Relationship between Inward FDI and Exports: Evidence from India

Priyanka Bedi

Abstract

The economic reforms that were ushered in during 1991 have greatly contributed to the growth of exports in India. After pursuing, import substitution strategy for nearly four decades, India adopted export led growth strategy in 1991. The new economic policy removed all sorts of restrictions on international trade and investment giving green signal to FDI inflows. Consequently, India experienced significant increase in FDI inflows in the last two decades. This paper has two objectives. First, it investigates the trends of FDI inflows and exports in India during the period 1980 to 2011. Secondly, it attempts to examine the economic relationship between FDI inflows and export growth in India for the same period using the Granger causality test. The study found bi-directional causality between inward FDI and exports. Hence, policies attracting FDI should be implemented to further boost India’s exports.

Keywords: Exports, Foreign Direct Investment, Causality, India.

1.0 Introduction

Foreign Direct Investment (FDI) is regarded as an important driver of growth and a vehicle for economic development. According to UNCTAD (2006), Foreign direct investment (FDI) is defined as an investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor. FDI, known to be the most stable component of capital flows, adds to investible resources, provides access to advanced technologies and assists in gaining production know-how. It is universally acknowledged that FDI inflows offer many benefits to the host economy.

Ms. Priyanka Bedi, Assistant Professor, Sri Aurobindo College (Day), University of Delhi.
MNEs, with their technological and managerial skills and knowledge about international marketing conditions, are expected to improve the productivity as well as export performance of host country firms by creating certain positive externalities. Developing economies like India look upon FDI as a means to fulfill their financial, technical, employment generation and competitive efficiency requirements.

In recent decades, India’s economy has experienced phenomenal level of economic growth characterized by significant increases in inward FDI and growth in exports. After pursuing an inward looking policy of import substitution with public regulation in charge for more than four decades, India adopted the New Economic Policy (NEP) in 1991 in the wake of economic crisis. The flows of foreign capital are now being welcomed. The East Asian experience has also shown that the export-led growth strategies have been facilitated by FDI transferring into the host country technology, managerial and other expertise needed to exploit the country’s comparative advantage.

Indian economy has witnessed massive growth in FDI inflows since the introduction of the economic reforms in 1991. By 1997 India became the ninth largest recipient of FDI among the developing economies. The Government of India saw in FDI a potential non-debt creating source of finance and a bundle of assets, viz., capital, technology, market access (foreign), skills, and management techniques which could solve the problems of low income growth, shortfall in savings, investment and exports; and unemployment. It was believed that FDI would help India in the expansion of production and trade and increase opportunities to enhance the benefits that could be drawn from greater integration with the world economy. In other words, FDI would broaden the opportunities for India to participate in international specialization and other gains from trade. Indeed, the increased inflows of FDI into the Indian economy have led to the expansion of cross-border production by MNEs and their networks of closely associated firms in India.

In the last two decades, Indian economy has also experienced a massive upsurge in the exports. India outpaced the rest of the world in terms of export growth in 2005-12, charting a 17% improvement over the seven-year period. According to World Trade Organization (WTO), this was even higher than arch-rival China’s export growth of 15% between 2005 and 2012. As per WTO data,
India’s rank as one of the leading exporters of the world improved from 31st position in 2000 to 19th position in 2012. So the question arises as to if at all a relationship exists between the increased FDI inflows and exports i.e. whether the increased FDI inflows are, in any way, responsible for the increase in the level of exports or whether the increased level of exports have in any way helped to attract higher inflows of FDI.

1.1 Theoretical Relationship between inward FDI and exports

FDI is viewed as a major determinant of economic growth, both directly and indirectly, via exports for both long run and short run. However, the role of FDI in promoting export depends upon the motive for such investment i.e. market seeking or efficiency seeking.

Market-seeking FDI involves investing in a host country market in order to directly serve that market with local production and distribution rather than through exporting. The basic motive behind this type of FDI is to bypass the trade barriers of the host countries so as to gain access to large overseas market and to reap the benefits of economies of scale. So this type of FDI is not expected to promote exports. Such kind of market seeking FDI is also known as horizontal FDI. On the other hand, efficiency-seeking FDI involves investing in foreign operations to create the most cost-effective and competitive global production networks, it aims at reducing the cost of producing goods and services. The main motive behind this type of FDI is to reap the benefits of host country’s comparative advantage so as to produce at relatively low cost. Such FDI is likely to promote trade and is called as export oriented or vertical FDI.

Theoretically, the effects of inward FDI on export growth of the host country may take place both directly and indirectly. Direct effects refer to exports by foreign affiliates themselves. The impact of FDI on export activities of local firms makes up the indirect effects or spillover effects.

Direct effects of FDI on host exports

To understand the direct effects of FDI on host country exports, it is convenient to divide export activities of foreign affiliates into three categories: (1) exports through processing and assembling; (2) exports of new labour intensive final products; and (3) exports of locally produced raw materials.
(1) **Exports through processing and assembling:** MNEs within vertically integrated international production network help the developing countries to increase its exports of labour intensive and technology intensive products by assembling and processing of intermediate and unfinished products imported from home country.

(2) **Exports of new labour intensive final products:** Firms in developing countries seeking to expand their exports to world markets face immense difficulties in setting up a distribution network, keeping in close touch with rapid changes in consumer tastes, mastering the technicalities of industrial norms and safety standards, and building up a new product image. In many cases, the design, packaging, distribution, and servicing of the products are as important as being able to produce them at, or below, ruling prices in world markets. The lack of such skills constitutes a key barrier to entry into the world markets for developing country exporters. MNEs may, however, help developing country exporters to enter the world markets through special arrangements to provide links to final buyers.

(3) **Exports of locally processed raw materials:** Because of the business contacts abroad, marketing skills, and superior technology, both in product and in processes, and greater general know-how, MNEs may have better export potential than indigenous firms in the processing of locally produced raw materials and exporting the same.

**Indirect or spillover effects of FDI on host exports**

FDI also enhances the host country’s manufacturing exports through spillover effects on local firm’s exporting activities.

(1) **Learning from and imitating foreign firms:** Local firms may increase their exports by observing, learning and imitating the export activities of the foreign affiliates and by making use of the infrastructure of transport, communications and financial activities that develop to support these activities.

(2) **Instilling competition and efficiency:** The second spillover effect involves the influence of FDI on the competitiveness of domestic firm’s exports and the diffusion of new technologies. By bringing their advanced product-process
technology, management, and marketing competence, MNEs may increase competition in the markets and force local firms to adopt more efficient methods. FDI may thus improve the efficiency of host country firms through the diffusion of new technologies and management practices in host countries.

Thus, FDI may, directly or indirectly, help boost the host country’s exports. However, this is only one side of the coin. FDI may also decrease local firms’ exports by increasing MNEs’ purchase of inputs locally. In that case, some products originally destined to be exported by local firms may instead flow to MNEs, in which these products are used as inputs and processed into export in case FDI is export-oriented, or to penetrate the market in the host country in case the FDI is market seeking. Moreover, MNEs’ exports could also squeeze the exports from indigenous firms producing homogenous products since FDI further lowers the cost by moving production to the host country, which could make the total effect of this indirect linkage ambiguous as well. Therefore, the effect of FDI on export is ambiguous.

**Potential effects of exports on FDI inflows**

A high level of exports may also encourage greater FDI inflows in the host country. Investors (especially those interested in export oriented FDI) have incentives for investment, where there is higher potential of exports. Also, export growth leads to increase in demand for a country’s output, representing an increase in real output as well as employment. With increase in the output and the employment level, the purchasing power of the consumer also increases and the consumer market gets enlarged. Moreover, the accumulation of foreign exchange from exports also helps to improve the country’s balance of payment position. With all these effects taking place, the whole economy prospers. This, in turn, helps to attract more FDI. Similarly, increase in exports tend to be correlated with other factors such as improved terms of trade and an improved regulatory and tax environment, which tends to attract even more FDI.
2.0 Objectives

The main objectives of this paper are:

- To analyze the trends in Inward FDI and exports in the pre-reform and post-reform era.
- To examine the economic relationship between inward FDI and host country’s exports in the context of India.

3.0 Literature Review

This section reviews the existing literature examining the relationship between FDI and trade variables, Kutan and Vuksic (2007) examined the potential effects of FDI inflows on exports in 12 Central and Eastern European (CEE) economies using multiple regression for the period between 1996 and 2004. They separated the potential effects into two namely the supply capacity-increasing effects and FDI-specific effects which arise because the MNE may have superior knowledge and technology and better information about export markets than do local firms. They found that the potential output and last year exports have significant and positive effect on export performance of all the countries. For all the countries that were included in the sample, FDI was found to have contributed significantly to higher exports through increased supply capacity, i.e., potential output. But the FDI-specific impact on exports was found to be significant only for the new member states of the EU, suggesting that this kind of impact of FDI on exports exists only in New EU countries.

Radulescu and Serbanescu (2012) examined whether the FDI in Central and Eastern Europe (CEE) countries has improved the export performance of the host economies. They conducted the study for the period covering 1990 to 2010 using statistical data analysis and literature review. They found that FDI inflows contributed to higher supply capacity in all the countries, leading to more exports. On the other hand, evidence for FDI-specific effects was found to be mixed. This effect has been present mainly for the new EU member states. The new EU countries have received larger amount of FDI relative to other transition economies and hence they have been able to better take advantage of the FDI-
specific effects than the rest of the countries, leading to more exports. The study also found that FDI in tradable sector leads to increase in exports over time, however, no such effects were found for FDI in non-tradable sector even though much of the FDI has gone in the non-tradable sector. Thus, FDI was found to have powerful export-promoting effects.

Andraz and Rodrigues (2010) examined the causal relationships among exports, FDI and economic growth (GDP) for Portugal for the period covering 1977 to 2004. They employed standardized three-stage procedure: Dickey Fuller unit root test, Johansen-Juselius cointegration test based on vector error correction model (VECM) and Granger causality test. They found that all the three series were non-stationary at their levels and stationary at their first differences. By using the cointegration test, they found that in the long-run a significant crowding-in effect in output occurs due to increase in exports and, to a lesser extent, due to increase in FDI. With the help of causality test, they found evidence of a positive relationship among exports, FDI and economic growth in the long-run with the effects running from the former two to the latter. Thus, in the long run results supported both export-led growth hypothesis and FDI-led growth hypothesis. In the short run however, a significant bi-directional relationship between FDI and economic growth and uni-directional causal relationship running from FDI to real exports was found. No evidence of causality between GDP and exports was found in the short run.

Bhatt (2011) examined the foreign trade and investment dimensions of New Zealand in comparison with its competitors such as Australia, China, India, Japan and Republic of Korea and also the role of FDI to the growth of exports in New Zealand. The analysis was conducted on the data covering the period of 1990-2009 using ADF unit root test, cointegration test and vector autogression model. The study highlighted that although New Zealand has been able to attract fairly significant FDI inflows but it is still far behind its competitors. A long-run equilibrium relationship among FDI, GDP and exports was found from cointegration test. The results of the VAR model showed that FDI is a significant variable affecting exports. A uni-directional causality running from FDI to export was found. Also, bilateral relationship between exports and GDP, and GDP and FDI was found from the results.
Idris and Idris (2013) examined the causality of FDI on Malaysia’s export for the period covering 1970-2010 and using ADF test, Engle Granger cointegration test and Granger causality test. They found that both FDI inflows and exports were non-stationary at their levels, but they were stationary at their first differences. They also found a long term relationship between FDI and exports of Malaysia over the period under observation. And the results of the Granger Causality test revealed that FDI inflows Granger cause Malaysia’s export but exports do not Granger cause FDI inflows. Thus, the findings pointed uni-directional causality running from FDI inflows to exports.

Turkcan and Saygili (2011) examined the long-term relationship between FDI inflows and net exports in Turkey for the period covering 1985-2011 using Johansen cointegration test. They found no cointegrated relationship between FDI inflows and net exports in Turkey. This result is attributable to the fact that the main motivation behind FDI inflows to Turkey is to gain access to the domestic market rather than producing for foreign markets. To test whether this assertion is valid, the relationship between domestic consumption and FDI inflows was analyzed. The cointegration test revealed that there is a positive cointegrated relationship between FDI inflows and household’s consumption highlighting that MNEs invest in Turkey to produce for the domestic market rather than foreign markets. Turkey has not been able to attract FDI to its export sectors.

Vural and Zortuk (2011) examined the contribution of FDI to Turkey’s export performance for the period 1982-2009. They used simultaneous equation model to take into account both the export demand and export supply. The real effective exchange rate, world income and lagged export demand were included as the factors affecting export demand. And Turkish export prices relative to domestic prices, domestic demand pressure, FDI inflows and lagged export supply were included as factors affecting export supply. They found that the export demand increases as the Turkish lira depreciates. However, the world income was found to have no significant impact on Turkey’s export performance. With respect to export supply, they found that the export supply rises when there is a rise in export prices in relation to domestic prices. On the other hand, export supply declines as the domestic demand pressure increases. Thus, inward FDI was found to have a significant positive impact on Turkey’s export performance.
Wang et al. (2007) examined the nature and structure of relationship between inward FDI and Chinese exports. They also investigated whether the contribution of overseas Chinese FDI to Chinese exports is greater than that of western FDI since there was a widely held belief that market-seeking is the prime motivation for FDI by western TNCs whereas the main motive for FDI by overseas Chinese TNCs is efficiency-seeking. The analysis was conducted on the data covering the period 1983-2002 using multiple regression. They found that FDI exerted a considerable effect on overall Chinese export expansion. This export expansion comprises the growth of exports by foreign affiliates as well as by domestic firms that have benefited from externalities associated with the presence of foreign affiliates. They also found that although FDI had significant positive impact on both labour-intensive and capital intensive exports but the impact was stronger for labour-intensive goods than for capital-intensive goods. This is because China is abundant in labour and therefore the dominant motive of incoming TNCs is to use it as a production base for labour intensive goods. The findings also revealed that the impact of western FDI on the Chinese exports was no less than that of overseas Chinese TNCs. Whatever the home economy of the investors, inward FDI stimulates Chinese exports.

Zhang and Song (2000) examined the relationship between FDI inflows and export performance across 24 provinces of China for the period 1986-1987 using regression. They findings showed that FDI is an important factor affecting export performance and that the level of FDI in the previous year significantly affects the export performance in the next year. The previous export performance was also found to be strongly associated with the export performance during the last year. With respect to other variables, domestic investment was also found to be a significant predictor of export performance. The impact of exchange rate was found to be significant but negative i.e. devaluation of Chinese currency leads to decrease in the Chinese exports.

Prasanna (2010) has analysed the impact of inward FDI on the export performance in India by primarily focusing on manufacturing oriented exports. The analysis was conducted for the period covering 1991-92 to 2006-07 using multiple regression model. He found that FDI inflows into India have led to significant increase in total and high technology manufactured exports suggesting that FDI has significantly contributed to improve the export performance of
India. The second independent variable, manufacturing value added, was found to contribute positively only to the high technology manufactured exports. Its impact on the total manufactured exports was found to be insignificant. Thus, while FDI inflows were found to have strong positive links with total manufactured exports as well as with high technology manufactured exports, domestic efforts, though have positive links, but not as strong as FDI.

Banga (2006) investigated the export spillovers from FDI and the export diversifying impact of FDI i.e. whether it has any impact on the exports of non-traditional export industries. Given the differences in the nature of Japanese and US FDI, he also examined the direct and indirect impact of these two sources of FDI on exports of the Indian manufacturing sector. The analysis was conducted for the period covering 1994-1995 to 1999-2000. He found that much of the FDI has gone into the non-traditional export sector which has led to an increase in the share of almost all the non-traditional industries in the world exports. FDI was found to have a significant positive influence on the export intensity of the industries in the non-traditional export sector, but such an effect was not found in the traditional export sector. The results also showed that US FDI has a higher impact on the export intensity of the non-traditional export sector and exerts significant spillover effects on the export intensity of the domestic firms than the Japanese FDI. Thus, FDI has led to diversification of India’s exports.

Goswamia and Saikiab (2012) investigated the relationship between FDI and manufactured export growth in India for the period 1991-1992 to 2010-2011. They applied ADF unit root test, Engle-Granger cointegration test and Vector Error Correction Model (VECM). They found that both FDI inflows and exports have unit root at their levels, however, they were stationary at the first differences. A long run dynamic relationship was found to exist between FDI inflows and exports. Lastly, a bi-directional causality was found to exist between FDI and manufactured exports both in the short run and the long run i.e. FDI causes manufactured export growth and then export-led growth further encourages the flows of FDI. FDI at two period lags was found to have significant and positive effect on exports indicating that time is required for FDI to have an impact on export growth.

Sultan (2013) examined the nature of relationship between exports and FDI inflows in India for the period covering 1980 to 2010 using ADF test,
cointegration test and the Granger causality test based on vector error correction model (VECM). Both the variables were found to be non-stationary at their levels but stationary at first difference. They found that both the variables have positive and significant long run relationship with each other. And with the help of Granger causality test they found that FDI does not granger cause exports in the long run, indicating that inflow of FDI in India is mostly market seeking, that is, they come to take advantage of growing market size determined by large population. However, a unidirectional causal relationship running from export to FDI was found to exist in the long run. But, in the short run, no causal relation between the variables was found in either direction.

Sharma (2000) examined whether FDI inflows have contributed to the growth of exports in India for the period 1970-1998 using simultaneous equation model. The various factors affecting export demand that have been included are real effective exchange rate, relative price of exports, world income and lagged export demand. The various factors affecting export supply that have been included are Indian export prices relative to domestic prices, domestic demand, inward FDI, infrastructure facilities and lagged export supply. He found that the appreciation of rupee and increase in India’s export prices relative to world export prices reduces its export demand. However, no significant link was found between India’s export demand and world income. With respect to export supply, it was found that a rise in the export prices in relation to domestic prices increases export supply. On the other hand, the export supply declines as domestic demand increases. The results showed that FDI inflows and infrastructure investments had no significant impact on the India’s export performance. This is due to the fact that India pursued an inward oriented policy for a long time that may have discouraged export oriented foreign investment.

4.0 Trends in Inward FDI and exports

4.1 Analysis of FDI inflows

FDI has grown considerably in its importance in India. According to a recent survey conducted by UNCTAD, India has emerged as the second most attractive destination for FDI after China and is ahead of the US, Russia and
Brazil. The IT, ITES and other services have been at the forefront in attracting FDI inflows, accounting for 24% of the total inflows (Figure 1). It is followed by manufacturing sector (20%), computer hardware and software (8%), telecommunications (8%), real estate and construction activities (17%), power (5%) among others. Country-wise, FDI inflows to India are dominated by Mauritius (44%), followed by the Singapore (9%), United States (8%) and UK (5%) (Figure 2).

Figure 1: Sectors attracting highest FDI Equity Inflows (2010-11)

Figure 2: Share of Top Investing Countries in FDI equity Inflows (2010-11)

Source: Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, GOI
To begin with, India’s approach towards foreign investment has been relatively conservative. But it progressively started catching up with the more liberalized policy stance from the early 1990’s onwards, in terms of wider access to different sectors of the economy, ease of starting business, repatriation of dividend and profits and relaxations regarding norms for owning equity. This progressive liberalization, coupled with considerable improvement in terms of macroeconomic fundamentals, translated in growing size of FDI flows to the country that increased nearly 5 fold during first decade of the present millennium.

FDI inflows in the pre-reform period

India had followed an extremely cautious and selective approach while formulating FDI policy. FDI was welcomed in the areas of high technology and high priorities to build national capability and discouraged in low technology areas to protect and nurture domestic industries. The regulatory framework was consolidated through the enactment of Foreign Exchange Regulation Act (FERA), 1973 wherein foreign equity holding in a joint venture was allowed only up to 40 per cent. This cautious FDI policy resulted in low level of FDI inflow in India.

Partial liberalisation in the trade and investment policy was introduced in the 1980s with the objective of enhancing export competitiveness, modernization and marketing of exports through Transnational Corporations (TNCs). This was followed by an increase in the FDI inflows from US$ 79 million in 1980 to reach a peak level US $ 252 million in 1989 (Figure 3). FDI increased three times during the period of 1980-1990 and the Compound Annual Growth Rate (CAGR) was 19.05% during the same period of time.

FDI inflows in the post reform period

A major shift occurred when India embarked upon economic liberalization and reforms program in 1991 aiming to raise its growth potential and integrating with the world economy. A series of measures that were directed towards liberalizing foreign investment included:

(i) Introduction of dual route of approval of FDI – RBI’s automatic route and Government’s approval (SIA/FIPB) route.
(ii) Automatic permission for technology agreements in high priority industries and removal of restriction of FDI in low technology areas as well as liberalization of technology imports.

(iii) Permission to Non-resident Indians (NRIs) and Overseas Corporate Bodies (OCBs) to invest up to 100 per cent in high priorities sectors.

(iv) Hike in the foreign equity participation limits to 51% for existing companies and liberalization on the use of foreign brand names.

Consequently, the amount of FDI inflows which was only US$ 75 million in 1991 went up to US$ 5477 million in 2001. In the last decade, India has received large FDI inflows in line with its robust domestic economic performance. The attractiveness of India as a preferred investment destination could be ascertained from the large increase in FDI inflows to India, which rose to US$ 43406 million in 2008 (Figure 4). The CAGR of FDI inflow was 24.28% during 1991-2008. But in the wake of the global crisis, there was a significant deceleration in global FDI inflows in the succeeding years.

**Figure 3: Trends in FDI Inflows (1980-1991)**

![Figure 3: Trends in FDI Inflows (1980-1991)](source: Based on UNCTAD database)

**Figure 4: Trends in FDI Inflows (1992-2010)**

![Figure 4: Trends in FDI Inflows (1992-2010)](source: Based on UNCTAD database)
4.2 Analysis of Indian exports

Exports, in particular, are a means to generate the foreign exchange required to finance the import of goods and services; to obtain economies of specialization, scale and scope in production; and to learn from the experience in export markets. In a globalizing world, furthermore, export success can serve as a measure for the competitiveness of a country’s industries.

The competitive advantage that India enjoys across a range of sectors has led to rapid increase in India’s exports. Since liberalization, the value of India’s international trade has increased sharply, with the contribution of total trade in goods and services to the GDP rising from 16% in 1990–91 to 47% in 2008–10. India accounts for 1.44% of exports for merchandise trade and 3.34% of exports for commercial services trade worldwide. The share of merchandise trade to GDP in India increased from 7.2% in 1980-81 to 13.3% in 1990-91 and further to 38.9% in 2008-09.

The ratio of exports to GDP has also increased significantly in the post reform era. The exports to GDP ratio is an indicator of diversification of India’s export basket, increased competitiveness of Indian goods in foreign markets and improved strength of India’s exports sector in the post reform era. This ratio was only 4.6% per annum during the period 1980-81 to 1989-90. It increased significantly to 8% in the decade 1990-91 to 1999-00. It continued to improve further and reached 12.6% in 2005-2006 and 15.9% in 2010-11. All this indicates that exports have shown a rising trend since 1980.

The composition of Indian exports had also undergone several changes. In the pre-independence period, our exports consisted mostly of raw materials. But now the proportion of raw materials in our exports has decreased, while that of manufactured goods has increased. Now, over two-thirds (68%) of India’s total exports consists of manufactured goods comprising of engineering products, machinery, readymade garments, gems and jewellery. Earlier, items like handicrafts, agricultural products, cotton yarn and fabrics dominated our exports. But now, many new commodities have emerged as important items on our export list. The share of petroleum products in our exports, which was only 2.5% in 1990-91, has increased to 16.9% in 2010-11. Similarly, the share of machineries and transport equipments in our exports has also gone up.
The share of the top five principal commodities in India’s total exports during 2010-11 is given Figure 5.

**Figure 5: Share of top 5 commodities in India's exports 2010-2011**

![Pie chart showing the share of top 5 commodities in India's exports 2010-2011]

- Agriculture and allied products: 9.90%
- Ores and minerals: 4.00%
- Manufacturing goods: 68.00%
- Crude and petroleum products: 16.80%
- Others: 1.30%

*Source: Based on Reserve Bank of India (RBI) database*

In 1980, the value of exports was US$ 11274 million which went up to US$ 13476 million in 1986, registering a growth rate of 19.5%. In 1990, the value of exports stood at US$ 22911 million, a rise of about 103% from the 1980 figure. After the economic reforms introduced in July 1991, which included several measures to liberalize exports, the export value jumped to the level of US$ 31560 million in 1994. The export value shot up to US$ 305729 million in 2008, up from US$ 116219 million in 2004 (Figure 6). The value then declined to US$ 260847 million in 2009 in the wake of global crisis. But then it gradually recovered to reach the level of US$ 349976 million in 2010.

**Figure 6: Trends in India’s Exports (1980-2010)**

![Graph showing trends in India's exports 1980-2010]

*Source: Based on UNCTAD database*
5.0 Data and Research Methodology

5.1 Sample period and data source

The study uses the annual data relating to exports and FDI inflows for the 31 year period from 1980 to 2011. The data source is the online database of UNCTAD (United Nations Conference on Trade and Development).

5.2 Methodology

We first test the data for its stationarity by using the augmented Dickey Fuller (ADF) unit root test. Thereafter, we employ the Granger Causality test to identify the direction of causality between the two variables.

Unit root test: Whenever we are dealing with times series data, we need to check the stationarity of the data. A series is said to be stationary if its mean and variance are constant over time and the value of the covariance between the two time periods depends only on the distance or gap between the two time period and not the actual time at which the covariance is computed. If a series is not stationary in the sense defined above, it will have a time-varying mean or a time-varying variance or both. It is important to check for the stationarity because if a time series in non-stationary, then we can study its behavior only for the time period under consideration. It would not be possible to generalize the results to other time periods. We test for stationarity using the Augmented Dickey-Fuller (ADF) test.

Granger Causality Test: The Granger-causality test describes the ‘causal relationship’ between variables in econometric models. The basic idea of Granger causality is that a variable X Granger causes variable Y, if variable Y can be better predicted using the history of both X and Y rather than using the history of Y alone. The Granger causality test assumes that the information relevant to the prediction of the respective variables, in our case Exports (X) and FDI, is contained solely in the times series data on these variables. The test involves estimating the following pair of equations:

\[
X_t = \sum_{i=1}^{n} \alpha_i FDI_{t-i} + \sum_{j=1}^{n} \beta_j X_{t-j} + u_{1t} \quad \text{.........(1)}
\]

\[
FDI_t = \sum_{i=1}^{n} \lambda_i FDI_{t-i} + \sum_{j=1}^{n} \delta_j X_{t-j} + u_{2t} \quad \text{.........(2)}
\]
where it is assumed that the disturbances $u_{1t}$ and $u_{2t}$ are uncorrelated. Since we have taken only two variables, exports and FDI, so we are dealing with bilateral causality.

Now there are four possible results that can emerge from this test.

- **Unidirectional causality from FDI to X**, which is indicated if the estimated coefficients on the lagged FDI in equation (2.1) are statistically different from zero as a group and the set of estimated coefficients on the lagged X in equation (2.2) is not statistically different from zero.
- **Unidirectional causality from X to FDI**, which is indicated if the set of lagged FDI coefficients in equation (2.1) is not statistically different from zero and the set of the lagged X coefficients in equation (2.2) is statistically different from zero.
- **Feedback, or bilateral causality between X and FDI**, which is indicated when the sets of FDI and X coefficients are statistically significantly different from zero in both equations.
- **Independence**, which is indicated when the sets of FDI and X coefficients are not statistically significant in either of the equation.

### 6.0 Results and Analysis

#### 6.1 Unit root test results

We first performed the ADF test on the exports series. The result (Table 1) indicate that the computed ADF test-statistic (3.630819) is greater than the critical values (-3.711457, -2.981038, -2.629906 at 1%, 5% and 10% significance level respectively) which implies that the exports series has a unit root and it is non-stationary. So, the ADF test was conducted for the first differenced series of exports. But again the ADF test statistic (-1.765541) was greater than the critical values. However, the second difference series of exports was found to be stationary as the ADF test statistic (-3.461748) was lower than the critical values.

Next, we performed the ADF test on the inward FDI series. The results (Table 2) indicate that the computed ADF test-statistic (5.122755) is greater than the critical values (-3.699871, -2.976263, -2.627420 at 1%, 5% and 10% significance level respectively) which implies that the FDI series has a unit root.
and it is non-stationary. So, the ADF test was conducted for the first differenced series of FDI. But again the ADF test statistic (-0.215211) was greater than the critical values. However, the second difference series of FDI was found to be stationary as the ADF test statistic (-8.123153) was lower than the critical values.

<table>
<thead>
<tr>
<th>Level</th>
<th>First Difference</th>
<th>Second Difference</th>
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<tbody>
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<td>ADF Test Statistic</td>
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<td>-1.765541</td>
</tr>
<tr>
<td>Test Critical Values: 1%</td>
<td>-3.711457</td>
<td>-3.699871</td>
</tr>
<tr>
<td>5% level</td>
<td>-2.981038</td>
<td>-2.976263</td>
</tr>
<tr>
<td>10% level</td>
<td>-2.629906</td>
<td>-2.627420</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>First Difference</th>
<th>Second Difference</th>
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<tbody>
<tr>
<td>ADF Test Statistic</td>
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<td>-0.215211</td>
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<td>5% level</td>
<td>-2.976263</td>
<td>-2.981038</td>
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<tr>
<td>10% level</td>
<td>-2.627420</td>
<td>-2.629906</td>
</tr>
</tbody>
</table>

### 6.2 Granger causality test results

After getting the stationary series for the two variables, we now apply the Granger causality test to ascertain the direction of causal relationship. The results show that the p-value for first hypothesis is less than the significance levels of 1%, 5% and 10% (Table 3). Hence, we reject the first null hypothesis. This implies that FDI inflows cause exports. For the second hypothesis also, we obtain similar results. The p-value is less than the significance levels of 1%, 5% and 10%. Hence, we reject the second null hypothesis also. This implies that exports also cause FDI inflows. Thus, we get a bidirectional causality i.e. FDI inflows cause exports and exports also cause FDI inflows.

The results indicate that due to the comparative cost advantage of India i.e. low labour costs, India has been able to attract more of efficiency-seeking
FDI and export-oriented FDI. The export-oriented investment arises in the process of relocation of production by MNEs abroad in order to maintain their international competitiveness in the face of rising wages and other costs in their home countries.

<table>
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<th>Null Hypothesis</th>
<th>F-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2F does not Granger Cause D2X</td>
<td>8.36707</td>
<td>0.0019</td>
</tr>
<tr>
<td>D2X does not Granger Cause D2F</td>
<td>27.2918</td>
<td>8.E-07</td>
</tr>
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</table>

Export-oriented FDI brings with it a ‘bundle of intangible assets’ such as new technology, skill, marketing know-how and management which are relatively scarce in developing countries but are indispensable for better export performance. The presence of export oriented FDI also induces purely domestic firms to diversify into export market when information on foreign markets brought in by foreign firms spill over to them.

The magnitude of exports from total manufacturing by foreign affiliates has risen consistently from about Rs. 7536 crore in 1991-1993 to Rs. 61159 crore in 2003-2005. The share of exports in the total sales of foreign firms has also gone up from 7.3% in 1991-93 to 12% in 2003-2005. Also, a large number of domestic firms have taken up export activities in the face of growing competition infused by liberalization which indicates the presence of the competition effect of FDI. The analysis of the trends in exports and FDI inflows done in the study also indicates that the sectors with high FDI inflows accounted for higher exports. For example, 68% of the exports are from the manufacturing sector which accounts for 20% of FDI inflows. Moreover, FDI has also helped to channel capital into industries that have the potential to compete internationally.

It seems that the implementation of economic reforms, export-oriented policy regime, establishment of special economic zones, a receptive foreign investment regime, improvement in physical and skill infrastructure, etc. might have improved India’s attractiveness as an export platform because foreign affiliates are positively affected by these developments. The higher growth rates of Indian industries and rising exports performance may also have influenced foreign affiliates to explore export potential in India.
Similarly, India’s improved export performance has helped to attract greater inflows of FDI. Many countries have been able to achieve high rates of growth by improving their export performance. This high rate of growth translates into improvements in infrastructure like transportation facilities, communication networks, information infrastructure etc. And this in turn helps to attract greater FDI inflows.

7.0 Conclusion

FDI has long been considered as an engine of economic growth for the host countries. Multinational firms can bring with them the bundle of intangible assets like technology, skill, management know-how, brand names, and information on global market, which are critical factors for improving international market share. Because of its advantageous position in terms of technology, managerial skills and access to international markets, FDI inflow may accelerate host country’s exports.

In this study, we examined the relationship between FDI inflows and exports. We found bi-directional causality running in both directions. The findings of this study show that inward FDI has significantly contributed to the export growth in India between 1980 and 2011 and the export growth has also attracted greater inflows of FDI into India.

The results draw important implications for the policymakers. The government should focus on attracting more of FDI which would help in export promotion. Factors like low cost labour, size of free trade, export processing zones, liberal trade regime and availability of quality infrastructure like high-quality transportation facilities, communication networks, information infrastructure helps in attracting FDI. India has till now been able to attract higher inflows of FDI due to its lower labour cost. But now there is a need to develop some new sources of efficiency.

The biggest hurdle in the way of India becoming a global export hub is its inability to provide high quality infrastructure, which is available in other competing locations. This is the major reason why China has been able to attract
manifolds more FDI than India. So steps should be taken to develop world class infrastructure which will also act as new source of efficiency in attracting FDI. India’s selective policy with respect to FDI has also been a major reason for why India has lagged behind China in attracting FDI. Although many new sectors have been thrown open for FDI but still a large number of restrictions prevail in some sectors. There is evidence that suggests that opening up a sector for FDI or enhancing the foreign equity holding limit helps to boost exports from that sector. For example, putting the Basic metal and fabricated metal under the automatic approval route and successive enlargement of foreign equity holding limit led to massive increase in the exports by the foreign affiliates in this sector from Rs 140 crore in 1990-93 to Rs. 14310 crore in 2003-2005. So, it is time that India adopts a more liberalized policy towards FDI which again would help to attract greater FDI inflows. FDI inflows would help to boost India’s export performance. And this increased level of exports would in turn help to cause greater FDI inflows into India.

No doubt, the investment climate in India has become much friendlier today than previous decades. Infrastructure is being developed and FDI policy is being liberalized to improve the situation. However, a lot is to be done if we want to emerge as one of the major export oriented manufacturing hub.

References


