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Impact of Foreign Direct Investment on Exports: A Case Study of Pakistan

Abstract:

During past two decades Foreign Direct Investment (FDI) has become a key element of growth strategies of many developing countries around the world. In many respects flow of foreign capital in terms of FDI, as compared to foreign aid, has been much more effective as a source of transfer of technology, modern managerial skills and creating international marketing linkages. In view of the extended role of FDI in the economic growth, an analysis of impact of FDI on different economic variables has received global attention. The analysis of impact of FDI on exports of a host country is one such aspect being widely explored by the research scholars as well as different economic organizations. This paper examines the impact of FDI on exports of Pakistan at macro level using standard econometric techniques. In the study special attention has been paid to select the most appropriate time series data to minimise the likely distortions resulting from political and economic instabilities in the country. The results provide statistically significant evidence of positive impact of FDI on exports of Pakistan.

1   Introduction

Foreign Direct Investment (FDI) has, to a large extent, replaced foreign aid as a source of finance for developing countries to bridge the conventional two gaps i.e .savings-investment export-import gap. In the process FDI, instead of confining the production only to home country (or few developed countries), has globalised the production. As a result the total production by multinational is now significantly contributing towards the Gross Domestic Product (GDP) at world level. Currently, multinational corporations also dominate the world trade because of their preference for intra multinational forms of trade. This trend might change over the years as enterprises of developing countries also attain technological and managerial maturity.

While growing and stable economies could attract multinationals to invest without much incentives, most of developing countries have to attract, at least at initial stage, by offering a number of incentives (particularly tax holidays) besides having conducive investment environment for FDI such as political and macroeconomic stability; liberal market driven trade, investment, and exchange rate policies and an overall friendly attitude towards foreign investors. FDI, in turn, is expected to bring the much desired investment, introduce new management and labour skills, better marketing techniques

(particularly linkages with world markets), introduction of new production techniques, introduction of new products, promoting exports, generating revenue by paying taxes to the government, creating employment opportunities etc.etc.

A somewhat failure of foreign aid at and other modes of transfer of capital from developed to developing countries to achieve the objective of sustained high GDP growth rate have also motivated the developing countries to attract FDI. As a result of friendly FDI policies in many countries during 1990s FDI growth around the world was over three times higher than trade (see for further discussion Meyer, 2003). It is important to mention that flow of foreign capital (including FDI) has also been considered a major cause of aggravating in many developing countries the current account deficit of balance of payments. The explanation for is most often very simple. While loans have to be repaid along with interest, FDI is associated with repatriation of profit. Interest payment on foreign loans and profit repatriated by the foreign firms certainly aid to current account deficit. In the context of FDI Thrilwall (1983 : 306) ,with the help of very simple example, argued that how with a 20 percent rate of return on investment the net outflow of profit would exceed the inflow of FDI by the end of fifth year. His hypothetical case shows that the accumulation of foreign assets exponentially increases the repatriation of profit. However, this is an over simplification of impact of FDI on current account balance of payments. It does not take in to account the likely savings of foreign exchange by way of import substitution and increase in exports directly as well as indirectly and likely increase in imports. (The impact of FDI on exports only is being investigated for Pakistan in this study). Calov et.al (1996) in his empirical study has observed that in many developing countries current account deficit has coincided with the inflow of FDI. Similarly, UNCTAD (2002) unambiguously mentions that an unregulated inflow of FDI could lead to serious balance of payments problem primarily because of excessive imports by multinationals and repatriation of profit. Despite these kind of apprehensions, FDI has now almost universally considered as an important instrument for rapid economic growth and transfer of technology. Moreover, instead of comparing only with repatriation of profit the impact of inflow of FDI is investigated on a much wider scale, such as GDP growth, transfer of technology, employment, distribution of income, government revenue, exports, imports, current account deficit, and integration with global economy etc.etc.

Pakistan has historically heavily relied on foreign aid to fill the conventional two gaps i.e. exports-import and savings-investment gaps. In fact for a number years the outflow of capital on this account has exceeded the inflow. Moreover, the flow of foreign aid from donor counties (particularly the major donor USA) has been highly politically motivated rather than guided by the economic growth strategies of Pakistan. As a result the objective of achieving long term sustainable economic growth with the foreign assistance could not be achieved.

In view of uncertainty in flow of foreign aid, rising external debt servicing, low domestic savings and persistence current account deficit, Pakistan started in late 1980s an aggressive policy of attracting Foreign Private Investment (FPI). It is, however, important to mention that FPI has been coming to Pakistan even in 1950s and 1960s though there was some concern as the repatriation of profit was exceeding with a big margin from inflow of FPI (see Griffin 1965: 616-617 and Planning Commission, Government of Pakistan's Fourth Five Year Plan document : 69). It was, however, in

1997 when Board of Investment. Government of Pakistan prepared for the first time a comprehensive foreign investment policy package to attract FDI. Salient features of this policy are as following:

a) Almost all the sectors (including agriculture, services, infrastructure, and social sectors) were opened for foreign investment allowing full repatriation of profit and investment.

b) Manufacturing sector prioritised in terms of ; (i) Value Added or Export Industries (e.g. exporting more than 80 percent of the product or having minimum value addition of 40 percent; (ii) High-Tech Industries (including solar, aeronautical, space, defence and information technology); (iii) Priority Industries (i.e. engineering, capital goods, chemical); and (iv) Agro Based Industries such as edible oil, seed production, livestock, poultry, feed, milk processing etc.

c) Change in labour laws favouring investors.

d) Relaxation in visa policy for foreign investors.

e) Rationalisation and reduction in taxes.

Successive governments have maintained these policies except a temporary restriction imposed on foreign exchange accounts during 1998 when sanctions were imposed on Pakistan after it it exploded nuclear devices. These policies did achieve the desired result and FDI increased many fold in the coming years. (For a very good and comprehensive overview of FDI policies of Pakistan see Khan and Khan, 2011).

The impact of FDI is multidimensional. A lot of literature is continuously emerging in this area. Initially, in view of success stories of some countries, a major thrust was to see the impact of FDI only on GDP growth. However, now it has been realised that the impact of FDI is much more complex with significant difference in its impact on different economic variables in different countries and FDI coming from multinationals of developed (e.g. Japan, Germany, USA) and newly emerging economies (e.g. South Korea, Taiwan, China). (This issue would be further discussed under Literature Review). As a result a number of studies have been conducted (and are being conducted) to analyse the impact of FDI on a much broader scale as productivity, current account deficits, exports, imports, different sectors of the economy, employment, distribution of income etc. etc. This paper attempts to analyse the impact of FDI on Exports from Pakistan. For this purpose the paper has been organised as following:

- Literature Review

- Data and Data Analysis

- Conclusion

2 LITERATURE REVIEW

As already noted research to analyse the impact of FDI on different economic variables has expanded exponentially during past decade. Jayachandran and Seilan (2010) provide a brief review of a number of studies discussed under following three categories:

(i)   FDI inflows Trade and Economic Growth;

(ii)   FDI inflows and Economic Growth; and

(iii)   FDI inflows and Trade

While a kind of consensus is emerging that FDI has a causal relationship with a number of economic variables, interestingly there is a very visible variation in terms of the extent of impact, direction of impact and in some cases having positive or negative association with the same variable in different countries. This clearly shows that it would take some time to have an appropriate and acceptable theory of impact of FDI on different economic variables.

Zhang (2005) in a comprehensive study, based on full sample of different kinds of industries, indicates that FDI contributed about 57 percent in export from China. According to him '*FDI have the predominant influence on China's export performance,………… In all cases, the FDI variable has relatively large and statistically significant coefficients* [as explanatory variable for exports from China] *(p/1)'.* This is a very convincing recent evidence of positive and strong impact of FDI on exports. However, there is a need for further investigation to see whether FDI could be considered as the sole factor for increasing exports by such a big margin. It is well known that   China has traditionally used its undervalued currency to promote exports (and FDI is benefitting from the policy). In addition undervalued currency has a positive impact on FDI as it reduces the cost of FDI in foreign currency and protects it from external competition in the host country. China is also experiencing a very high GDP growth for more about two decades and its export sector is a kind of leading sector for achieving this high GDP growth rate. In other words China would be dependent on rest of the world for its high GDP growth on two accounts i.e. FDI and exports. It would, however, require a much more intensive investigation to find out the real contribution of FDI. The dependency of China's export (and GDP growth) on FDI to such an extent might become a sign of weakness rather than strength. Moreover, foreign firms might be investing in China to use its export led growth policies as an incentive for investment to export rather than producing for domestic market. China has intelligently guided foreign firms to export rather than to concentrate on domestic market. In other words it would be misleading simply to conclude that FDI in itself is a major policy instrument of China for promoting exports. Despite these observations, the study clearly demonstrate that FDI could be a powerful instrument for strengthening the export sector of an economy if it is provided a supportive and friendly export oriented long term policy package.

Sharma (2000), using annual data (1970-1998), in a simultaneous equation model, did not observe a statistically significant relationship between inflows of FDI and exports of India. The study indicted other factors (e.g. exchange rate) are more important in promoting exports. In other words, FDI in India has primarily met domestic demand rather than exporting. Interestingly, in   another study by Kuntluru et al.(2012) observed a negative relationship between FDI inflow and Pharmaceutical Exports from India. There is, however, no further explanation in the study for this rather unconventional negative relationship. One possible explanation could be that the raw material exported by the pharmaceutical industry is now being consumed by the foreign firms for production final products consumed locally. As a result there is decline in export of raw pharmaceutical products. There is a possibility that after meeting domestic demand of final pharmaceutical products these foreign firms will also export the surplus and gradually eliminate the observed negative association between FDI and export of pharmaceutical products from India. Moreover, there is a need to conduct a study at enterprise level,

find sources of raw material of FDI in pharmaceutical industry and investigate any change in the structure of exports of pharmaceutical products from India. A hasty conclusion of negative relationship between FDI and exports of pharmaceutical products, without adequate explanation, could be misleading. Anyway, such a result is another indicator of complex nature of impact of FDI on different economic variables in different economies making it more difficult to develop a common policy package for all the countries and all the sectors of the economy.

In case of Pakistan, Siddiqui et al. (2007) found a long term unidirectional negative relationship between inflow of FDI and current account of balance of payments (CAB). In the short run inflow of FDI has, however, shown no relationship with CAB. The long term negative effect is obviously could be the result of repatriation of profit arising from cumulative FDI. However, the study has not examined the impact separately on major elements of CAB e.g. exports, imports. Yousuf et al. (2012) empirically analysed the impact of FDI and found a negative relationship between FDI and exports. Uzmah et al. (2012) also indicated a statically weak but positive relationship between FDI and exports. A common weakness of these studies is neglecting the major economic disruptions taking place in Pakistan during the period for which the data has been analysed.

In over all terms the results of various studies examining the relationship between inflow of FDI and external sector (and its components) of Pakistan are not symmetrical. The results are widely different in different studies. Following seems to be the reasons for these variations:

  (i)   Firstly, the difference in the size of sample and the period for which data has been analysed.

  (ii) Secondly, none of these studies, as already mentioned, have made an effort to select a 'normal' period which is free from major economic disruptions such as strong inward looking government policies, overvalued exchange rate, breakup of the country, nationalization of private sector enterprises etc.etc.

There is, therefore, a need to analyze the impact of FDI on exports of Pakistan by explicitly taking into account these factors or selecting a period where such disruptions minimal. This important aspect has been fully explained in the present study and discussed in sufficient detail in Data and Data Analysis section.

3 DATA AND ANALYSIS

FDI inflow has started soon after creation of Pakistan. However, during the period 1950 to 1980 the country has confronted major economic and political disruptions. It is unlikely that data for this entire period would provide a realistic economic relationship between FDI and exports. As already discussed, a randomly selected data in different studies, despite using same analytical methodology, did not produce consistent and identical results. Therefore, the rationale of not including the period before 1980 has been briefly explained below/

Though somewhat arbitrary, but based on some common features and events, the economic history of Pakistan could be classified for the periods:

  -   1950 to 1959;

- 1960 to 1970 ;

- 1971 to 1979; and

- 1980 onwards.

After independence in 1947 the initial three years were primarily devoted to rehabilitation and overcoming the basic distortions of the economy caused by the partition of sub-continent as Pakistan and India. The decade 1950 to 1960 was the period of economic consolidation with heavy emphasis on Import Substitution Industrialization (a very popular economic growth strategy that time for rapid industrialisation and economic growth). Consumer goods industry was the target sector for starting the process of industrialization. During this period little attention was paid to manufacturing exports. A trade surplus of about $339 million was achieved during 1950 to 1955 by strict control on imports further boosted by the Korean War resulting significant high prices for raw cotton and jute exported from Pakistan. Under the Import Substitution Industrialization (ISI) policy of the Government, implemented with the help of strict control on imports and overvalued exchange rate, it was more attractive to invest and produce goods for domestic market rather investing in export oriented industries. There was hardly any role of FDI during this period in the economic growth strategies of Pakistan. The inflow of foreign capital (in terms of official foreign aid and not FDI) for increasing domestic investment had just started. Power (1963) provides an excellent analysis of the process of industrialisation for this period.

As a result of regime change (army take over in 1959) and flow of Foreign Aid from USA resulted in a significant increase in investment and GDP growth (above seven percent per annum) from 1960 t0 1965. Private sector with the support of direct government intervention, foreign aid and rigorous planning (Second Five Year Plan, 1960-1965) was used as an engine of growth. Exports during this period were encouraged through a mechanism of Export Bonus Scheme which was a kind of multiple exchange rate. Pak Rupee was, otherwise, highly over valued and discouraging all kinds of exports. Thus increase in exports was more dependent on government targeted promotion policy rather on some fundamental economic relationships. As against 1950s there was a major shift in investment policy .During 1960 to 1965 the share of foreign capital (as bilateral and multilateral aid) in total investment reached to 40 percent as against only about 14 percent during 1954-55. But despite this heavy reliance on foreign capital, FDI was not in picture as a tool for economic growth. War with India in 1965 brought a major disruption in flow of foreign aid and also forced the government to re-allocate its resources during Third Five Year Plan (1965-1970). The GDP growth was still impressive (about six percent per annum) during this period. However, the destruction of war significantly changed the growth momentum and also resulted in massive public unrest which ultimately ended with the separation of East Pakistan (now Bangla Desh) after another war with India in 1971. The separation of East Pakistan and cost of war fundamentally changed the whole economic fabric of Pakistan. The decade of 1960s for Pakistan was very abnormal and without significant inflow of FDI. Therefore, directly linking exports with FDI for this period would certainly produce unreliable results and misleading conclusion.

The decade of 1970s was also not a normal period. The separation of East Pakistan (now Bangla Desh) had totally changed the basic economic structure of Pakistan built during 1950s and 1960s. The regional trade between East and West Pakistan was a major instrument of economic growth strategies.

East Pakistan (now Bangla Desh) producing Jute (a major export item (and a major source of foreign exchange for financing imports), and with half of Pakistan's total population , a big market for the textile industry established behind the protective walls of Import Substitution Industrialisation policy during past two decades. The separation of East Pakistan forced the textile sector to look for other external markets for its survival. The incoming government of Pakistan Peoples Party went for massive nationalization of almost all industrial and financial enterprises of domestic private sector. This was another big blow to the private sector. It is, however, important to mention that no foreign enterprise was nationalized. This could be considered a friendly gesture towards FDI, though it was because of danger of reprisal from the courtiers of origin of these enterprises. Despite this, somewhat, positive attitude the nationalization halted the momentum of growth of private sector and strongly discouraged both domestic and foreign firms to invest. Another important policy change was a devaluation of Pak Rupee by 56 percent and abandoning the instrument of Export Bonus Scheme used for promotion of manufacturing exports from 1959 to 1971. The devaluation significantly changed the volume and structure of exports. The diversion of two major items (i.e. textile manufactured and rice sold in domestic market of 'East Pakistan' before disintegration of the country) to international market was made possible by the devaluation. The takeover by another Military Regime in 1977 and policy of privatization, (of units nationalized in early 1970s) was a kind of complete reversal and major change of economic policy of the past government. Thus the whole decade of 1970's was plagued with economic uncertainties for private sector. There was hardly any incentive and attraction for foreign investors to bring major investment in Pakistan during this period. The domestic private sector was also much interested to regain its control of the nationalized industrial units rather than to make further investment and bring FDI as joint venture. Apparently there is hardly a rationale to investigate (and expect) linkages in FDI and exports for this period.

It is important to mention that a number of studies have been conducted about Pakistan exploring the impact of foreign capital on different economic variables (e. g. GDP growth, savings, investment) for the period 1950 to 1980. All these studies have analysed only the impact of foreign economic assistance and not FDI. This is an indicator of insignificant and very little inflow of FDI. (See for example, Griffin 1965, Islam 1972, Brecher and Abbas 1972, Baqai and Brecher 1973, Awan, 1980, and Noman, 1997 /pp135-166).

In order to avoid the influence of the events briefly described above, for the present study data has been, therefore, used from 1980 to 2012. During this period, despite political changes (and a military takeover in 1999), consistency and continuity in policies towards private sector (particularly FDI) have been maintained by successive governments. (For a brief review of FDI policies of Pakistan see Khan and Khan, 2011). This is, to a large extent, a normal economic period over which foreign investors are expected of taking long term view to invest in Pakistan. A substantial increase in FDI inflow during this period supports this hypothesis. Government of Pakistan is now firmly committed to its FDI policies prepared and implemented by Board of Investment, Government of Pakistan. Moreover, the sample period of 32 years is also large enough for a meaningful statistical and econometric analysis.

For data on FDI and exports the study has basically relied on official documents of State Bank of Pakistan, Ministry of Finance and Board of Investment of Government of Pakistan. All the data is in current Million US $. Table-1 (and figure-1) provides an overall inflow (net) of FDI and volume of

exports. It would be seen that net FDI has been continuously growing since 1980 and peaking during 2006-2007 (crossing $ 5 Billion per annum). A downward turn after 2007 seems to be the result of poor law and order situation and power shortage in the country. Exports, despite showing a long term upward growth, have never been impressive on trade account of balance of payments. On yearly basis coefficient of correlation between FDI and exports is 0.73 (also see Figure-1 for movement of two variables). Data, with little further simple descriptive analysis is presented in Tables 1 and 2 and Figures 1 and 2 .

FDI is highly concentrated in three sectors (i.e. Oil and Gas, Communication and Financial Sectors) of the economy (see Table-2 and Figure-2). These three sectors have attracted 67 percent of total FDI during 1980 to 2012. It is important to note that none of these sectors have a significant direct contribution in exports of Pakistan.

Before explaining the methodology of data analysis it is important to understand that how FDI could possibly affect exports. Blomström (1996) provides a brief but comprehensive review of the theoretical rationale of the effect of FDI on host countries (including exports). One linkage is explained in terms of standard theory of international trade where FDI increases marginal productivity of labour along with reducing marginal productivity of capital (a natural outcome of increase in supply of capital). FDI is thus a potential source of supplying modern capital intensive technology for developing countries like Pakistan, to produce better quality and kinds of products for international market. Thus FDI could simultaneously accelerate GDP growth and exports. Moreover, FDI also add to competition for domestic firms and force them to adopt efficient methods of production of international standards. The second approach (linking FDI with exports) emphasise the peculiar nature of multinational corporations (MNCs) possessing better managerial and organisational skills which are used more profitably in the host country (as compared to their own country) and exporting the product(s) in the already established markets. In the context of these two theoretical approaches Blomström (1996) concludes that while these theories are not mutually exclusive and ultimate impact of FDI in both cases would be the same, the transmission mechanism of impact is, however, different as following:

a) Trade related theories provide rationale to see direct impact of foreign private investment (both FDI and portfolio investment) on factors productivity, employment, capital flow etc.

b) Industrial organizational approach seeks indirect impact of FDI through creating forward and backward linkages, diffusion of technology, bringing new skills and knowledge, changing market structures and increasing competition in the host economy.

As discussed in Data section above, the focus of present study is to find the impact of FDI on exports broadly in a macroeconomic frame work where FDI is taken as independent and exports as dependant variable. In view of the limited scope of the study other possible variables such as real exchange rate, world GDP and GDP growth etc. have not been included in the econometric model explained below.

As already discussed, whatever is the rationale and explanation of impact of FDI (explained as 'a' and 'b' above) normally it is expected to have a positive relationship between FDI and exports. There might be, however, exceptions as revealed by a study for India (see section on Literature Review). And if such investment is too large (or there are many such cases) then the overall resulting impact of FDI on exports could be negligible/zero or even negative. Thus macro level studies should not be taken as

final and only way to study the relationship between FDI and exports despite the fact that these do provide important and useful information about the overall impact of FDI on exports. Therefore, besides investigating macroeconomic relationship, studies at sector, subsector and micro enterprise level are required for a complete picture of the relationship between FDI and exports of a country.

Before going for of ordinary least square (OLS) regression analysis to estimate the impact of FDI on exports, standard Granger-causality and cointegration tests have been applied on FDI and exports. The rationale of these tests is briefly explained below.

It is now well-established that without a Granger-causation OLS estimated parameters would be 'simply' a kind of correlation between two variables rather than explaining dependency of one variable on other. Granger-casualty tests the hypothesis whether one variable is useful in forecasting the change in other variable. In our case the time series variable 'FDI' would Granger–cause time series 'X' (exports) if it could be statistically established as explained below.

The test of Granger-causality works as illustrated in equation (1) and (2).

$$FDI_t = \alpha_1 + \sum \beta \, FDI_{t-i} + \sum \gamma \, X_{t-i} + u_1 \tag{1}$$

$$X_t = \alpha_2 + \sum \beta \, FDI_{t-I} + \sum \gamma \, X_{t-i} + u_2 \tag{2}$$

Results of the analysis indicate causality in both directions (i.e. 'X' depends on 'FDI' and 'FDI' depends on 'X'). It may be noted that the prime objective of this study is related to equation (1) only. However, equation (2) also provides useful information for further research in that direction. Results of the analysis are given in Table-3.

The results reject the null hypothesis (of no causality) and statistically prove causality between FDI and X (exports) in both directions.

Despite a statistically significant Granger-causality between FDI and Exports, this test alone is not that powerful to fully establish dependence of one variable on other. It, infact, only establishes that explanatory variable precedes the dependant variables- a necessary (but not sufficient) condition for an explanatory variable. For unbiased estimation of regression parameters another necessary condition is that the explanatory and dependent variables should be 'cointegrated'. (concept developed by Engle and Granger in 1987 and widely accepted). 'Granger-causality' and 'cointegration' together are considered sufficient and statistically powerful to establish that at least one variable depends on other. The concept of cointegration is briefly explained below.

A necessary condition for 'cointegration' is that the variables of equation estimated be integrated of same order. DF and ADF statistics are estimated to see if series are integrated of the same order. (See Dicky D.A and Fuller W.A., 1979 and 1981 for further explanation. Moreover, the concept of 'cointegration' is extensively discussed almost in all standard econometric books).

A very simple and straight forward explanation of cointegration is that if there is a relationship between two non stationary series of order one [I(1)], (say Y and X), and the residual of the regression equation

$$Y_t = \beta_0 + \beta_1 X_t + u_t \tag{3}$$

are _stationary_, then the variables in question are cointegrated. The residual u_t are checked for stationarity by estimating equation (4).

$$\Delta u_t = \varphi u_{t-1} + e_t \qquad\qquad (4)$$

If the parameter 'φ' is significantly different from zero, only then 'u_t' would be stationary of order zero [I(0)] and the two series cointegrated. The OLS regression parameter will be accordingly unbiased. The central idea behind cointegration test is to find if a long-run relationship among the test variables exists.

Results of cointegration test between FDI and X (exports) are tabulated in Table-4

There is strong statistical evidence that FDI and X (exports) are cointegrated. The Granger-causality and cointegration tests together have provided statistically significant evidence that there exists a relationship between FDI and exports of Pakistan.

In order to further investigate and see the extent of dependence of export on FDI following different OLS regression equations have been estimated:

- Method: Ordinary Least Squares (OLS)

- Dependent Variable   X (Exports)

- Explanatory variables of Regression Equation-1   C   FDI

- Explanatory variables of Regression Equation-2   C   X(-1)   FDI   FDI(-1)

- Explanatory variables of Regression Equation-3   C   X(-1)   FDI(-1)

- Explanatory variables of Regression Equation-4   C   X(-1)   FDI(-1) FDI(-2)

- Explanatory variables of Regression Equation-5   C   X(-1)   FDI

(C stands for constant and subscripts (-1) (-2) represent time lags)

The estimated parameters and important statistics are tabulated in Table-5 (full details of all Regression Equations are placed at Appendix):

Data analysis of the study consists of:

- A simple descriptive analysis;

- Granger-causality and Cointegration Tests; and

- OLS Regression Analysis.

Results and findings of the above analysis are discussed (in the same order) in this section, followed by a brief conclusion of the study.

A coefficient of correlation of 0.73 and the graph (Figur-1) indicate a broad association between FDI and Exports. It is, obviously not enough to prove dependence of on variable on other and might spurious. The percent share of FDI under different economic group is of special significance. As discussed in Data Section, FDI in Pakistan is concentrated in Oil & Gas, Financial Sector and Communication not directly contributing towards exports of Pakistan. However, this kind of investment could be instrumental in promoting exports indirectly by reducing power shortage and providing efficient financial and communication services. Moreover, this could also be the result of scattered FDI in almost all other sectors of the economy; though relatively small in volume but might

have significantly improved quality of goods produced along with bringing modern marketing and management skills in the traditional export sector of Pakistan. As whole it seems that FDI has been mostly in areas where domestic investment is limited because of limited technical knowhow particularly the communication sector. Investing in power is primarily the result of opening the electricity generation to foreign investor with guaranteed price and purchase and a number of other lucrative incentives. Similarly Oil and Gas exploration have been a traditional area where many foreign firms are interested to invest. The domestic market is big enough to fully consume the output at a price linked with the international price.

The result of Granger-causality Test in both directions is of special significance. Despite statistical limitations (being viewed 'mere' as a proof that independent variable precedes the dependant variable) most often is considered necessary for further econometric analysis. The positive impact of FDI on export as indicated by the Granger-causality Test is rational and logical. This is line with the theme of study and fundamental hypothesis duly supported by the theory. The statistical evidence that two variables are also cointegrated has further strengthened the existence of this relationship, besides providing an evidence of long term equilibrium between FDI and exports. However, Granger-causality in other direction (that FDI depends on exports or exports precede FDI) is somewhat difficult to explain. One could argue that there might be instances that when a foreign firm starts exporting after meeting domestic demand, would need to expand its capacity by further investment. Another possible explanation for such linkage could be through GDP growth which also results in higher level of exports. A sustained high GDP growth associated with export growth attract FDI which further strengthen the GDP growth. Thus exports as a factor for attracting FDI is possible via GDP growth process. Extensive research studies have been conducted to develop a theory for motivation of MNC's decision to invest in foreign countries. It may, however, be noted that there is hardly any study linking FDI (as a dependent variable) with exports of a host country. The economic rationale of MNCs decision to invest abroad is much complex depending upon a number of economic, social and political factors. (See Bellak etl,2008 for an econometric model taking a number factors motivating MNCs to invest abroad.). Therefore, this little explanation that how export could attract FDI should be taken only as a 'hunch' to provide some reason for statistical evidence of Granger-causality.

The existence of cointegration between FDI and exports (along with positive Granger-causality) is much significant. This is a statistically strong evidence that FDI plays an important role in promoting exports from Pakistan though about two-third FDI is certainly producing goods and services for domestic market. This also suggests that FDI in Pakistan is mostly promoting exports indirectly by reducing power shortage and providing efficient communication and financial services.

The OLS regression analysis is the final analysis to precisely measure the impact of FDI on exports. As already mentioned, keeping in view the scope of the study, no attempt has been made to develop a full structural equation for exports including all relevant explanatory variables (and FDI as one such possible explanatory variable). Instead an effort has been made to evaluate a number of possible alternatives while focusing on FDI as the major explanatory variable.

Equatin-1 is a simple model to see dependence of exports on FDI (with intercept C). Both parameters are statistically significant with 't' *ratio* above the critical values at five percent significance level. Similarly the overall equation is statistically significant with very high *'F' ratio.* and *Adjusted R-*

Square of 0.52 indicating that the overall predictive power of equation is satisfactory. As such FDI is explaining more the 52 percent variation in exports. But a very low D.W. statistics (0.29) is indicating alarming level of positive serial correlation. As a whole the model is, therefore, not satisfactory.

In order to overcome the problem of serial correlation in equation-2, besides the previous two variables (FDI and Constant), FDI and exports (X) with one year lag are included in the model. As expected explanatory variable 'X' with lag has substantially improved D.W. statistics. D.W. statistics of 2.89 is, however, indicating some negative serial correlation. accordingly *'F' rati,* and *Adjusted R-Square* have also significantly improved the explanatory power as compared to Equation-1. But the coefficients for FDI and FDI(-1) are not statistically different from zero even at 10 percent significant level. A high and statistically significant parameter for export with a lag (X(-1)) as explanatory variable is indicative of 'demonstration' effect of 'export culture' and might also be capturing the likely effects of other missing relevant explanatory variables such as real exchange rate, world (or trading partners) GDP growth etc. (In all other equations discussed below export with a lag has been included as explanatory variable having same rationale and explanation).

In Equation-3 only FDI and exports (removing FDI of Equation-2) have been used with a lag as explanatory variables. In terms of all the important statistics this model has produced comparatively much better and satisfactory results. A very high value of *'F' ratio (587)* and about 0.98 *Adjusted R-Square* are indicating that model as whole has significant predictive capability. The parameters for FDI (-1) and X(-1) are also significant at 10 percent and one percent significant respectively. Similarly, this specification has further reduced the problem of serial correlation with D.W. statistics of 2.66 (still suggesting little negative serial correlation). According to this model an investment of $ One Million, with a lag of one year, on average, would increase exports by about $0.42 Million.

Results of Equation-4 and Equation-5 have not been discussed as their results are statistically not much satisfactory (see Table-5 and Appendix).

4 CONCLUSION

The present study, as against a number of previous studies, has provided adequate and statistically significant evidence of positive linkage between FDI and exports of Pakistan. As a whole, if different studies are taken together, the results are somewhat conflicting and ambiguous. As elaborated in sufficient detail, a possible reason (in case of Pakistan) is the selection of time series data used for analysis. Moreover, the determinants of exports are much more complex and FDI could not be assumed as the only explanatory variable for predicting variations in exports. In view of conflicting results of different studies for Pakistan, a different approach is also required to analyse the impact of FDI on exports. For example, in a comprehensive structural equation for exports, FDI should also be used as an explanatory variable. Moreover, besides macro level studies, the linkage between FDI and exports should be examined at sector, subsector and micro enterprise level with full elaboration of both direct and indirect channels of transmission. Present study, therefore, be considered as a broad evidence of positive impact of FDI on exports of Pakistan.

Table1:   FDI and Exports of Pakistan

Year*	FDI [Million $]	Exports [Million $]
1980-81	35.00	2395.5
1981-82	98.00	2986.40
1982-83	42.10	2528.50
1983-84	48.00	2729.00
1984-85	70.30	2790.50
1985-86	146.20	2539.50
1986-87	108.00	3120.60
1987-88	162.20	3784.00
1988-89	209.00	4508.80
1989-90	216.20	4738.70
1990-91	246.00	5020.80
1991-92	335.10	6218.20
1992-93	306.40	6958.70
1993-94	354.10	6853.40
1994-95	442.40	6839.70
1995-96	1101.70	8172.60
1996-97	682.10	8707.14
1997-98	601.30	8388.60
1998-99	472.30	8704.00
1999-00	469.90	7849.40
2000-01	322.50	8635.70
2001-02	484.70	9265.10
2002-03	798.00	9204.70
2003-04	949.40	11210.60
2004-05	1524.00	12729.20
2005-06	3521.00	14494.50
2006-07	5139.60	16580.30
2007-08	5410.20	17138.30
2008-09	3719.90	19779.70
2009-10	2205.70	17951.30
2010-11	1739.00	19547.00
2011-12	812.60	22600.00

Source: Handbook of Statistics of Pakistan Economy,2012   and various issues of Economic Survey of Pakistan.

Table 2: Distribution of FDI by Economic Groups

(1980-2012)	
Oil & Gas Exploration	16%
Communication	31%
Financial Business	20%
All other Sectors	33%
Total	100%

Source: *Handbook of Statistics of Pakistan Economy, 2012   and   various issues of Economic Survey of Pakistan*

Table-3   Causality Test FDI And X

Pairwise Granger Causality Tests
Sample: 1980 2011
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
X does not Granger Cause FDI	30	6.84236	0.0043
FDI does not Granger Cause X		6.43284	0.0056

Table-4 Cointegration Rank Test

Sample (adjusted): 1982 2011

Included observations: 30 after adjustments

Trend assumption: Linear deterministic trend

Series: FDI   X (i.e. exports)

Lags interval (in first differences): 1 to 1

Unrestricted Co integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.716109	38.82846	15.49471	0.0000
At most 1	0.034508	1.053535	3.841466	0.3047

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values.

Table-5 Summary Results of OLS Regression Analysis

***Equation-1 Variables and Parameters*:**

Constant	5526.321	6.732823- t Statistic		
FDI	2.683	5.717351- t Statistic		
Ad-R Squared 0.521440		F- Statistic 32.6880	D.W. Statistic 0.29	

***Equation-2 Variables and Parameters*:**

Constant	449.0663	1.391264 - t Statistic		
FDI	0.252519	1.083885- t Statistic		
FDI(-1)	0.174907	0.621234- t Statistic		
X(-1)	0.956665	18.93214- t Statistic		
Ad-R Squared 0.975210		F- *Statistic* 394.3931	D.W. Statistic 2.89	

***Equation-3 Variables and Parameters*:**

Constant	520.5854	1.642515- t Statistic		
FDI(-1)	0.416480	2.413386- t Statistic		
X(-1)	0.949851	18.88561- t Statistic		
Ad-R Squared 0.975056		F- *Statistic* 587.3354	D.W. Statistic 2.66	

***Equation-4 Variables and Parameters*:**

Constant	425.1027	1.133500- t Statistic		
FDI(-1)	0.562817	2.300091- t Statistic		
FDI(-2)	-0.242891	-0.830986- t Statistic		
X(-1)	0.974347	15.55173- t Statistic		
Ad-R Squared 0.973771		F- *Statistic* 359.8806	D.W. Statistic 2.84	

***Equation-5 Variables and Parameters*:**

Constant	364.4637	1.259321- t Statistic		
FDI	0.367090	2.607446- t Statistic		
X(-1)	0.974861	23.93902- t Statistic		
Ad-R Squared 0.975754		F- *Statistic* 604.6574	D.W. Statistic 2.96	

Note: For econometric analysis Eview-7 Econometric Software used

Figure1:   FDI and Exports of Pakistan
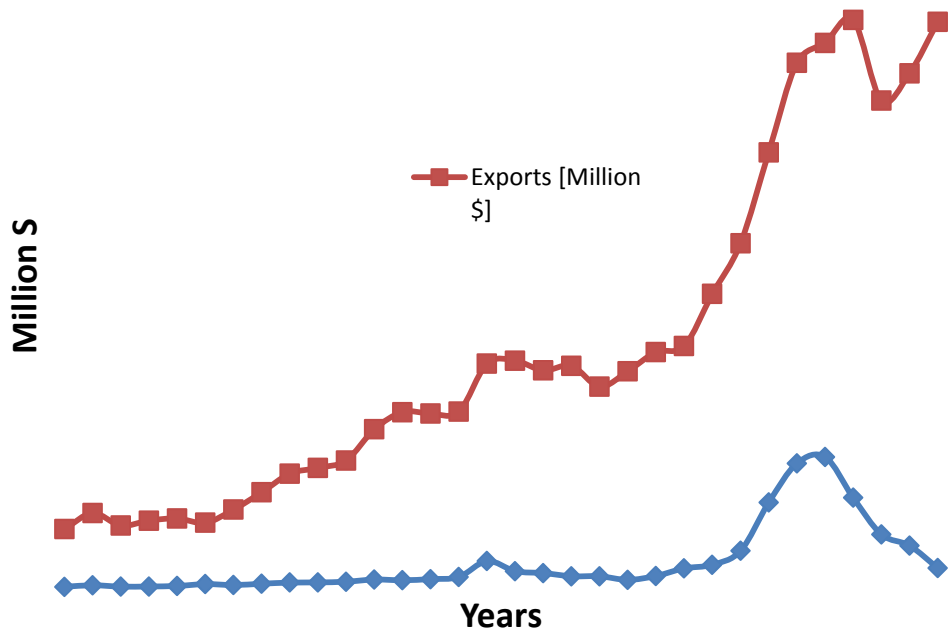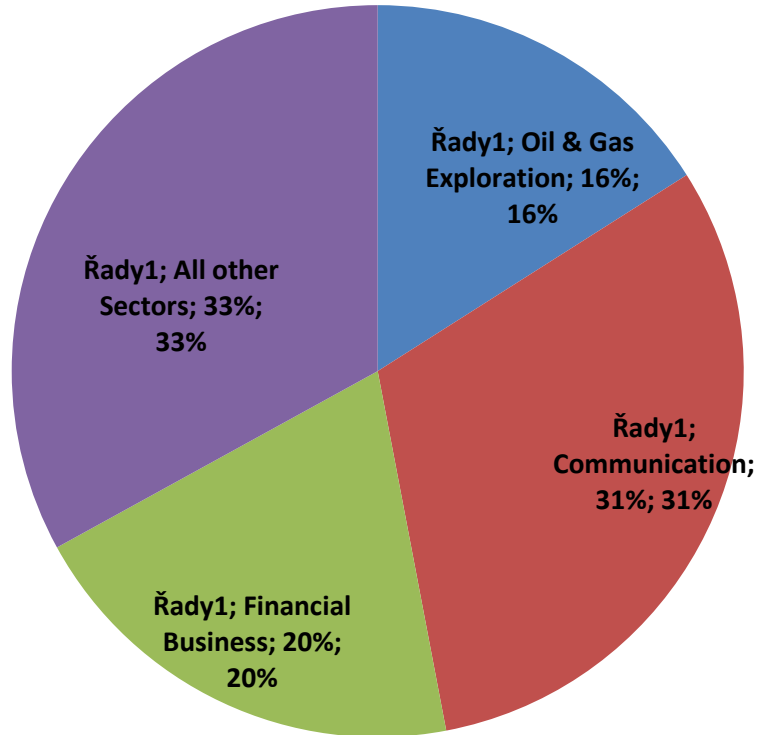

Exports [Million $]

Million S

Years

Figure 2: Distribution of FDI by Economic Groups

Řady1; Oil & Gas Exploration; 16%; 16%

Řady1; All other Sectors; 33%; 33%

Řady1; Communication; 31%; 31%

Řady1; Financial Business; 20%; 20%

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Appendix

REGRESSION ANALYSIS

Equation-1

Dependent Variable: X
Method: Least Squares
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5526.321	820.8029	6.732823	0.0000
FDI	2.682816	0.469241	5.717351	0.0000

R-squared	0.521440	Mean dependent var	8273.936
Adjusted R-squared	0.505488	S.D. dependent var	5352.707
S.E. of regression	3764.106	Akaike info criterion	19.36487
Sum squared resid	4.25E+08	Schwarz criterion	19.45648
Log likelihood	-307.8379	Hannan-Quinn criter.	19.39524
F-statistic	32.68810	Durbin-Watson stat	0.295905
Prob(F-statistic)	0.000003		

Equation-2

Dependent Variable: X
Method: Least Squares
Sample (adjusted): 1981 2011
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	449.0663	322.7758	1.391264	0.1755
X(-1)	0.956665	0.050531	18.93214	0.0000
FDI	0.252519	0.232976	1.083885	0.2880
FDI(-1)	0.174907	0.281549	0.621234	0.5397

R-squared	0.977689	Mean dependent var		8463.563
Adjusted R-squared	0.975210	S.D. dependent var		5330.807
S.E. of regression	839.3222	Akaike info criterion		16.42298
Sum squared resid	19020469	Schwarz criterion		16.60801
Log likelihood	-250.5562	Hannan-Quinn criter.		16.48330
F-statistic	394.3931	Durbin-Watson stat		2.892850
Prob(F-statistic)	0.000000			

Equation-3

Dependent Variable: X
Method: Least Squares
Sample (adjusted): 1981 2011
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	520.5854	316.9441	1.642515	0.1117
X(-1)	0.949851	0.050295	18.88561	0.0000
FDI(-1)	0.416480	0.172571	2.413386	0.0226

R-squared	0.976718	Mean dependent var	8463.563
Adjusted R-squared	0.975056	S.D. dependent var	5330.807
S.E. of regression	841.9381	Akaike info criterion	16.40106
Sum squared resid	19848075	Schwarz criterion	16.53983
Log likelihood	-251.2164	Hannan-Quinn criter.	16.44629
F-statistic	587.3354	Durbin-Watson stat	2.663694
Prob(F-statistic)	0.000000		

Equation-4

Dependent Variable: X
Method: Least Squares
Sample (adjusted): 1982 2011
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	425.1027	375.0356	1.133500	0.2673
X(-1)	0.974347	0.062652	15.55173	0.0000
FDI(-1)	0.562817	0.244693	2.300091	0.0297
FDI(-2)	-0.242891	0.292293	-0.830986	0.4135

R-squared	0.976484	Mean dependent var	8665.831
Adjusted R-squared	0.973771	S.D. dependent var	5299.565
S.E. of regression	858.2860	Akaike info criterion	16.47132
Sum squared resid	19153026	Schwarz criterion	16.65814
Log likelihood	-243.0698	Hannan-Quinn criter.	16.53108
F-statistic	359.8806	Durbin-Watson stat	2.842716
Prob(F-statistic)	0.000000		

Equation-5

Method: Least Squares
Sample (adjusted): 1981 2011
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	364.4637	289.4128	1.259321	0.2183
X(-1)	0.974861	0.040723	23.93902	0.0000
FDI	0.367090	0.140785	2.607446	0.0145

R-squared	0.977370	Mean dependent var	8463.563
Adjusted R-squared	0.975754	S.D. dependent var	5330.807
S.E. of regression	830.0676	Akaike info criterion	16.37266
Sum squared resid	19292343	Schwarz criterion	16.51143
Log likelihood	-250.7762	Hannan-Quinn criter.	16.41789
F-statistic	604.6574	Durbin-Watson stat	2.967303
Prob(F-statistic)	0.000000		