FDI-Export Nexus in Pakistan: A Time Series Analysis

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Abstract

This study aims at analyzing the relationship between FDI and export for the economy of Pakistan. Data used ranges from 1976 to 2012. In order to investigate time series property of data, ADF test was used. Besides, Engle and Granger (1987) residual based test, the Trace test and the Maximum Eigen value test, Hendry's Error correction model, Granger Causality Analysis, CUSUM and CUSUM of square test and Chow Break point test have been used. Results reveal the significant positive effect of FDI on export in the long run as well as in short run. Stability analysis suggests that estimates of long run relationship are stable in selected sample. On the basis of the findings, it is suggested that government should promote the FDI by providing trade benefits and tax exemptions so that the economy can boost and foreign investors are attracted to enhance export performance of Pakistan.

Key Words: FDI, Exports, Real GDP, Real Exchange Rate

1. Introduction

Seeking foreign direct investment for strengthening national economy is a general trend among all developing countries and Pakistan is no exception to it. Since its inception, all successive Pakistani governments have been supporting national economy through FDI, in addition to taking other relevant measures. However, inflow of FDI has unfortunately remained somewhat instable due to a number of factors. Similarly, another important contributor towards financial health is the national export which has also not been encouraging. Through this study, an effort was made to precisely identify the specific factors that have been responsible for making the FDI instable and also to establish the impact of FDI on exports.

There is a myriad of literature that has been discussing the determinants of economic growth for both developed and developing countries. Exports and foreign direct investment (FDI) are considered as main determinants of economic growth of a country. FDI is considered as a source of transfer of technology from developed to developing nation. FDI provides employment opportunities in host country. After transferring of technology, human capital has also been enhanced in the host countries. As the world is moving towards globalization, competition to attract FDI is increase among developing countries. In contrast, exports represent the production potential and economic welfare of the nation. Export led growth hypothesis is one of the well-known concept in this regard. With the passage of time, importance of foreign direct investment has been recognized in number of literature to enhance export performance of countries. Many studies have been conducted on the relationship between foreign direct investment and export performance. Some studies prove that the relationship is compliment. On the other hand, number of studies indicates negative association between FDI and exports. Like other developing countries, Pakistan is aggressively looking for FDI to enhance their export as well as growth performance.

From Figure 1.1 we can see that growth in FDI is highly volatile. On the other hand, export growth is more stable than FDI. Therefore, we cannot conclude any concrete conclusion on the relationship of FDI and exports in Pakistan. Thus, there is a need to empirically investigate the relationship between FDI and exports for understanding the role of FDI to enhance export performance in the country.

What is the role and nature of FDI in export performance of Pakistan? Whether the FDI is efficiency seeking or market seeking in the country? These are the basic research question.

This study aims at examining the impact of FDI on exports performance for the period 1976-2012 for Pakistan. Theoretically it seems that FDI has possible effects on export performance. If FDI is efficiency seeking (vertical FDI), it means it will promote country's exports. In case, FDI comes out to

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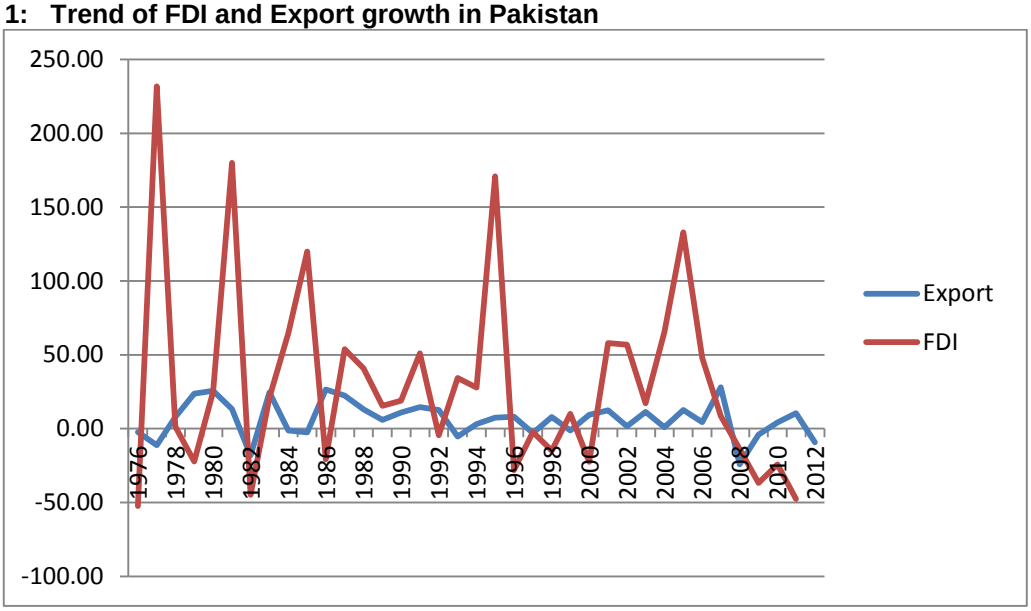
be market seeking (horizontal FDI), this captures domestic market and reduces exports of the country. However we need to check this phenomenon in the context of Pakistan's economy.

Figure 1: Trend of FDI and Export growth in Pakistan



Source: Author's Construction.

2. Literature Review

2.1 The Theoretical Framework

This section discusses theoretical arguments about the effect of FDI on the exports of the host country. The current section evaluates the process under which firms undergo to become an MNE. The theory of MNE has been used to study the process and its effect on the FDI decisions

FDI is the most important tool foreign trade. Since 1995 after the emerging of WTO the nations are improving their trade volume by acquiring resources. It is obvious that different nation having different production capacity and expertise in different field. FDI can be in the form of Greenfield and Brownfield. Greenfield investment is a form of investment in which the advanced capital abundant countries invest in the less developed countries in wholly new operations from the grassroots level. This form of investment provides several economic benefits such as employment opportunity, output growth, opportunity of choices, creates knowledge spillover and technological advancement. Potential to provide raw material for expected and actual exporter in result which enhances countries export earnings. On the other hand Brownfield investments is the repurchase and sale of existing entity to increase productivity of the given firms in order to satisfy the endogenous demand ,it not only full fill the local national market demand also gain international markets Charles W.L. Hill (2008).

The theory predicts that the inward FDI on a host country export impacts positively when the home and host country have different relative supplies of the factors of production. In this case, the MNE makes efficient use of the factors and outsource some of its production to be processed in the host country and import the intermediate production to the home country or any other country, for further processing. The process could be vice versa depending upon the cost advantage. The effects of FDI on the host country's exports cannot be understood unless we understand different types of integration in the multinational firms . The first type is horizontal integration. In this case, MNE makes use of the cost advantage by producing in multiple production facilities in different countries. The second type is vertical integration. In this case, different phases of production process are carried out in different countries. The horizontal firms are often the result of trade barriers such as tariff, or high costs of international logistics. MNEs need to either build an additional production facility in the host country or use the current plant in the home country to export to the host country.

FDI impacts export positively when MNE is vertically integrated. This is because the host country in this scenario has the best cost comparative advantage. And thus MNEs have greater export

incentive in exporting from the host country. Cavusgil and Naor (1987), Christensen et al (1987), Perkett (1963), and Tookey (1964) found that the size of the MNE is an important factor in its ability to export. The larger the organization, the more likely it is to export. However, competition in the local market also influences the firms. A near monopoly situation in the local market may discourage MNE to export back to home country. Da Rocha et al. (1994) also showed that smaller firms have greater incentive in serving other markets through export. Cooper and Kleinschmidt (1985) and Gripsrud (1990) also established a negative relationship between exports and the size of the firm.

The model of competition also explains why FDI is relatively more important than exports. There are a number of reasons under the oligopoly competition, including; 1) High cost of logistics and tariff, 2) relative firm level economy of scales and 3) similar countries in terms of size and factor endowments (Markusen and Venables1998; Markusen2002). The vertical integration takes place if the countries have significant factor- price differences and different stages of production support the factor intensities. Since the intermediate product is exported back to the home country, it has a direct positive effect on the host country's export (ZhangandMarkusen1999;Markusen 2002).

In addition to the theory of MNEs, there are other factors that influence FDI and the export of the host country. The exports of the foreign MNEs in the host country have significant side -effects that influence the export capability of the host country indirectly. It also depends upon the initial investment in technology and human capital by the MNEs and how does the local market respond to it through competition and also how do the government policies promote linkage between local and foreign firms (Girmaetal, 2007; Barrios et. al, 2005). Helpman (2004) also mentioned that MNEs are more productive and compete with other exporters in the host country. This competitiveness may be the result of unique production process, advanced products (Girmaetal.2007;Markusen2002).

As a result of the transfer of technology and knowledge from foreign firm to local market, knowledge spillover takes place. Therefore, when a multinational enterprise transfers its more competitive resources to its subsidiaries in domestic economy, a knowledge spillovers occurs to firms in domestic economy. This indirect effect is the result of FDI and local companies can thus copy these unique assets of the MNEs.

MNEs can also help the local firms in the host country to gain market share in their home country for favorable gains by the government of the host country (UNCTAD, 1999). It helps local firms gain market access and a possible link between local suppliers and foreign market is likely to be developed.

2.2 Empirical Literature

There are many past researches that studied the relationship between Export and FDI of the country. These researches concluded mixed results regarding this relationship. Anofienem and Osabuohien (2016) examined the impact of FDI and infrastructural development on non-oil exports in Nigeria for the period 1981 to 2014. It was noticed that FDI promoted national investment which is essential for the economic development. The study revealed that substance of FDI influx in Nigeria goes to the oil sector instead of Non-oil. Therefore it has a negative impact of non-oil exports of Nigeria. Pandya (2016) investigated political economy of Foreign Direct Investment and Globalized Production in the Twenty-First Century for the last twenty years; the investigation revealed that during this period, FDI inflow was particularly towards developing countries. It was also discovered that the MNCs preferred to invest in the countries where property rights are protected.

Sharma and Kaur (2013) discussed the relationships between FDI and trade in India and China. This study employed Granger causality and found bidirectional causality of FDI and exports. Javed et. al, (2012) investigated the relationship between FDI, growth and export in 4 South Asian countries (Bangladesh, India, Pakistan and Srilanka), by using panel data of 38 years i.e. from (1973 to 2010). FDI was used as dependent variable where as growth and export were taken as independent variables. GMM method was used and the result indicated that there was direct relation between FDI, export and growth.

Siddiqui and Ahmed(2012) investigated the linkage between FDI and current account by using co integration technique and Granger causality test on quarterly data of Pakistan from (1976 to 2005). Resultindicated that there was a long run unidirectional causality exist. Fransco (2012) investigated productivity effect in recipient countries of FDI using data from 1990 to2001. In this paper data of sixteen

OECD countries are used, Result indicates that FDI inflow increase the export potential of the country where the FDI has been taken place.

Andraz and Rodrigues (2010), identified the causes of economic growth in Portugal, taking factor such as FDI and export. Data was taken from (1997 to 2004). Unit root test, granger causality test and co-integration technique is used and result indicated that FDI promotes growth in short-run whereas in long run there is bidirectional causal relation between FDI and growth and a unidirectional relationship between FDI and export.

Iqbal (2010) examined a relation between trade growth and FDI for economy of Pakistan. This study employed quarterly data ranging from 1998 to 2009, using VAR and co-integration model, study found a long term relation between exports and FDI. Granger causality showed bidirectional causality among FDI, exports and economic growth.

Kok and Ersov (2009) identifed the determinant of FDI in developing countries, by using two data sets; first from 1983 to 2005 and second from (1976 to 2005). FMOLS (fully modified OLS) test was applied on first data set and SUR (seemingly unrelated regression) technique was used for second data set. The data was taken from 24 developing countries; the results indicated that FDI interaction with FDI determinant like trade has a strong positive effect whereas FDI interaction with total debt service, GDP and inflation has a negative impact.

Yousufet al. (2008) also empirically investigated the impact of FDI on import and export in Pakistan utilizing annual time series data of 32 years i.e. from 1973 to 2004. Results of Johansen-Juselius co-integration and error correction model specified positive impact of FDI on export in long run while negative association was found in short run. In another study, Kimura and Kiyota (2006) identified the relationship between FDI export and firm productivity in Japanese firms. Data was taken of more productive firms, medium productive firms and less productive firms of Japan. Most productive firms go on with FDI and export and medium productive firm go with either export or FDI, whereas low productive firm go with domestic market. Results indicated that FDI and export result in high productivity.

Mekki (2005) inspected the association between foreign direct investment and export using the industry level data of Tunisia. Results of the manufacturing sector found positive relationship between FDI and export whereas negative relationship in some prime sectors of Tunisia. Hsiao (2006) identified the relationship between east and South Asian countries. Time series and panel data was used of 8 countries of East and South Asian countries from (1986 to 2004). Granger causality technique was used. Export, FDI and growth were the variables used. Result indicated that there was unidirectional effect of FDI on export and growth whereas there is bidirectional effect between growth and exports.

Head and Ries (2003) identified heterogeneity and FDI versus export decision of Japanese manufacturing firms. Data of 1070 big manufacturing firm of Japan was taken. Result indicated that due to no cost advantage, the firm that invests out of country and the export are more productive as compare to the firm that only export. Head and Ries (2002) identified the relation between overseas investment and export, using 25 years panel data of 932 manufacturing firms of Japan. They observe a positive relation between FDI and exports. Zhang and Felmingham (2001) identified relationship among FDI and exports. Monthly time series data was used from (1986 to 1999), having Export and FDI as research variables; co-integration /error correction modeling technique were used. Finding revealed a positive relation between exports and FDI in provinces and cities.

Zhang and Song (2001) identified the role of FDI inflow and export in China. Panel data at provincial level used from (1986 to 1997).FDI and export are the variable used. Results indicated that FDI have strong positive effect on export in manufacturing firms provincially. Gopinath et al. (1999) also studied the impact of foreign direct investment on export of food processing industry considering the pooled data from 1982 to 1994 of ten developed countries. Results from time series cross-section regression (TSCSREG) procedure find negative significant impact of FDI on export and conclude the presence of sub substitute relationship between the variables.

Singh and Jun (1995), identified the determinant of FDI in developing countries. FDI, political risk, business condition, macroeconomic variable and export were the variable used. Regression analysis and granger causality test were done. Finding revealed a positive relation between exports and FDI. Jeon (1992) found negative relationship between foreign direct investment and export.

Svensson (1996) analyzed the Swedish firms and found negative relationship between FDI and export performance.

3. Methodology

Quantitative data was required for this type of study on finding the impact of FDI on Export performance in Pakistan. As relationship between FDI and Export could be measured quantitatively therefore quantitative data was taken from 1976 to 2012. The contribution of the study is 'to identify whether FDI is the market seeking or efficiency seeking force in Pakistan? Hence the policy makers silhouette policy accordingly, to promote export performance of Pakistan. The model to estimate the effect of export on the growth of an economy in the presence form defined below:

$$EXPT_t = \beta_1 + \beta_2 RGDP_t + \beta_3 RER_t + \beta_4 FDIGDP_t + \beta_5 EXPT_{t-1} + U_t$$

Where; U_t is the error term, EXPT is the real total Exports of the country, RGDP is of Real GDP at constant price 2000, RER is the real exchange rate and FDIGDP shows FDI as a percentage of GDP. In the above equation the coefficient of RGDP and RER are expected to be positive, however the coefficient of FDI is to be determined.

Time series data of 37 years was used to find out the impact of FDI on Export growth from 1976 to 2012. The data was compiled from the different issues of Pakistan economic survey. All variables were used in logarithmic form. To analyze the data, different statistical test have been used for checking the relationship and responsiveness. In this study the Augmented Dickey Fuller (ADF) statistics, Eagle and Granger (1987) residual based test, the Trace test and the Maximum Eigen value test, Hendry's Error correction model, Causality Analysis, CUSUM and CUSUM of square test and in the last the Chow Break point test were used.

4.1 Results and Findings

ADF test is applied on the data for both level and 1st difference form. Results of ADF test are given in table 4.1.

Table 1: ADF Test

Variable	ADF test Statistics			
	I(0)		I(1)	
	C	C&T	C	C&T
LEXPT	-1.54	-1.42	-6.58	-7.10
LRGDP	-2.48	-1.60	-4.95	-5.93
LRER	-0.72	-1.13	-8.95	-8.86
LFDIGDP	-1.64	-1.82	-6.32	-6.58

The results in Table 1 confirm that all variables are non-stationary at levels and stationary at 1st difference showing the possibility of existence of long run relation among the variables.

Table 2: Determinants of Exports in Long Run

Variable	Coefficient	t-Statistic	Prob.	VIF
C	1.994	1.171	0.250	-
LRGDP	0.333	1.783	0.084	7.59
LRER	0.208	2.332	0.026	5.43
LFDIGDP	0.067	1.909	0.065	4.14
LEXPT(-1)	0.426	2.706	0.011	6.12
Adj. R^2	0.980	**F-Statistics**	430.64	
D.W	1.551	**Prob.**	0.000	

The coefficients of GDP and RER reveal hypothesized sign and are statistically significant. All VIF values are less than 10 that show no multicollinearity in the model. The value of correlation between FDIGDP and RGDP is 0.37, which also indicate that independent variables are not correlated.

Breusch-Godfrey Serial Correlation LM Test: Lag 2

F-statistic	2.056434	Prob. F(2,29)	0.1462

Value of DW is 1.55 so we apply Serial Correlation LM Testto confirm autocorrelation. F-stats (2.056) and its prob (0.146) value shows that the auto correlation does not exist in the model. The results of Johansen and Juselius (1990) test are given in table 3.

Table 3: Trace & Maximum Eigen Table

Null Hypothesis No. of CE(s)	Trace Statistics	5% critical Values	Max. Eigen Value statistics	5% critical Values
None	76.632	40.174	52.382	24.159
At Most 1	24.250	24.275	14.772	17.797
At Most 2	9.478	12.320	9.305	11.224
At Most 3	0.173	4.129	0.173	4.129

Johansen cointegration test reveal the presence of one cointegrating vector. The findings of ECM are given in table 4.

Table: 4: Results of Error Correction Model

Variable	Coefficient	t-Statistic	Prob.
C	0.0009	0.0195	0.984
D(LEXPT(-1))	0.6609	2.2454	0.034
D(LEXPT(-2))	-0.5818	-0.3427	0.734
D(LRGDP)	1.1225	2.5133	0.019
D(LRGDP(-1))	-1.0086	-2.2165	0.036
D(LRER)	0.3598	2.2803	0.031
D(LRER(-1))	-0.0925	-0.5224	0.606
D(LFDIGDP)	0.0937	2.3278	0.028
D(LFDIGDP(-1))	0.0580	1.5551	0.133
ECM(-1)	-0.9782	-2.8478	0.008
Adj. R^2	0.460	**F-Statistics**	4.127
D.W	1.998	**Prob.**	0.0026

The above results confirm that FDI has significant positive effect on export in short run. The coefficient of error term has expected negative sign and highly significant. equilibrium value. Similarly results of Granger causality test are given in table 5.

Table 5: Causality Analysis Result Table

Variables	F-statistics	Prob.
LFDIGDP does not Granger Cause LEXPT	2.180	0.093
LEXPT does not Granger Cause LFDIGDP	3.175	0.028

The granger causality results confirm bi-directional causal relationship between FDI and exports in the country. The stability of long run estimates is evaluated by using the cumulative sum (CUSUM) and CUSUMSQ.

Figure 2 shows that coefficient is statistically unstable in the year 1985.On the other hand figure 3 CUSUM of square suggest stable coefficient throughout the sample period . Chow break point test has been used to confirm the results of CUSUM and CUSUM of square root.

Figure 2

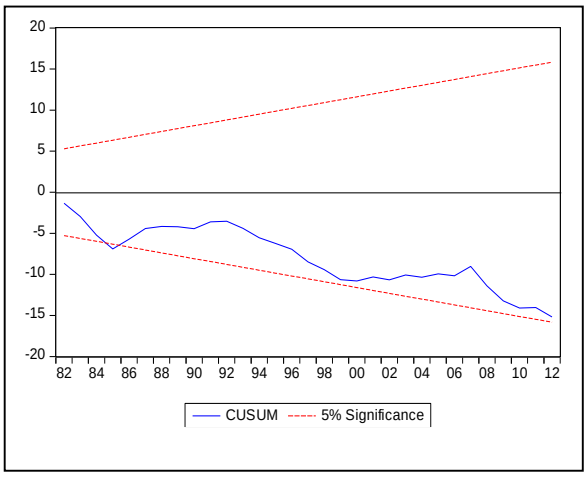
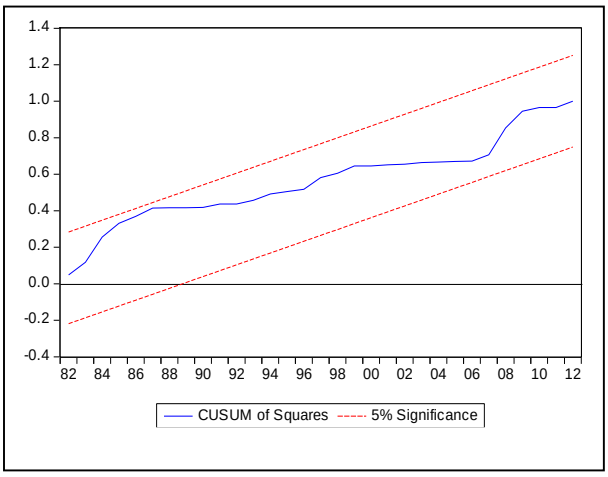


Figure 3



F-statistics of Chow test is 1.27 and its probability is 0.3041, which shows that there is no structural break and coefficients are stable.

5. Conclusion and Recommendations

This study has examined the relationship between FDI and Export in Pakistan by employing annual time series data 1976 to 2012. In this study export function has been used. Real GDP and relative price were used as core determinants. In addition, FDI has been added to find the relationship between FDI and export. Co-integration results confirmed significant positive relationship between FDI and export in long run; in contras, result of error correction model also showed positive relationship between FDI and export in short run. Stability analysis suggests that the coefficients are stable in long run. In addition Granger causality indicates bilateral causal relationship between FDI and export. A number of studies showed positive significant relationship between FDI and Export performance; Fransco (2012); Head and Ries (2002); Zhang and Felmingham (2001); Singh and Jun (1995) and are similar to this study.

On the basis of above findings, it is suggested that Govt. should promote the export by providing trade benefits and relief in taxes so the economy can boost. Green field investment is also suggested to enhance export performance in Pakistan.

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