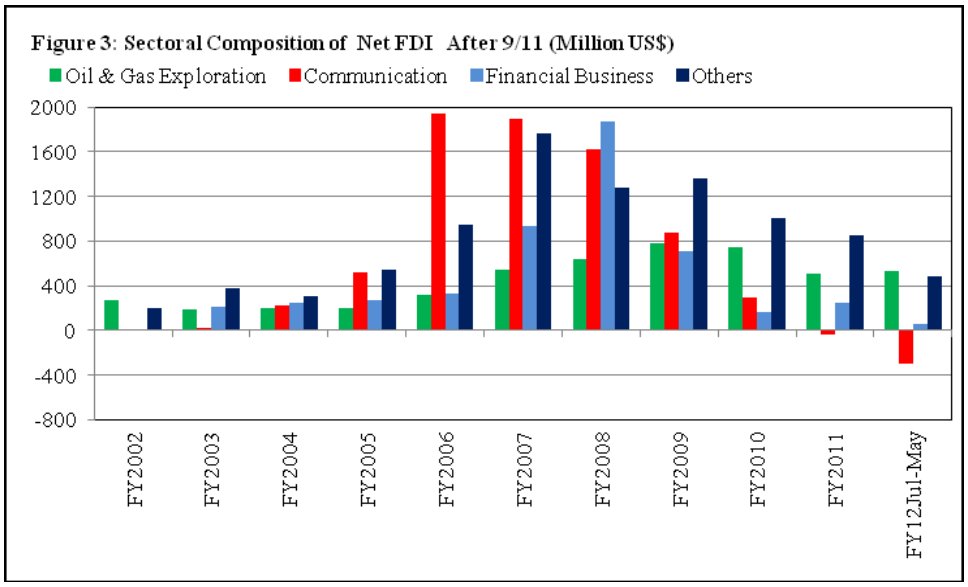


Figure 2: Current Account Balance and Current Account Balance Excluding Current Transfers Since CY1983(Million US$)





FDI inflow is accounted as credit entry in the financial account of balance of payment (BOP) thus having direct positive impact on BOP. However, increasing volume of FDI also increases the size of imports and profit repatriation. There is a large body of empirical literature showing positive effects of FDI on receiving country's economy including transfer of technology, employment creation, growth enhancement and tax collection. However, relatively less focused area is related to problems resulting due to FDI inflows in small open economies like Pakistan. FDI inflows in developing countries may cause exchange rate appreciation (Dutch disease), trade and income account balance worsening thus having serious implications for overall balance of payments and foreign exchange reserves.

In case of Pakistan, a number of studies have been conducted to estimate relationship of FDI inflows with GDP growth, poverty and inequality, domestic investment, exports and other macroeconomic variables. But no previous study has investigated the impact of FDI on current account balance. To fill the gap in existing literature for Pakistan, this study investigates the impact of FDI inflows on CABECT and IO of balance of payments (BOP) of Pakistan for the period 1983-2011 by using autoregressive distributive lag (ARDL) approach.[2]

[2]The reason for starting data period from 1983 is that before 8th February 1982 SBP was practicing fixed exchange rate regime.

II. LITERATURE REVIEW

Considerable amount of available literature on FDI helps in scrutinizing different aspects of FDI as observed throughout the world. Hossain (2007) showed that the initial impact of an inflow of FDI on BOP is positive but the medium term effect could become either positive or negative as the investors increase their imports of intermediate goods and services, and begin to repatriate profit. Jansen (1995) argued that the impact of FDI on the current account has become complicated by the investment income payments that arise from FDI.

Lehman (2002) found that structural change in external accounts of a country takes place due to FDI inflows. Trade openness and host country risks are found to increase affiliate profitability of FDI and earning repatriations are not determined through constant dividend payout ratio. Using data for the period 1996-2000 of Brazil and Argentina the study observed that FDI was responsible for causing huge income and profit repatriations that had caused current account deficit in both countries.

Woodward (2003) claimed that FDI flows have contributed substantially to current account deficits. Using data of six economies the results of the study showed that FDI was one of the main factors responsible for current account deficit in these countries. By making FDI analogous to loan, the study argued that subsequent repatriation of the capital from the recipient country was same as repayments of loan.

Demekas *et al.* (2005) concluded that the benefits of FDI had long been recognized for the host countries, including knowledge and technology transfer to domestic firms and the labour force, productivity spillovers, enhanced competition, and improved access for exports abroad, notably in the source country

Kumar (2007) concluded that FDI inflows appeared to be risky for developing countries' economies. FDI being foreign capital led to capital flight in times of extreme financial crisis. The study concluded that FDI may be accompanied with distress sale of domestic assets and proved harmful for the economy. The profits earned through the investment were repatriated to the countries of origin of that foreign investment that had exerted bad impact on current account balance.

Mencinger (2008) discussed that the bigger the inflow of FDI led to higher current account deficit as FDI drives local competitors out of business, increases imports and decreases the efficiency acquired by firms from multinational firms. Bhagwati (1998) claimed that impact of FDI on

growth appeared to be positive in case of export promoting countries not in case of small developing economies. This study also revealed that the FDI to GDP ratio and current account balance to GDP ratio of eight transition economies had shown a negative relationship.

A few studies have been conducted to examine the nature and direction of causal relationship between FDI inflows and current account balance in case of Pakistan. A causal relationship between FDI and current account was checked by Siddiqui and Ahmad (2007). They investigated the long-run causal relationship between FDI inflows and current account deficit on quarterly data for Pakistan economy over the period 1976-2005. The Johansen co-integration method and vector error-correction model technique were used for examining the long-run and the short-run dynamics of system respectively. The results indicated only long-run uni-directional causality from FDI to CA. Not much studies are available in the literature that have analyzed the impact of FDI on current account balance of Pakistan. This study is an attempt to analyze empirically the impact of FDI on current account balance of Pakistan. This study may help the policy makers to formulate economic policies consistent with the economic conditions of the country for attracting FDI in Pakistan.

III. METHODOLOGY AND RESULTS

In order to empirically analyze the impact of FDI inflows on income outflow and current account balance of Pakistan, the following models have been utilized:

$$\underset{}{\text{LIO}} = \underset{(+)}{f(\text{LFDI})} \tag{1}$$

$$\underset{}{\text{CABECT}} = \underset{(-)\quad(-)\quad(+)}{f(\text{FDI, DUM2008, DUM9/11})} \tag{2}$$

The variables incorporated in the first model are: natural Log of Income Outflow (LIO) as a dependent variable and Natural Log of Foreign Direct Investment (LFDI) as an independent variable. The variables used in the second model are: Current Account Balance Excluding Current Transfers (CABECT) as dependent variable and Foreign Direct Investment (FDI) as independent variable. The expected signs of coefficients are presented in parenthesis. Calvo *et al.* (1996) argued that capital inflows are negatively related to current account balance. This indicates that a fall in interest rate induces increase in consumption and widens the current account deficit. For capital importing country, a decline in interest rate make further borrowing cheaper, leading towards high consumption and deteriorating CAB (for

details, see Irving Fisher Model). Thus, standard open economy models suggest that increased capital inflows are likely to be accompanied by a rise in consumption and investment, and a widening in the current account deficits.

The stationarity of the variables is examined to avoid the existence of spurious estimation results. For this purpose ADF and PP tests are used for observing the order of integration of the variables.

The unit root results obtained from ADF and PP tests are presented in Tables 2 and 3 respectively.

TABLE 2

Augmented Dickey Fuller Test

Series	At Level		At First Difference	
	With intercept	With trend and intercept	With intercept	With trend and intercept
Model 1				
LIO	–1.81(0)	–2.81 (2)	–3.90(0)***	–4.06(0)**
LFDI	–2.35(0)	–3.65(3)*	–3.91(0)***	–4.07(0)**
Model 2				
CABECT	–0.78 (0)	–1.83(0)	–5.05(0)***	–4.39(4)**
FDI	–2.37 (1)	–4.30 (6)**	–4.82(6)***	–5.23(6)***

***, **, * denote the significance of test statistics at 1 percent, 5 percent and 10 percent level of significance respectively against the null hypothesis of unit root. Figures in the parenthesis represent the lag selection based on Schwarz Information Criterion (SIC).

Table 2 and 3 show that the order of integration of the variables in the model is not suitable to apply the conventional Johansen' cointegration techniques as results do not fulfill its prerequisite of same order of integration of the variables. In this situation, Pesaran *et al.* (2001) proposed an approach for testing the existence of long-run relationship among variables which is applicable irrespective of having different order of integration among variables.

ARDL approach is basically based upon two steps. At first step, F-statistic values are calculated through Wald test restrictions for checking the

presence of cointegration among the variables and in the second step, long-run and short-run dynamics of the model are observed.

TABLE 3

Phillips Perron Test

Series	At Level		At First Difference	
	With intercept	With trend and intercept	With intercept	With trend and intercept
Model 1				
LIO	–0.50(1)	–1.702(1)	–3.896(1)***	–4.06(1)**
LFDI	–2.270(2)	–2.292(2)	–3.86(1)***	–4.05(1)**
Model 2				
CABECT	–0.796(1)	–1.872(1)	–5.048(0)***	–5.06(0)***
FDI	–1.833(2)	–2.148(3)	–3.159(0)**	–3.11(0)

***, **, * denote the significance of test statistics at 1 percent, 5 percent and 10 percent level of significance respectively against the null hypothesis of unit root. Figures in the parenthesis represent the lag selection based on Schwarz Information Criterion (SIC).

TABLE 4

Lag Selection Criteria Based on
Vector Autoregressive Model (LIO, LFDI)

Lag Order	Akaike Information Criterion
0	2.331696
1	–0.792194
2	–0.806042
3	–0.889145
4	–0.893255*

*Akaike Information Criterion selected 4 lags from maximum 4 lags.

TABLE 5

Lag Selection Criteria Based on
Vector Autoregressive Model (CABECT, FDI)

Lag Order	Akaike Information Criterion
0	36.54430
1	34.77636
2	34.63603
3	33.16657
4	33.01115*

*Akaike Information Criterion selects 4 lags from maximum 4 lags.

Based on Vector Autoregressive (VAR) estimation, Akaike Information Criterion (AIC) suggested 4 lags as optimal lag length. So the next step is to apply Wald test (F-Statistics) by imposing restriction on equations (3) and (4) respectively.

$$\Delta LIO = \gamma_0 + \gamma_{1i}\sum_{i=1}^{4}\Delta LIO_{t-i} + \gamma_{2i}\sum_{i=0}^{4}\Delta LFDI_{t-i} + \gamma_3 LIO_{t-1} + \gamma_4 LFDI_{t-1} + \varepsilon_t \quad (3)$$

H_0: $\gamma_3 = \gamma_4 = 0$ (No evidence of long-run relationships)

H_1: $\gamma_3 \neq \gamma_4 \neq 0$ (Existence of long-run relationships)

$$\Delta CABECT = \gamma_0 + \gamma_{1i}\sum_{i=1}^{4}\Delta CABECT_{t-i} + \gamma_{2i}\sum_{i=0}^{4}\Delta FDI_{t-i} + \gamma_3 CABECT_{t-1} + \gamma_4 FDI_{t-1} + \varepsilon_t \quad (4)$$

H_0: $\gamma_3 = \gamma_4 = 0$ (No evidence of long-run relationships)

H_1: $\gamma_3 \neq \gamma_4 \neq 0$ (Existence of long-run relationships)

Bound test for cointegration is presented in Table 6.

TABLE 6

Bound Test for Cointegration

Model Estimated	Model 1 (LIO, LFDI)	Model 2 (CABECT, FDI)
F-Statistics	6.694902**	4.704564*
Selected Lag Length (Criteria)	04 (AIC)	04 (AIC)
Pesaran *et al.* (2001)		
Critical bound values	Lower Bound Value	Upper Bound Value
10%	3.03	4.06
5%	3.47	4.57
1%	4.40	5.72

Critical values are obtained from Pesaran *et al.* (2001), Table CI (V): Unrestricted Intercept and Unrestricted Trend.

Table 6 shows that the calculated F-statistics of model 1 (LIO, LFDI) is greater than upper limits of tabulated F-values at 1 percent level of significance thus providing evidence for cointegration. Seabra and Flach (2005) also reported the same results by rejecting the null hypothesis of no co-integration between the FDI inflows and profit repatriation for Brazilian economy by using the Johansen cointegration (maximal eigenvalue) technique.

In the second model (CABECT, FDI) calculated F-statistics is greater than the upper limits of tabulated F-statistics at 5 percent level of significance which confirms the presence of cointegration among the variables in model 2. Similar results are reported by Siddiqui and Ahmad (2007) in case of Pakistan for quarterly data of CAB and FDI for the period 1976-2005 by employing the Johansen (1988) and Johansen and Juselius (1990) technique of cointegration.

In the next step, long-run relationship has been observed by applying Ordinary Least Square (OLS) method and results are reported in Table 7.

The long-run coefficients obtained from the ARDL model are reported in Table 7 for model 1. The results reveal that FDI has positive impact on IO and it is significant at 1 percent significance level. The coefficient of FDI shows that one percent increase in FDI inflows may lead to 0.1662 percent increase in income outflows in the long-run. The implication of these findings in case of Pakistan is that the deterioration in income account mainly stemmed from an increase in net interest payments, and repatriation of profit and dividends. Same implication is discussed by Rehman *et al.*

(2010) that FDI inflows in non-tradable sectors have worsened the balance of payments (BOP) problems for Pakistan. To check the goodness of the model diagnostic tests are carried out which include Histogram Normality test, ARCH LM test, Breusch-Godfrey LM test. The statistics reported above for the model 1 (LIO, LFDI) are showing that the residuals are normally distributed having no serial correlation and ARCH effects.

TABLE 7

Long-run Relationship among Variables Model 1

Variables	Dependent Variable: LIO		
	Coefficients	t-values	Probability
C	1.6810***	5.38	0.0000
$\ln IO_{t-1}$	0.6450***	9.59	0.0000
$\ln FDI$	0.1662***	4.70	0.0001
$R^2 = 0.981$ Adj. $R^2 = 0.98$ F-statistics = 641.78(0.0000) Jarque-Bera $Chi^2(2) = 2.37$ (0.3056) Breusch-Godfrey LM $Chi^2(1) = 1.92$ (0.3823) Hetroskedasticity test ARCH = 0.0029 (0.9574)			

*** denote significance level at 1%.

TABLE 8

Long-run Relationship among Variables Model 2

Variables	Dependent Variable: CABECT		
	Coefficients	t-values	Probability
C	–2639***	–6.54	0.0000
$dCAB_{t-2}$	–0.3876***	–5.99	0.0000
FDI	–3.8235***	–8.28	0.0000
FDI_{t-1}	0.9142	1.32	0.2004
FDI_{t-2}	–1.9332***	–4.36	0.0003
$R^2 = 0.96$ Adj. $R^2 = 0.95$ F-statistics = 114.9289 (0.0000) Jarque-Bera $Chi^2(2) = 4.04$ (0.1329) Breusch-Godfrey LM $Chi^2(1) = 0.32$ (0.7294) Hetroskedasticity test ARCH = 2.23 (0.1493)			

*** denote significant level at 1%

Estimated coefficients for long-run relationship of model 2 are presented in Table 8. The results show that FDI inflows have negative impact on CABECT and is significant at 1 percent level of significance.

The diagnostic tests are employed on the long-run relationship of variables in model 2. The results confirm that residuals are normally distributed and there is no serial correlation and ARCH effect.

Short-run dynamics of model (1) and (2) are estimated by using the error correction mechanism (ECM). The results are presented in Table 9.

TABLE 9

Error Correction Representation for the Selected ARDL-Model 1 (0, 2)

Variables	Dependent Variable DLIO		
	Coefficients	t-values	Probability
C	0.0288	1.498696	0.1476
ECM(–1)	–0.4682**	–2.033376	0.0537
DLFDI	0.1518***	3.360217	0.0027
DLFDI(–1)	0.1081**	2.497319	0.0201
R^2 = 0.50 Adj. R^2 = 0.43 SE of Regression = 0.0918 DW Stat = 1.96 Jarque-Bera $Chi^2(2)$ = 0.695 (0.7064) Breusch-Godfrey LM $Chi^2(1)$ = 5.12 (0.080) Engle's ARCH LM $Chi^2(1)$ = 0.69 (0.406)			

Table 9 presents the short-run coefficients estimated from the ECM of ARDL for model 1. The results indicate that LFDI is positively related to LIO and statistically significant at 1 percent level of significance. In short-run, 1 percentage point increase in DLFDI inflow may lead to 0.1518 percentage point increase in DLIO. The coefficient of error correction term (ECM_{t-1}) carries negative sign which is statistically significant at 5 percent level of significance. The value of coefficient of ECM is (–0.46824) implies that error correction process converges to equilibrium with the speed of 46.82% from current to next time period.

Table 10 presents the results of ECM model 2. Results indicate that FDI inflow is negatively affecting CABECT and coefficient of DFDI is statistically significant at 1 percent level of significance. DUM 9-11 and DUM2008 have expected signs and the coefficients are statistically

significant. The coefficient of error correction term reported in the model is negative and statistically significant at 5 percent level of significance which indicates cointegration among the variables. The value of coefficient of ECM is –0.668711 shows that in one year 66 percent error is corrected towards equilibrium.

TABLE 10

Error Correction Representation for the Selected ARDL-Model 2 (0, 4)

Variables	Dependent Variable DCABECT		
	Coefficients	t-values	Probability
C	–22.68	–0.08	0.9402
ECM(–1)	–0.67**	–2.82	0.0118
DFDI	–4.55***	–11.57	0.0000
DFDI(–1)	0.62	1.55	0.1387
DFDI(–2)	0.87*	1.98	0.0645
DFDI(–3)	2.62***	3.22	0.0050
DUM 9-11	3976.83	2.98	0.0084
DUM-2008	–11415	–5.98	0.0000
R^2 = 0.960 Adj. R^2 = 0.945 SE of Regression = 1242.6 DW Stat = 1.77 F-statistic = 59.93389 Prob (F-statistic) = 0.000000 Jarque-Bera $Chi^2(2)$ = 3.30 (0.192) Breusch-Godfrey LM $Chi^2(1)$ = 0.14 (0.8699) Engle's ARCH LM $Chi^2(1)$ = 0.199 (0.6566)			

To check the robustness of the above presented estimation results, diagnostic tests are performed. These tests examine the presence of serial correlation, heteroscedasticity effects and stability of model. The diagnostic tests show that there is no serial correlation and ARCH effect, residuals are normally distributed.

IV. CONCLUSIONS AND POLICY IMPLICATIONS

Existing empirical literature on the impact of FDI inflows in Pakistan is largely influenced by positive aspects thus ignoring negative effects

including implications for current account balance. This study contributes in the existing empirical literature showing negative impacts of FDI inflows in Pakistan. The study finds that in case of Pakistan FDI inflows have worsen CABECT both in the long-run and short-run for the period 1983-2011. Furthermore, by using ARDL approach of cointegration the study finds that FDI inflows have worsen income account of current account balance in Pakistan.

Policy implications on the basis of findings of the study include that government should promote domestic savings and investment along with attracting FDI inflows. Further, sector-wise composition of FDI inflows needs to be diversified from current bias towards services sector.

Future research in this direction may focus sector wise and company wise repatriation of profit and intensity of input imports attached with FDI inflows. Further, it is important to estimate sector-wise impact of FDI on employment generation and tax collection in Pakistan.

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