



FOREIGN DIRECT INVESTMENT (FDI) AND EXPORTS: A GROWTH NEXUS REVISITED

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ABSTRACT

Developing countries in Asia mostly rely on FDI to acquire capital funds and advance techniques of production and business management. After adopting the liberalization policies in 1990's, the inflow of FDI in Pakistan has increased many folds and likewise the export is also growing continuously. This paper explores the impact of foreign direct investment on Pakistan's overall exports relation with FDI for the period 1971-2009. The Augmented Dickey Fuller Test (ADF), Dickey Fuller-GLS and Philip Perron tests are being applied to check the stationarity of the variables. The results depict significant association of foreign direct investment with over all exports in the long run. However world' income is insignificantly linked with exports in the short run. The long run results are opposite to that of earlier work (Anwar, 1985). The possible justifications for difference in results are different methodologies used and the difference in time period. Real effective exchange rate, economic growth and relative prices show considerable association with export performance in the long run. The short run behavior show different results. Policy makers of Pakistan may focus on raising exports and apply policy tools through using channel of FDI by raising FDI in the long run. However, in the short run FDI may not be an effective tool.

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1. INTRODUCTION

Foreign direct investment (FDI) is defined as the source of acquisition of managerial control by business enterprises of foreign countries over a business activity in a host country. FDI brings the most needed capital fund, advanced production technique, higher managerial skill, advertising, market expertise and global links. The changing perception and more attractive policies of the host

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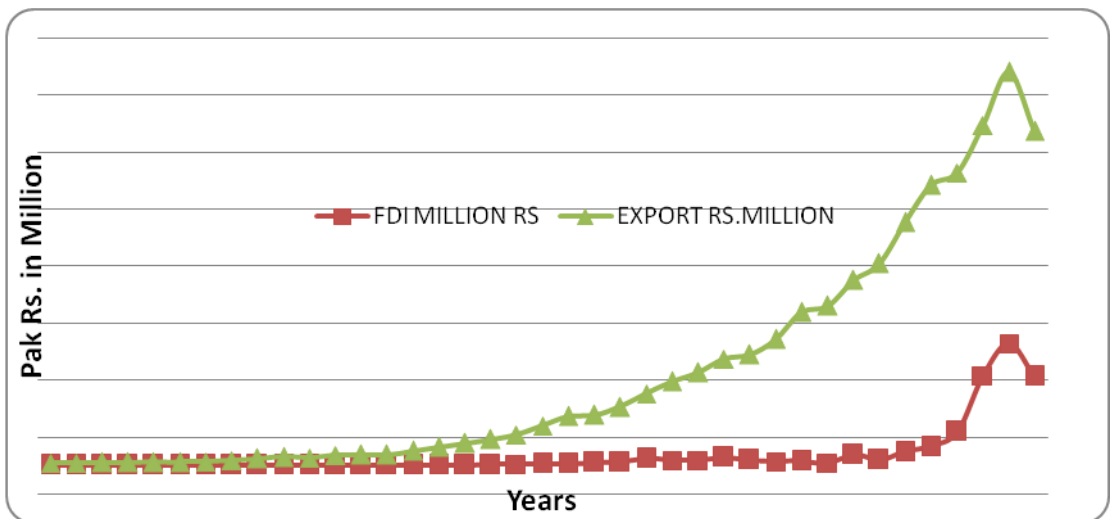
developing nation have changed the destination of FDI. The FDI now largely flows from industrially developed country to high growth developing center.¹

Export is considered as an influential instrument in the international trade due to its various advantages. It must ensure the provision to meet its current import requirements of goods and services and pay off the accumulation of past international debts. In short, every country of the world must endeavor to promote its exports at least up to a certain minimum level which is sufficient to meet the obligations of the debt side of the balance of payment. The wise saying ‘neither a borrower nor a lender be’, may not be wholly true in the short term, but no one can deny its relevance in the longer term. International trade is subjected to ruthless and more often than not, cut throat competition. In this respect, it differs from domestic trade, which enjoys a measure or insulation from foreign competition. Exports of any country, in order to be internationally competitive, must possess certain basic things.

2. HISTORICAL PERSPECTIVE OF EXPORTS AND FDI IN PAKISTAN

Pakistan is facing the problem of high population growth. Population of Pakistan has reached 173.51 million mark², where as the steady growth pattern in the last five years has increased the domestic purchasing ability. After adopting the liberalization policies in 1990’s, the inflow of FDI in Pakistan has increased many folds and likewise the export is also growing continuously.

Figure- 1. Historical relationship between FDI and exports in Pakistan



The above figure depicts the trend of exports and FDI. Green line (triangular) indicates that exports were stagnant till mid eighties, and afterwards it grows continuously. The growth of FDI was stagnant in the last three decades of the previous century. However, it grew rapidly since the last decade. The reason behind this rising trend is mainly consistency in policies. It fell in the same pattern as exports in year 2008 due to global economic downturn as well as law and order situation

¹ http://en.wikipedia.org/wiki/Foreign_Direct_Investment

² Pakistan Economic Survey 2009-10

in the country. Following tables show historical record of the export sector of Pakistan since separation of East Pakistan (Bangladesh), and it has ups and downs in different periods.

Table- 1. Export as percentage of import (Average)

Years	Average export Rs. Million	Average import Rs. Million	X/M %	Average export as a percentage of GDP	Percentage growth
1980-84	33063	68532	47.54	8.96	-
1985-89	77608	116124	66.83	11.28	25.85
1990-94	188742	247757	76.18	13.52	19.85
1995-99	365446	459734	79.49	13.22	-(2.22)
2000-04	663087	819381	80.92	12.94	-(2.12)
2005-09	5570897	10880369	51.20	11.28	-(12.83)

Source: Authors' estimates based on ([Economic survey of Pakistan](#)) (various issues)

The above Table 1 shows export as percentage of import. It shows growth in the ratio of export to import, which is a sure sign for an export-oriented economy like Pakistan. It shows that both imports as well as exports have risen over the years. However, exports as a percentage of imports have risen from around 48% in early eighties to 80% in 1st half of the previous decade. It shows a strong performance of the export sector. However, in the second half of the last decade it fell once again which is the demonstration of the failure of export policy.

The share of exports in GDP indicates that the average share of export in GDP rises up to the first half of nineties but falls continuously since then. Though the average share of exports to GDP shows a rising trend, but later on it falls once again. Following Tables and analysis disclose the records of foreign direct investment inflow in Pakistan from different aspects and its relevant importance.

Table- 2. Total inflow of FDI by types and its percentage share

Years	Cash	% Share	Capital	% Share	Reinvestment	% Share
1971-77	60.06	38	73.7	47.2	22.3	14.3
1978-84	245.56	61.5	41.48	10.4	112.4	28.1
1985-91	1996.8	61.3	264.43	8.08	997.8	30.6
1992-98	12184.3	67.3	3073.2	10.9	285.21	15.7
1999-2005	1549.61	9.96	282.03	1.8	13729.6	88.23
2006-2009	105822.8	36.1	40911	13.9	146733	50.13

Source: Author's estimates based on ([Foreign liabilities](#)), Assets and Foreign Investment in Pakistan (SBP various issues)

Table 2 gives the total inflow of FDI by types & its percentage share. It shows mix pattern in the start, however, with the passage of time the percentage share of cash in the composition of FDI falls continuously since the second half of 90's while that rises in case of reinvestment part of FDI.

The share of capital was almost 50% in 70's, which continuously remains remarkably down to date.

3. LITERATURE REVIEW

The significance of FDI inflow is well documented in literature for both developing and developed countries. Whereas the theoretical integration among the FDI and international trade theories are still in its infancy stage, reflecting upon that, there is a need of further improvement. Several questions arise in mind and one of which is the impact of FDI on the national trade, whether the exports are being affected either by inward or outward FDI. The theory offers relatively little but wider guidance on international trade and FDI.

Two possible relationships are being discussed in academic thoughts and are available in the literature of international economics for the relationship between FDI and international trade: (1) whether FDI is a substitute for, or (2) a complement to international trade. The first one indicates that an increase in FDI either inward or outward will reduce exports to foreign countries or vice versa, whereas the latter one indicates that FDI (either inward or outward) and exports move in the same direction.

According to (Greenaway and Katherine, 2000), in horizontal FDI, multinational corporations dominate when countries are similar in size, and relative endowments and trade cost is moderate to high. Whereas in vertical FDI, multinational corporations are likely to dominate when factor prices are distinctly different between two countries and trade costs are not too high. It concludes that if trade cost were low, it would not be worthwhile incurring the cost of setting up an additional plant; the firm would be better off by exporting.

Overall, it is possible that international production may either create or displace trade with the particular effect likely to differ between economies and industries and between inward and outward investment. The relationship may also change overtime. In general, it is likely that need to undertake investment in order to avoid barriers to market access has lessened overtime, particularly for making firms intra-regional investment within large regional markets such as North America and European Union.³

In-spite of increasing importance of FDI due to globalization and increasing interaction among countries in the World, there exist relatively little empirical evidences. Some studies use the cross sectional data where as some are based on time series approach with different results. Empirical results appear heterogeneous with respect to developed and developing countries suggesting both aspects of complementary and substitutive.

Atique *et al.* (2004) in their empirical study found that the growth impact of FDI tends to be greater under an export promotion trade regime as compared to an import substitution regime. They also suggest, based upon their findings that Pakistan can excel on economic development with the help of FDI in the country.

³ Nigel Pain and Katherine Wakelin, "Export performance and the Role of Foreign Direct investment", National institute of Economic and Social Research & Maastricht Economic Research Institute of Innovation and Technology, December (1997), p.5

Dijk (2002) estimate the relationship between export and its determinants in 28 manufacturing industries. He found that export behavior differ among industries within the same pivot sector. The relationship between relative size, the square of the relative size, foreign ownership (FDI), age and export propensity is similar across industries. Foreign ownership has a strong positive influence on firms' export propensity confirming the beneficial effects of Multinational Enterprises (MNE) association.

Falki (2009), in her empirical analysis using the time series data for Pakistan, finds that the effect of FDI inflow on GDP is irrelevant in the case of Pakistan. She argues that FDI will stimulate economic growth only if it occurs in large scale manufacturing sector.

Greenaway and Katherine (2000) extended the investigation with the country characteristics to determine the characteristic of FDI i.e. vertical or horizontal. They examine the relationship on bilateral data for the USA with 26 partner countries over the data of 12 years. The results indicate that horizontal FDI is more likely to dominate when countries are similar in terms of relative skill endowments and size, and trade costs are moderate to high – and hence FDI and trade are substitutes. Whereas vertical FDI is likely to dominate when countries differ in terms of relative skill endowments and size, and trade costs are low, hence FDI and trade are complements.

Goldberg and Klein (1999) in their paper present the results of a detailed examination of the linkage between FDI into specific sectors of Latin American economies and the net exports of those and other manufacturing sectors. They indicate that some FDI tends to expand manufacturing trade; while other FDI clearly reduces the volume if manufacturing trade does not suggest strong or systematic linkages between sectoral trade and FDI in Latin America. Their results could not be generalized among other countries of the world due to mix pattern. They also discuss the rationale of positive impact of foreign direct investment on export performance having empirical evidences in countries like Argentina, Brazil and Venezuela. Whereas in some cases in which the worsening of exports is analyzed include Mexico and Columbia.

Helpman (1984) discusses the role of a multinational corporation in the direction of foreign trade. He developed a basic model of international trade incorporating the role of multinational corporations. The concept of vertical integration by multinational corporations controlling from headquarter in the home country. Their investment raise the resource exports in the form of capital equipment from the home station to host station and are likely to raise the exports of resource based products from the host country. Their choice of selection of the host country depends on the corresponding factor costs and resource endowments.

4. THEORETICAL AND METHODOLOGICAL FRAMEWORK

The academic literature provides mixed findings about the relationship between FDI and export performance. However, Zarotiadis *et al.* (2008) identify three ways through which, one can explain the flow of FDI in a particular location. It may be due to capital deficiency in the FDI host country, the comparative advantage in the host country and the excessive demand in the particular region. Some studies show that there is a positive relationship between FDI and exports, (Pfaffemiayr, 1996), some show no relationship, (Sharma, 2000), and some studies are conditional, (Djankov and Hoekman, 1997).

4.1. Model specification and definition of variables

$$EXPt = f(FDI_t, GDPG, GDP_{WOR}, REER, RP), \text{-----} \quad (1)$$

The variables included in the above model for export function are taken from the following sources;

- (i) (FDI, RP, GDP_{WOR}) are used by [Sharma \(2000\)](#)
- (ii) (FDI, REER, GDP_{SOURCE}) are used by [Xuan and Xing \(2008\)](#) for export relations with FDI-source country.
- (iii) (FDI, GROW, ER) are used by [Majeed et al. \(2006\)](#)
- (iv) (RP, GDP_{WOR})

whereas,

$EXPt$ = Total exports of the host country

FDI_t = Total inflows of Foreign Direct Investment (FDI)

GDP_{WOR} = Gross Domestic Product of the World

$GDPG$ = Annual percentage growth rate of GDP

REER = Real Effective Exchange Rate

RP = Relative Prices

Total exports: The value of total exports is taken as the natural log of the value of exports.

Foreign direct investment: The empirical literature provides mixed result about the relationship of FDI and export performance. Some studies show that there is a positive relationship between FDI and exports, ([Pfaffemiayr, 1996](#)). Some empirical studies show no significant relationship between FDI and exports, ([Sharma, 2000](#)). Similarly, some studies are conditional i.e. the role of FDI in export promotion is effective only if the idea behind the FDI is not to capture the domestic market but to take advantage of the country's comparative advantage, ([Djankov and Hoekman, 1997](#)). It means that the effect of FDI on export promotion requires an empirical investigation and one cannot know its effect A-priori.

Annual percentage growth rate of GDP: Growth rate of GDP is an indicator of future potential and sustainability of production level. Growth is a more valid determinant of exports as compared to GDP because it measures the sustainability of output levels. So expect a positive impact of GDP growth on export expansion.

Real effective exchange rate: A fall in the relative domestic prices due to exchange rate depreciation makes export cheaper in international markets resulting in increased demand for exports. Therefore, we expect the positive impact of real exchange rate on export growth.

Relative prices: It has positive relation with exports because a rise in export prices in relation to domestic prices increases exports supply.

World's GDP: A rise in world's gross domestic product will raise its demand, therefore we expect positive relation with exports.

4.2. Methodology and data source

Econometric model is being used to empirically analyze the impact of FDI on Pakistan's exports. Data for the core variables is taken from various sources like State Bank of Pakistan, (Economic survey of Pakistan), Federal Bureau of Statistics, International Financial Statistics and World Bank etc.

Economic analysis argues that there is a long run or equilibrium relationship between the variables involved in economic theory under consideration. Through applied econometrics, we can estimate these long run relationships implicitly considering the constancy doctrine of zero mean, constant variance and no relation with time. However, in empirical work, it is often being observed that this may not be true in every situation that the assumption of “constancy doctrine” can be satisfied by time series data. In such a situation, the classical t and F tests may not provide accurate results. In order to get relevant results, it is necessary to check the data for stationarity. For this purpose, different unit root tests e.g. Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests are used. Augmented Dickey-Fuller (ADF) test uses the following equation to test whether there is a unit root in the time series:

$$\Delta Y_t = \beta_1 + \beta_2 t + \alpha Y_{t-1} + \phi \sum \Delta Y_{t-1} + \epsilon_t \dots \dots \dots (2)$$

where ϵ_t is normally distributed according to the assumption of the error term.

Dicky-Fuller Generalized Least Square Method (DF-GLS) was also used to find whether the data is stationary or not. This test is being used to avoid TYPE 1 or TYPE 2 error which may occur by using Augmented Dickey-Fuller (ADF) test. The DF-GLS test considers the order of integration of Y_t and the power of ADF test, which are not considered in Augmented Dickey-Fuller (ADF) test. Following equation is used by DF-GLS test:

$$\Delta y_t^d = \alpha y_{t-1}^d + \alpha_1 \Delta y_{t-1}^d + \dots + \alpha_{p-1} \Delta y_{t-p}^d + \epsilon_t \dots \dots \dots (3)$$

In the above equation of DF-GLS test, t represents time trend, y_t^d represents de-trended series and ϵ_t represents the error term.

After testing for stationarity, the next step is to investigate the long run and short run relationship. The model can be selected through Schwartz Bayesian Criteria (SBC) and Akaike Information Criteria (AIC). There are several econometric techniques to investigate the long run relationship among the variables.

Co-integration test includes Engle and Granger (1987) and Fully Modified Ordinary Least Squares (FMOLS) of Phillip and Hansen (1990) are uni-variate co-integration techniques and multivariate co-integration techniques include Johansen (1995); Johansen and Juselius (1990); and Johansen (1995). These tests are most commonly used to test for con-integration in the past but in recent years the Autoregressive Distributed Lag (ARDL) model approach, developed by Pesaran and Yongcheol (1995; 1998), and Pesaran *et al.* (2001) has become more popular and preferred to other conventional co-integration approaches.

In time series analysis, various techniques are used to test the relationship among the time series variables e.g. Engle and Granger (1987), Maximum Likelihood based, (Johansen, 1995) Johansen (1995) and Johansen and Juselius (1990) tests. But these tests had some drawbacks due to which a new approach (ARDL) was introduced by Pesaran and Yongcheol (1995), Pesaran and Yongcheol (1998) and Pesaran *et al.* (2001) are preferred for finding a relationship among time series variables. The superiority of this technique (ARDL) over other classical techniques is that it can be applied to time series data irrespective of the order of integration i.e. I (0) or I (1). Another

advantage of ARDL model is that it corrects the problem of serial correlation and endogeneity problems. However, the ARDL procedure collapses if the variable is integrated I(2).

ARDL is a two step procedure for investigating long run relationship, Pesaran *et al.* (2001). In the first step, long run relationship of the variables are checked and in the second step, long run as well as short run co-efficient of the variables are estimated. The ARDL testing procedure starts with a null hypothesis of no co-integration among the variables against the alternative hypothesis of existing relationship among the variables. In order to test the hypothesis, the calculated F-statistic is compared with the two sets of critical values tabulated by Pesaran (1997) and Pesaran *et al.* (2001). If the calculated F-statistic is greater than the upper bound critical value then we reject the null hypothesis of no co-integration and conclude that there exists long run equilibrium among the variables. If the calculated F-statistic is less than the lower bound critical value, then we cannot reject the null hypothesis. If the calculated F-statistic is in between the lower and upper bound of the critical value, then the results remain inconclusive. To choose optimal lag length for each variable, the ARDL method estimate $(p + 1)^k$ number of regressions, where p is the maximum number of lags and k is number of variables in the equation while the model can be selected either by Akaike Information Criteria (AIC) or by Schwartz Bayesian Criteria (SBC). Then long run relationship can be found using the selected ARDL model through AIC or SBC. In this study, we employed the Pesaran *et al.* (2001) procedure to investigate the long run relationship in the form of unrestricted error correction model as follows;

$$\begin{aligned} \Delta \ln(\text{EXP})_t = & \alpha_1 + \beta_1 \sum_{i=1}^n \Delta \ln(\text{EXP})_{t-i} + \beta_2 \sum_{i=1}^n \Delta \ln(\text{FDI})_{t-i} + \beta_3 \sum_{i=1}^n \Delta \ln(\text{REER})_{t-i} \\ & + \beta_4 \sum_{i=1}^n \Delta(\text{GDPG})_{t-i} + \beta_5 \sum_{i=1}^n \Delta \ln(\text{GDPW})_{t-i} + \beta_6 \sum_{i=1}^n \Delta(\text{RP})_{t-i} \\ & + \gamma_1 \ln(\text{EXP}) + \gamma_2 \ln(\text{FDI}) + \gamma_3 \ln(\text{REER})_{t-i} + \gamma_4(\text{GDPG})_{t-i} \\ & + \gamma_5 \ln(\text{GDPW})_{t-i} + \gamma_6(\text{RP})_{t-i} + \varepsilon_t \dots \dots (4) \end{aligned}$$

Where LnEXP is the total exports of the country in natural log form, LnFDI is the total foreign direct investment in the natural log form, LnREER is the real effective exchange rate in the natural log form, GDPG is the growth rate of the country, LnGDPW is the world's gross domestic product in the natural log form and RP is the relative prices. The parameters γ_i where $i= 1 \dots 6$ are long run coefficients and the β_i $i= 1 \dots 6$ are the corresponding short run coefficients of the ARDL model. We test the null hypothesis of no co-integration between the variables against the alternative hypothesis of there is long run relationship (co-integration) between the variables. Here the null hypothesis is given as: $\gamma_1=\gamma_2=\dots=\gamma_6=0$

In the second step, if there is evidence of long run relationship then the following long run model is estimated:

$$\ln(\text{EXP})_t = \alpha_1 + \sum_{i=1}^n \Phi \ln(\text{EXP})_{t-i} + \sum_{i=1}^n \beta_1 \ln(\text{FDI})_{t-i} + \sum_{i=1}^n \beta_2 \ln(\text{REER})_{t-i} + \sum_{i=1}^n \beta_3 (\text{GDPG})_{t-i} + \sum_{i=1}^n \beta_4 \ln(\text{GDPW})_{t-i} + \sum_{i=1}^n \beta_5 (\text{RP})_{t-i} + \varepsilon_t \dots \dots \dots (5)$$

In the third step, we employ the following equations in order to estimate the short run coefficients and the error correction model (ECM), which shows the pace of adjustment towards equilibrium;

$$\Delta \ln(\text{EXP})_t = \alpha_1 + \sum_{i=1}^n \Phi \Delta \ln(\text{EXP})_{t-i} + \sum_{i=1}^n \beta_1 \Delta \ln(\text{FDI})_{t-i} + \sum_{i=1}^n \beta_2 \Delta \ln(\text{REER})_{t-i} + \sum_{i=1}^n \beta_3 \Delta (\text{GDPG})_{t-i} + \sum_{i=1}^n \beta_4 \Delta \ln(\text{GDPW})_{t-i} + \sum_{i=1}^n \beta_5 \Delta (\text{RP})_{t-i} + \Psi(\text{ECM})_{t-i} + \varepsilon_t \dots \dots \dots (6)$$

5. RESULTS AND DISCUSSION

The Augmented Dickey Fuller Test (ADF), Dickey Fuller-GLS and Philip Perron tests have been applied to check the stationarity of the variables. The empirical results are reported in Table 3.

Table-3. Unit root test results

Variables	ADF		DF-GLS	
	Level	1st Difference	Level	1st Difference
Ln EXPO	-2.804639***	-6.985088*	-1.411382	-3.216045*
LnFDI	0.532410	-6.104462*	-2.070915**	-6.058249*
LnREER	-0.586831	-4.825069*	-0.653435	-4.204744*
LnGDPW	-1.277868	-4.274866*	0.453687	-3.205718*
GDPG	-4.587383*	-8.368644*	-3.102969*	-8.371277*
RP	-5.375883*	-5.330924*	-1.625228***	-4.042693*

* Shows significance at 1% level, ** at 5% level, *** at 10% level

The results indicate that LnEXP is stationary at 10% level of significance while GDPG and RP are level stationary. However, LnFDI, LnREER and LnGDPW are stationary after first difference.

The first step of ARDL bounds testing approach is to determine lag order. We have used Akaike Information Criteria (AIC) through unrestricted VAR model, and the results are reported in Table 4 suggests 1 is the optimal lag by using AIC.

Table- 4. Lag length selection by VAR

Lag	LogL	LR	FPE	AIC	SC	HQ
0	57.61356	NA	4.00e-08	-2.843976	-2.626285	-2.767230
1	246.5876	316.6592*	5.75e-12*	-11.70744*	-10.40129*	-11.24696*
2	271.3477	34.79794	6.29e-12	-11.69447	-9.299861	-10.85026

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error; AIC: Akaike information criterion

SC: Schwarz information criterion; HQ: Hannan-Quinn information criterion

After analyzing the results of unit root and long length selects we apply ARDL to check long run relationship among the variables.

Table- 5. Test for the long run relationship

Critical Value	F statistic	
	Lower bound I(0)	Upper bound I(1)
1%	3.60	4.90
5%	2.87	4.00
10%	2.53	3.59

Table CI (V) unrestricted intercept & unrestricted trend, (Pesaran *et al.*, 2001)

The empirical results of ARDL shows that F-statistic reported in Table 5 is greater than the upper bound, variables are co-integrated or there is long run relationship among the variables.

Table- 6. Long run co-efficients

Dependent variable: Ln(Expo)			
Regressors	Coefficient	t-Statistic	Prob.
LnFDI	1.369077	2.385471	0.0253
LnREER	-4.291866	-2.191511	0.0384
GDPG	11.69140	2.724618	0.0118
LnGDPW	-7.984787	-1.679610	0.1060
RP	15.02235	3.186989	0.0054
C	93.10000	2.116950	0.0448
R-squared 0.807071;	R-Bar-squared 0.710606		
F statistic 8.366496(0.000006);	Durbin-Watson stat 1.951566		

Table 6 shows the estimated long run coefficients. FDI has positive and significant affect on export performance opposite to that of earlier work of [Majeed *et al.* \(2006\)](#), for 75 developing countries.

Variables REER, GDPG and RP have significantly affected LnEXPO performance with their expected signs. However, we do not find any significant relationship between Pakistan's LnEXPO and world's income.

The results are contradictory to the earlier work of [Anwar \(1985\)](#). The difference in results is may be due to time period difference and also because he included world's income of only major trading partner of Pakistan. But now the trade relations of Pakistan have widened too much due to which we have taken world's GDP.

Table-7. Short run coefficients

Dependent variable: Ln(Expo)			
Regressors	Coefficient	t-Statistic	Prob.
D(LnFDI)	0.276386	0.587811	0.5619
D(LnREER)	-6.286670	-1.776315	0.0879
D(GDPG)	0.133597	1.497211	0.1469
D(LnGDPW)	-0.001766	-2.259732	0.0328
D(RP)	8.503998	3.338268	0.0026
C	0.970092	1.738153	0.0945
ECM(-1)	-0.436906	-2.705365	0.0121
R-squared	0.593248		
Adjusted.R-squared	0.414277		
Durbin-Watson stat	1.877651		

F-statistic	3.314774(0.00)
Short run Diagnostic tests	
Serial correlation 0.64 (0.53); Ramsey Reset test 1.74(0.19)	
Arch test 0.013 (0.90); Normality 1.01 (0.60); Heteroscedasticity 1.88(0.10)	

In Table 7, the short run affect of exogenous variables are presented. FDI and GDPG do not have any affect on LnEXPO in the short run. REER effect on LnEXPO in the short run is at 10% level of significance. Similarly GDPW and RP have affect on Ln EXPO performance at 5% level of significance.

However, the signs of coefficient of relative price are contradictory to economic theory. The lag estimated error correction term (-0.4369) is negative and highly significant. The coefficient of lagged error term confirms the convergence to long run equilibrium path at the rate of 43% per year.

The significance of lagged error correction term is further proof of co-integration. The results of short run diagnostic tests for several correlations like heteroscedasticity, normality and specification of the model are also presented in the above Table 5 which shows that model passed all the tests successfully.

Normality test (Jarque.bera 0.013) proves normality, Arch test confirms no autocorrelation. The results of Ramsey Reset test prove well specification of the model. Similarly there is no indication of heteroscedasticity in the model.

6. CONCLUSION AND POLICY IMPLICATIONS

The study investigates the impact of foreign direct investment on overall exports relation with FDI over the period 1971-2009. In this study, foreign direct investment is significantly associated with over all exports in the long run. However world' income is insignificantly linked with exports in the short run.

The long run results are opposite to that of earlier work (Anwar, 1985). The possible justifications for difference in results are different methodologies used and the difference in time period. Real effective exchange rate, economic growth and relative prices show significant association with export performance in the long run.

The short run behavior show different results. The coefficient of FDI is insignificantly linked with exports in the short run. However, real effective exchange rate, world's income and relative price show positive association with export performance. Now if the policy makers are interested in raising exports and apply policy tools through using channel of FDI, it can be done by raising FDI in the long run. However, in the short run FDI may not be an effective tool.

In terms of policy implications, this study recommends that for outward export orientation, the policy makers should formulate such policies which encourage total FDI receipts, especially FDI in the manufacturing sector and especially infrastructure based manufacturing sector.

REFERENCES

- Anwar, S., 1985. Export functions for Pakistan: Simultaneous equations approach. *Pakistan Journal of Applied Economics*, 4(1): 29-34.
- Atique, Z., M. Ahmad and A. Usman, 2004. The impact of FDI on economic growth under foreign trade regimes: A case study of Pakistan. *Pakistan Development Review*, 43(4): 707 –718.
- Dijk, V., 2002. The determinants of export performance in developing countries: The case of Indonesian manufacturing, Eindhoven Centre for Innovation Studies, The Netherlands Working paper 2.1.
- Djankov, S. and B. Hoekman, 1997. Foreign investment and productivity growth in czech enterprises. *The World Bank Economic Review*, 14(1): 49-64.
- Economic survey of Pakistan, (Various Issues) Government of Pakistan.
- Engle, R. and C. Granger, 1987. Co-integration and error correction representation estimation and testing. *Econometrica*, 55(2): 251-276.
- Falki, N., 2009. Impact of FDI on economic growth. *International Review of Business Research Paper*, 5(5): 110-120.
- Foreign Liabilities, Assets and foreign investment in Pakistan in various issues of State Bank of Pakistan.
- Goldberg, L. and M. Klein, 1999. International trade and factor mobility: An empirical investigation'. Staff Report 81, Federal Reserve Bank, New York, 22.
- Greenaway, D. and L. Katherine, 2000. Foreign direct investment and trade: Substitutes or complements? Preliminary Draft: 5.
- Helpman, E., 1984. A simple theory of international trade with multinational corporations. *The Journal of Political Economy*, 92(3): 451-471.
- Johansen, S., 1995. A statistical analysis of co-integration for $i(2)$ variables. *Econometric Theory*, 11(2): 25-59.
- Johansen, S. and K. Juselius, 1990. Maximum likelihood estimation and inferences on co-integration. *Oxford Bulletin of Economics and Statistics*, 52(2): 169-210.
- Majeed, T. Mohammad and E. Ahmad, 2006. Determinants of exports in developing countries. *Pakistan Development Review*, 45(4): 1265-1275.
- Pesaran, H., 1997. The role of economic theory in modeling the long run. *Economic Journal*, 107(440): 178-191.
- Pesaran, H. and S. Yongcheol, 1995. Autoregressive distributed lag modeling approach to cointegration analyses. DAE working paper series, # 9514, Cambridge University Press.
- Pesaran, H.M. and S. Yongcheol, 1998. An autoregressive distributed lag modeling approach to co-integration analysis, Chapter 11, in: Storm, S. (ed.) , *Econometric and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium* , Cambridge University Press.
- Pesaran, H.M., S. Yongcheol and R. Smith, 2001. Bound testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3): 289-326.
- Pfaffmiayr, M., 1996. Foreign outward direct investment and exports in Austrian manufacturing: Substitutes or complements? *Weltwirtschaftliches Archiv.*, 132(3): 501-552.
- Phillip, P. and B. Hansen, 1990. Statistical inference in instrumental variables regression with $i(1)$ processes. *Review of Economic Studies*, 57(1): 99-125.
- Sharma, K., 2000. Export growth in India: Has FDI played a role?. *Economic growth center, Yale University Center, Discussion Paper 816*: 17-18.

- Xuan, N. and Y. Xing, 2008. Foreign direct investment and exports: The experience of vietnam. *Economics of Transition*, 16(2): 183–197.
- Zarotiadis, G., N. Mylonidis and G. Krina, 2008. FDI and international trade relations: A theoretical approach. *International Trade and Finance Association Working paper* 31.

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