SUMMARY AND CONCLUSION

CHAPTER – V

SUMMARY AND CONCLUSIONS

Introduction

FDI as a catalyst for the economic growth in the developing countries is well recognised worldwide (Choe, 2003; Balamurali and Bogahawatte, 2004; Li and Liu, 2005; Yasin et.al., 2009; Abbas et.al., 2011) as well as in India (Dash and Sharma, 2007; Verma and Arora, 2009; Dhakal et.al., 2010; Sethi, 2011; Ray, 2012; Saiyed, 2012). FDI has been widely recognised as a growth enhancing factor for host countries because it not only brings capital but also introduces advanced technology that can enhance the technological capability of the host country firms, thereby generate long-term and sustainable economic growth for the host countries. The technological benefit is not limited to locally-affiliated firms but it can also spread to non-affiliated firms and it is known as technology spillover. Unlike the technology imports, technology transfer through the FDI spillovers can help improve the productivity and export performance of the indigenous firms. Technology has been seen as a major driving force in output growth and economic integration of the global economy. FDI as a source of valuable technology and know-how can help jumpstart an economy.

Pradhan (2008) argues that FDI promotes economic growth indirectly via productivity spillovers and export spillover effects. The mere existence of foreign firms can improve the performance of firms in India via vertical linkages. Foreign firms in India can improve the productivity of the domestic firms by buying the latter's intermediate inputs and they improve the export performance of the indigenous firms when they supply intermediate inputs to them. Such spillover benefits from MNEs are important for India because industries in India are now under pressure to speed up their production process in order to exist and face the competition in the global competitive market.

Further, all globalising countries are under pressure to improve their productive efficiency in the face of competition from newly-emerging domestic firms on one hand and foreign competition on the other. This is especially true in case of India, which initiated major economic reforms in 1991, for shift towards an open economy along with privatisation of a large segment of the economy. These reforms were phased over a number of years and several reforms have been recently

implemented after 2000. The removal of quantitative restrictions and trade barriers to entry has opened up the economy to international market forces which coupled with the rising economic and social aspirations of the population, has led to the rapid emergence of a competitive environment especially in the industrial sector. Continuous improvement in productivity and efficiency is necessary particularly if India is to achieve a high growth rate and competitive target set for the industrial sector in the international market. Along with the improvement in the productivity, Indian firms have to improve their export competitiveness so as to narrow down the current account deficit and to improve the balance of payments position of the country. Thus it is essential to explore the impact of FDI spillovers on the productivity and export performance of Indian manufacturing firms. The current study analysed the impact of FDI spillovers on the productivity of Indian manufacturing firms on the basis of their technology intensity and structure of foreign ownership. The impact of FDI spillovers on the export performance of Indian manufacturing firms were analysed on the basis of the structure of foreign ownership.

Research Gap

A number of attempts have been made to analyse the impact of FDI spillovers on the productivity of domestic firms (Wei and Liu, 2006; Halpern and Murakozy, 2007; Reganati and Sica (2007), Blalock and Gertler, 2008; Wang and Zhao, 2008; Marcin, 2008; Javorcik and Spatareanu, 2009; Anwar and Nguyen, 2010; Le and Pomfret, 2011; and Gorodnichenko et.al., 2014). However, studies analysing the impact of FDI spillovers on the productivity of domestic firms in developing countries, including India, are relatively modest. Few studies in India focused on the impact of vertical FDI spillovers and productivity (Joseph,2007; Thakur and Burange, 2014; and Malik, 2015) while a few other studies focused on the horizontal FDI spillovers and productivity (Sasidharan, 2006; Mishra, 2011; and Thakur and Burange, 2014). Though there were many studies on the impact of horizontal and vertical FDI spillovers on the productivity of domestic firms in the host country few researchers tried to investigate the export spillovers from FDI (Greenaway et.al., 2004; Lemi, 2004; Ruane and Sutherland, 2005; Vuksic, 2005; Zhang, 2005; Buck et.al., 2007; Gu et.al., 2008; Sun, 2010; Nguyen and Sun, 2012; Sun, 2012; and Anwar and Nguyen, 2011). However, Indian studies on export spillovers are relatively less (Aggarwal, 2002; Banga, 2006; Joseph and Reddy, 2009; Prasanna, 2010; Kuntluru et.al., 2012; Barua, 2013; and Kemme et.al., 2014).

The current study contributes to the literature significantly in many ways. Firstly, a detailed systematic study on the impact of vertical FDI spillovers through the backward and forward linkages on the productivity and export performance of Indian manufacturing firms is limited and hence this study has made an attempt in this regard. Secondly, in comparison to previous studies (e.g., Aggarwal, 2002; Banga, 2006; Joseph and Reddy, 2009; Prasanna, 2010 and Kuntluru et.al., 2012), this study considers more recent data for a relatively longer period of latest 13 years after a decade of globalisation. Further, unlike most of the studies the current study has divided the Indian manufacturing firms on the basis of technology intensity viz., low technology firms and high technology firms and has classified the foreign firms on the basis of structure of foreign ownership viz., majority-owned foreign firms and minority-owned foreign firms to analyse the influence of FDI spillovers on the productivity and export performance of Indian manufacturing firms. The present study has, thus, focused on analysing the impact of FDI spillovers via horizontal and vertical spillovers on the productivity and export performance of Indian manufacturing firms for the period 2000-01 to 2012-13.

Rationale for the Study

Governments of the developing countries often provide investment incentives for the foreign firms because FDI is often seen as a vehicle for economic growth. Foreign presence in a given sector is often associated with the transfer of superior technical and managerial know-how, better organisational practices, and information about the foreign markets which tend to spillover to the domestic firms even without the knowledge of the foreign firms which can improve the productivity and export performance of indigenous firms. Such FDI spillovers either horizontal (FDI in the same sector) or vertical spillovers (FDI in upstream or downstream industries) may affect the productivity or export performance of the domestic firms.

But in a developing country like India, FDI is deemed to create only direct benefits (bringing in capital, creating employment opportunities etc.,) to the economy. However, the indirect effects of FDI on the host economy via spillovers often go unnoticed or ignored. There cannot be direct transfer of technology by the foreign firms; however it could occur indirectly where the foreign technology spills over to the indigenous firms unintentionally. Technology transfers from foreign firms are one of the important contributions of FDI and such transfers to the domestic firms can give leverage to the economic growth of a developing country like India. In the

view of above discussion, the following research question remains: Does the presence of foreign firms help domestic firms to improve their productivity and export competitiveness through either horizontal or vertical spillovers? Hence the need for the current study arises.

Scope of the Study

Since the 1990s, FDI has been a source of economic growth for India, believing that besides needed capital, FDI brings in several benefits. The most important benefit for a developing country like India is that FDI could create more employment. In addition, technology transfer is another benefit for the host countries. FDI is one of the most prominent and striking feature of today's globalised world. Developing countries considered FDI as the safest type of external finance as it not only supplement domestic savings, foreign reserves but promotes growth even more through spillover of technology, skills, increased capacity, and domestic competition. The benefits of FDI vary greatly across sectors viz., primary, manufacturing, and services sectors. FDI in the primary sector, however, tend to have a negative effect on growth, while investment in manufacturing a positive one (Kumar, 2014). FDI in manufacturing sector creates more jobs to unskilled, semi-skilled and skilled labourers across the country. FDI can provide technology for the domestic firms indirectly via spillover effects which can help the domestic manufacturing firms to produce and export high technology products with good quality at competitive prices. Exporting high technology products can increase the value and quantum of exports which improves international trade and brings with it more foreign exchange into the country. Taking the above discussions into consideration a study on FDI in the manufacturing sector is required to decipher the indirect benefits of FDI via spillovers effects so that necessary policy changes could be made to attract FDI into the manufacturing sector. Thus the current study focused on the impact of FDI spillovers on the productivity and export performance of the manufacturing firms.

Objectives

- To analyse the trends in FDI inflows in India since liberalisation period.
- To study the causal nexus between FDI and economic growth and observe the direction of causation.
- To identify the determinants of FDI in India.

- To examine the impact of vertical spillovers from the foreign firms on the productivity of Indian manufacturing firms.
- To analyse the influence of vertical spillovers on the export performance of Indian manufacturing firms.
- To offer suggestions to improve the productivity and export performance of Indian manufacturing firms through backward and forward FDI linkages.

Hypotheses

- The FDI inflows into India increased substantially since the post liberalisation period.
- There is no causal nexus between FDI and economic growth.
- Gross domestic product, trade openness, exchange rate, current account deficit and government's spending on economic infrastructure determine the FDI inflows into India.
- There are positive backward and forward FDI spillovers from the foreign firms on the productivity of Indian manufacturing firms.
- The backward and forward FDI spillovers from the foreign firms have a positive influence on the exports performance of the Indian manufacturing firms.

Methodology

The Indian manufacturing sector provides a particularly interesting setting to examine the impact of FDI spillovers on the manufacturing firms. The current study was bifurcated into two parts; the first part dealt with the trends of FDI inflows, determinants of FDI inflows and the causal nexus between FDI and economic growth for the period 1990-91 to 2012-13; and the second part dealt with the impact of vertical FDI spillovers on the productivity and export performance of Indian manufacturing firms for the period 2000-01 to 2012-13. The impact of vertical FDI spillovers on the productivity and export performance of Indian manufacturing firms was based on firm-level panel data set for the time period 2000-01 onwards as the foreign equity information for the Indian manufacturing firms was available only from 2000-01. Firms having foreign equity less than 10 per cent were considered as domestic firms and greater than 10 per cent of total equity was classified as foreign firms. Based on the foreign equity information the foreign firms were classified as majority-owned and minority-owned firms. Majority-owned foreign firms were those

firms with at least 50 per cent foreign equity participations and the minority-owned firms are those with above 10 per cent but below 50 per cent foreign equity participation. The domestic firms were classified as low technology and high technology firms based on their technology intensity. The firm level panel data comprised of 6825 observations for 525 Indian manufacturing firms of 18 industries (NIC classification-2008; two digit classification) for the period 2000-01 to 2012-13.

The current study was based on time series and firm-level panel data which are secondary and quantitative in nature. Data for the study were compiled from secondary sources viz., SIA Newletters, Factsheet on FDI, Handbook of Statistics on the Indian Economy, Data book published by the Planning Commission, Input-Output Transactions Table (IOTT), National Industrial Classification, 2008 (NIC-2008-two digit classification). OECD (2007) classification was used to classify the Indian manufacturing firms on the basis of technology. The firm level data was taken from Centre for Monitoring Indian Economy's (CMIE) electronic database PROWESS and price indices were obtained from the reports published by Central Statistical Organisation (CSO), Ministry of Statistics and Programme Implementation, Government of India.

Data were analysed by using annual percent growth rate, compound annual growth rate, Johansen's cointegration test, vector error correction model (VECM), ordinary least squares (OLS), fixed effects regression with Driscoll-Kraay standard errors, feasible generalised least squares (FGLS) regression and Heckman selection maximum likelihood methodology. Hausman test was done to choose between fixed effects and random effects regression. Before doing the computations, the stationarity of each series was tested using the Augmented Dickey-Fuller test. Multicollinearity, heteroscedasticity, and autocorrelation were tested using the Variance Inflation Factor (VIF), Breusch-Pagan/Cook-Weisberg test and Wooldridge test respectively. Apart from this the Lagrange-Multiplier test was done to test for residual autocorrelation and Jarque-Bera test was done to test for normal distribution of disturbances. The conclusions were drawn on the basis of five per cent level of significance. All the analysis was performed using the software packages Eviews 7 and Stata 12.

Empirical Findings

The empirical findings of the study are presented below:

Trends in FDI Inflows in India (1990 to 2000)

- India attracted the highest FDI inflows during the period 1992-1993 at US $ 315 million (144.19 per cent) and the next highest FDI inflows in India was recorded in the year 1994-1995 at US $ 1314 million (124.23 per cent). According to Narang and Singh (2008) this increase may be due opening up of automatic route. Also 100 per cent FDI was allowed in a number of industries.
- From 1994-95 to 1997-98 the FDI inflows showed a decreasing trend. The reason behind this decrease was found to be the prohibition of FDI in certain sensitive sectors such as agriculture, retail trading, railways and real estate.
- Towards the end of the first decade of opening up of the Indian economy there has been a negative annual average growth rate for the period 1998-99 and 1999-00 (-30.78 per cent and -12.47 per cent respectively).
- The most favourable years for the first decade of opening up were 1992-93 and 1994-95 recording highest FDI inflows.
- The compound annual growth rate for the decade 1990-91 to 1999-00 was 36.35 per cent. The positive growth in FDI was substantiated in various studies (Choe, 2003; Balamurali and Bogahawatte, 2004; Wang, 2009; Abbas et.al., 2011; and Dash and Sharma, 2007).

Trends in FDI Inflows in India-During 2001 to 2013

- FDI inflows were highest during 2006-07 with US$ 22826 (154.73 per cent) and the next highest growth rate was during 2000-01 with US$ 4029 (86.96 per cent) FDI flowing into the country.
- From 2007-08 FDI inflows into India fell steeply and the annual rate of FDI inflows became negative since 2009-10 till the end of the study period 2012-13 except during 2011-12. This can be attributed to the well known global meltdown or the global recession which affected the FDI inflows into India. In 2008 and early 2009, global FDI flows declined following a period of uninterrupted growth from 2003 to 2007.
- The RBI recorded an “almost 36 per cent” dip in inward FDI during April-September 2010. It was not a global phenomenon but it was borne out of the fact that FDI inflow into other emerging economies (China, Brazil, Mexico

and Thailand) during this period was up in the range of 6-53 per cent in 2010. According to Satyanarayan et.al., (2011) Indonesia recorded about a three-fold rise in FDI inflows. Thus, it is apparent that after the global financial crisis India failed to attract substantial FDI into India.

- The compound annual growth rate for the study period (2000-01 to 2012-13) was 18.56 per cent. This was just a half of the CAGR calculated for the period 1990-91 to 1999-00. During the period 2000-01 to 2012-13 FDI inflows into India has gone down steeply.

Trends in FDI Inflows in India - During 1990 to 2013

- For the 23 years since the globalisation period i.e., from 1990-91 to 2012-13 the FDI inflows for the period 2006-2007 was the highest with 154.73 per cent (US$ 22826 millions). The next favourable year for FDI inflows were 1992-93 and 1994-95 with 144.19 per cent and 124.23 per cent respectively. The lowest FDI inflows into India in the post-globalised era was during 1998-99 and 2012-13 with negative annual growth rates with -30.78 per cent and -20.83 per cent respectively. The compound annual growth rate of FDI inflows for the post-globalised era was 29.47 per cent.
- The services sector attracted highest FDI inflows (18 per cent) than any other sector, followed by construction (11 per cent), telecommunications and computer software and hardware (each six per cent) during the period April 2000 to January 2014. India's growth has been basically services-led growth, pulling up overall growth of the economy. The lowest share of FDI inflows was in the hotel and tourism sector attracting about three per cent of the overall FDI inflows.
- About 37 per cent of the total FDI inflows into India were from Mauritius and 11 per cent from Singapore and 10 per cent from U.K. About two per cent of the FDI inflows into India were from France and only one per cent of the FDI inflows were from U.A.E.

FDI and Economic Growth

- The results of the Johansen’s cointegration test supported the hypothesis of cointegration between FDI and GDP, implying that there are stable long run relationships between the two variables. Similar results were reported by Srinivasan et.al, (2010) in the case of five ASEAN countries.

- The results of the vector error correction model confirmed that there exists uni-directional long run causality from GDP to FDI. The results also makes it clear that there was no reverse causality (i.e., from FDI to GDP). It is evident from the results that it was economic growth that promotes FDI inflows in the economy and hence, support GDP-driven FDI hypothesis. Similar results were found by Pradhan (2008) investigating two Asian countries namely India and Malaysia and confirmed that it was economic growth that promoted FDI in both the countries. However, FDI causes economic growth indirectly via spillover effects.

Determinants of FDI in India

- The regression results show that gross domestic product has a negative influence on FDI inflows. Similar result was reported by Nurudeen et.al., (2011). The reason for this may be that the share of the manufacturing sector towards the total GDP was much below its potential and requirement.
- Trade openness was significant and positively influencing the FDI inflows into India. The results suggests that as India opens up by lowering trade restrictions and exchange controls it increases the FDI inflows as is shown by the significant and positive coefficient (7.1684). Similar results were observed by Kravis and Lipsey (1982), Culem (1988), and Edwards (1990) who found a strong positive effect of openness on FDI.
- Exchange rate depreciation has a significant and positive influence on FDI inflows. This was evident by the exchange rate coefficient (4.7503). Nurudeen et.al., (2011) stated that if a country's exchange rate depreciates, it will reduce the dollar price of its domestic industries, thus attracting foreign investors who may take advantage of the lower prices in the form of merger and/or acquisition.
- Development of infrastructure has a close link with inflow of FDI in the economy. There was a significant and positive relationship between infrastructure and FDI inflows in India as indicated by the coefficient (0.9658). This result indicates that development of infrastructure will reduce the cost of doing business and increase the profitability of investment, thus attracting FDI. Similar results were reported by Fuat and Ekrem (2002), Marial and Ngie (2009), and Nurudeen et.al., (2011).

- The coefficient of current account deficit was negative (-0.0210) and not statistically significant. Pradhan (2008) also found a negative relationship between current account deficit of balance of payments and FDI but the results were statistically insignificant.

Vertical FDI Spillovers - All Domestic Firms

- The estimated coefficient of backward FDI (0.0259) spillovers for all domestic firms was positive and statistically significant and hence the presence of foreign firms in the downstream industries benefits the domestic firms by increasing their productivity. The MNEs who procure inputs from the domestic firms are demanding which forces the indigenous firms to meet the stringent norms set by the foreign affiliates. Similar results were found by Lall (1980) who observed that MNEs contribute to raising the productivity and efficiency of the local suppliers.
- The knowledge spillover takes place from the foreign firms in the same industry via horizontal FDI spillovers to the domestic firms as shown by the coefficient (0.0302). This may be because the technology of the foreign firms may not protected by intellectual property rights (IPRs) and also because of employee turnover from foreign firms to domestic firms. Hence the existence of foreign firms in the same sector as that of the indigenous firms increases the productivity of the domestic firms by three per cent.
- The foreign firms in the upstream industry do not influence the productivity of the domestic firms since the coefficient of forward FDI (0.0020) was positive but not statistically significant.
- The coefficient of the technology import intensity (-0.0037) was negative but statistically significant. The domestic firms could not completely reap the benefits of the imported technology because of lack of in-house technical expertise. Another reason for the negative influence on the productivity of Indian firms may be due to high cost of technology imports and lower output of the indigenous firms. Subrahmanian et.al., (1996) found no clear empirical evidence of any complementary relationship between technology import (especially through FDI) and domestic technological efforts.
- The domestic firms' R&D expenditure, export intensity and level of competition in the industry do not have any significant effect on the productivity of Indian manufacturing firms.

Vertical FDI Spillovers - Low Technology Domestic Firms

- The existence of foreign firms in the downstream industries, upstream industries or same industry as that of the domestic firms does not influence the productivity of the indigenous firms in the low technology industries. The Indian firms in the low technology industry do not have the absorptive capacity or the R&D intensity to absorb the horizontal and vertical (backward and forward) spillovers from the foreign affiliates.
- Competition in the industry does not affect the productivity of domestic firms in the low technology industry.
- R&D expenditure, technology imports and the exports of domestic firms in the low technology industries does not increase their productivity.

Vertical FDI Spillovers - High Technology Domestic Firms

- The productivity of the domestic firms in the high technology industries increase with the existence of the foreign affiliates in the downstream industries. This is because when the domestic firms strive to meet the stringent quality standards set by the MNEs they become productive and efficient.
- But the foreign firms in the supplying industries do not increase the productivity of the indigenous firms in the high technology industries. It is evident that the domestic firms in high technology industries still lack sufficient absorptive capacity to decipher the technology embodied in the products supplied by the foreign manufacturers.
- The foreign firms in the same sector as that of the domestic firms increases the productivity of the domestic firms in the high technology industries. This is because of the weak intellectual property rights (IPR) protection for the MNEs' products or it may be due to high employee turnover from the foreign firms to the domestic firms.
- As the competition in the high technology industry increases the productivity of the domestic manufacturing firms' increases by 14 per cent.
- R&D expenditure, technology imports and the exports of domestic firms in the high technology industries does not increase their productivity.

Vertical FDI Spillovers – Based on Structure of Foreign Ownership

- The foreign firms in the minority-owned foreign affiliates source more intermediate inputs from the domestic firms than the majority-owned foreign

affiliates. From the results it is evident that it is the minority-owned foreign firms in the downstream industries which increase the productivity of domestic firms through their spillover effects.

- The minority-owned foreign firms in the upstream supplying industries reduce the productivity of domestic firms. This implies that though the technology is embodied in the products supplied by the foreign affiliates, the domestic firms do not have the absorptive capacity or they are not able to decipher the technology embodied in the products supplied by the foreign firms due to which the productivity of indigenous firms decreases.
- The existence of majority-owned foreign firms in the same industry increases the productivity of Indian firms by three per cent.
- An increase in competition in the industry increases the productivity of the domestic firms by seven per cent. The results suggest that to withstand the competition from the MNEs the domestic firms try to be efficient.
- R&D expenditure, technology imports and exports of domestic firms does not increase the productivity of domestic firms.

Export Spillovers

- The domestic firm's capital positively influences the host country's decision to export. Capital positively influences the domestic firms' decision to export and export intensity (Franco and Sasidharan, 2009). Increase in capital of the domestic firms may help them to meet their sunk entry costs.
- The existence of foreign firms in the same sector as that of the domestic firms negatively influences the domestic firms' export share by 19 per cent. Though the domestic as well as the foreign firms belong to the same industry, the foreign firms with their edge over the domestic firms with regard to production technology and management know-how export more than the indigenous firms. Thus the MNEs try to crowd out the domestic firms from the foreign markets.
- The existence of the foreign firms in the upstream industries increases the export participation and export share of all domestic firms. The foreign firms in the supplying industry increase the probability of exporting of all domestic firms by six per cent and increase the export intensity by 13 per cent. The estimated results shows that domestic firms can gain access to new, improved, or less costly intermediate inputs produced by foreign firms. This

encourages the domestic firms to supply high quality products at competitive prices in the foreign market by making their goods competitive in the export market (Anwar and Nguyen, 2011).

- The presence of foreign firms in the downstream industries does not influence the export participation and export share of the domestic firms.
- The decrease in competition in the industry reduces the export decision and export share of all domestic firms. The results indicate that less competition in the industry will make the domestic firms comfortable in the home market without exploring a market abroad.
- Research and Development (R&D) expenditure increases the export share of all domestic firms by 12 per cent. This is because, increase in the research and development activity of the domestic firms improves their absorptive capacity and enables them to absorb the knowledge spillovers or export spillovers from their MNE counterparts thereby helping them to increase their export share.
- Import of capital goods and spending on royalty and technical know-how by the indigenous firms increases the export intensity of all the domestic firms by nine per cent.

Export Spillovers Based on the Structure of Foreign Ownership

- Capital positively influences the export decision of the domestic firms because an increase in the capital helps the domestic firms to meet the sunk entry costs in exporting and encourages them to explore the foreign markets.
- The decrease in competition in the industry reduces the export participation and export share of the indigenous firms. The results indicate that less competition in the industry will not induce the domestic firms to explore the market abroad.
- Increase in the R&D expenditure and the technology imports of the domestic firms, increases the quantity of exports of the indigenous firms. One important observation from the result is that the domestic firms' in-house R&D capabilities help them to increase their quantum of exports than by importing technology.
- The existence of the foreign affiliates both the majority-owned and minority-owned foreign firms in the same industry as that of the domestic firms have a negative influence on the export participation and export intensity of the

domestic firms because the foreign firms will have the tendency to prevent the technology leakage to domestic firms (Malik, 2015) since both operate in the same industry.

- The existence of majority-owned foreign firms in the downstream industries reduces the export participation of the domestic firms.
- The minority-owned foreign firms in the procuring industry increase the export participation of domestic firms.
- With regard to the forward FDI linkages, it was observed that it was the spillovers from the minority-owned foreign firms which positively influenced the export decision of the domestic firms rather than the majority-owned foreign firms which actually reduces the domestic firms' probability to export. This may be due to the majority local participation in the minority-owned foreign firms which causes the spillovers to occur.
- The export spillovers from the majority-owned foreign firms have a positive influence on the export intensity of the domestic firms. Since the foreign ownership in the majority-owned foreign firms is high the MNEs with their knowledge on the foreign markets, superior technology and high quality products stand out in the foreign markets and the firms in the host country follow these MNEs either by imitating or by observing their exporting activities which increases their export share.

Conclusions

The economic growth of India had influenced the FDI inflows but FDI inflows do not cause economic growth in India. However, FDI positively affects the economic growth of India through indirect benefits via FDI spillovers. FDI positively influenced the productivity of the Indian manufacturing firms in the high technology industries through horizontal (foreign firms in the same sector) and backward FDI spillovers (foreign firms in the purchasing industry) as the domestic firms strive to meet the stringent standards set by the MNEs which make them efficient. But the existence of foreign firms in the low technology industries does not have a positive effect on the productivity of Indian firms. Indian manufacturing firms in the low technology industries do not gain from the existence of MNEs because the low technology firms are not able to meet the requirements of the foreign firms due to their low technology intensity. This makes it clear that the Indian firms in the low technology industries lack the technology to satisfy the needs of the foreign affiliates. Moreover, the Indian

firms lack the absorptive capacity to absorb the technology spillovers from MNEs. The existence of foreign firms in the supplying industry reduces the productivity of the domestic firms because the Indian firms are not able to decipher the technology embodied in the intermediate products produced by the foreign firms. And the increase in competition because of the existence of the foreign firms increases the productivity of the Indian firms in the high technology industries because competition makes them even more efficient. With regard to the structure of foreign ownership positive productivity spillovers accrue to the Indian firms in the upstream industries through the minority-owned foreign firms.

When it comes to the FDI spillovers and the export performance of the Indian firms, the existence of foreign firms in the same sector as that of the domestic firms negatively affects the export share of the Indian firms because the foreign firms with their superior technology and knowledge about the foreign markets try to crowd out the indigenous firms from the foreign markets because they both exist in the same industry. The export performance of the indigenous firms was positively influenced by the forward linkages with foreign firms. When the domestic firms procure the foreign firms' supply of intermediaries they produce quality products at competitive prices due to the quality of the intermediate supplies by the foreign affiliates. When it comes to the export performance of the indigenous firms it was the minority-owned foreign firms in the supplying sector which increased the probability of the export participation of the domestic firms. This is because of the majority participation of local firms in the minority-owned foreign firms. However, the export share of the indigenous firms was influenced by the majority-owned foreign firms. From the study it was apparent that the absorptive capacity of the Indian manufacturing firms was low which hinders their possibility to fully absorb the spillover benefits from the foreign affiliates. While FDI has done fairly well in improving the productivity and export performance of the Indian manufacturing firms, greater challenges lies ahead with regard to improving the absorptive capacity or technical efficiency of the Indian firms.

Recommendations

There is no denying the fact that India is receiving FDI inflows far below her potential. Indian government has taken several steps to make the FDI policies simplified and transparent, have increased the FDI limits in different sectors, opened many new sectors for FDI, and have placed many sectors on the automatic approval

route. In spite of all this, India receives much lesser FDI as compared to developing economies of China and Brazil. India stands the chance of losing its comparative advantage in lower labour costs and large domestic markets to the newly emerging low cost economies of Indonesia, Vietnam and Philippines. If some reform measures are not implemented quickly, chances will soon take the shape of reality. The main focus of the current study is the impact of FDI spillovers on the productivity and export performance of Indian manufacturing firms. As the results of the study suggests it is up to the Indian firms to improve their technology to fully internalise the technology spillovers from the foreign affiliates. The ways to improve the research and development activities of the Indian firms have to be thought, otherwise there are possibilities that the Indian firms in the sectors where the foreign presence is felt may be crowded out or it may result in decrease in the productivity and export share of the indigenous firms. Therefore, it is high time that India learns some lessons from other countries and launches some crucial reforms.

Based on the above analysis the following recommendations are made:

- The analysis of this study reveals that FDI inflows into India since the global meltdown has gone down. It was not only because of the global financial crisis but due to the fact that major share of FDI went into other emerging economies. This is due to the lacunae in the government policies. Benefits from FDI could be maximised if efforts are concentrated on attracting long term productive FDI. To attract quality FDI, India must ensure a sound macroeconomic environment which requires adequate infrastructural facilities, stability of exchange rate, political stability, strong administrative will, market perfection and control over inflation.
- The regression results revealed that Indian GDP has negative influence on the FDI inflows. Considering the sectoral contribution towards GDP, it is a well known fact that the major sectoral share is from the services sector. As far as the real sector is considered its contribution towards the total GDP is much below its potential. Unless the contribution of the manufacturing sector to the total GDP increases, GDP as a significant variable to influence the FDI inflows will continue to be negative. Hence to encourage the production sector, the policy makers should ponder over lowering the lending rates for the promising industries, lowering import duties on essential intermediate inputs and capital

goods, lowering excise duties, tax holidays for the infant industries and sick units by way of rehabilitation and ensuring uninterrupted power supply and water supply. These are the bare minimum requirements for improving the production sector. Though certain policies may be in place the government should see to it that the policies are properly implemented and the benefits of such policies reach the beneficiaries.

- FDI has found to be influenced by trade openness of country which implies that a more liberalised foreign investment policy framework is required in India to decrease the gap in FDI inflows of India and China. Reserves are also playing important role in influencing FDI inflows in India. There should be favourable economic environment in terms of increasing efforts with regard to provision of subsidised raw material, power, land and tax concession for the development of export oriented manufacturing units, which in turns helps to improve the foreign exchange reserves position in India.
- The results also indicate that the exchange rate depreciation has a positive influence on FDI inflows and hence currency depreciation could help. For a country like India, multiple exchange rates would be suitable.
- To attract larger quantities of FDI into the country, government spending should increase with regard to the economic infrastructure viz., good quality roads, power, telecommunications, ports, airports and high speed internet connectivity.
- From the findings, it is evident that the scope of R&D needs to be extended in improving productivity. Policy makers should focus on local technology generations, and provide more subsidies and tax concessions on product or process innovations in case of Indian manufacturing.
- Domestic firms need to be proactive in establishing and exploiting their contacts with MNCs. Such contacts can improve the quality of technological spillovers. In addition, government can also facilitate collaboration between domestic and foreign firms, thereby enhancing the quality of both forward and backward linkages.
- The export activities of the foreign affiliates must be encouraged by the Indian government because such exporting activities of the MNEs will benefit the domestic firms because the information about the foreign markets, the

expectations of the foreign customers and exporting procedures will unintentionally spillover to the indigenous firms.

- India should consciously work towards attracting greater FDI into research and development activities as a means of strengthening the country's technological capacities.
- Business regulatory framework in India should be such that there should be speedy clearances of projects.

Future Research

Though the research presented here summarises results providing useful insights on FDI spillovers and its impact on the productivity and export performance of the domestic firms, it leaves scope for further refinement. Main recommendations regarding future research in the area are as under:

- Future research could be undertaken to examine the trends in FDI inflows into the Indian manufacturing sector.
- The current study has analysed the causal nexus between FDI and economic growth of India. Specifically, the causal nexus between manufacturing FDI and economic growth could be analysed.
- Future researchers can identify the factors determining FDI in the manufacturing sector in particular.
- Many research studies on FDI spillovers focus on horizontal spillovers. There is a lack of research on vertical spillovers. Moreover as the current study has made it clear that the extent to which the benefits from FDI spillovers could be reaped by the domestic firms depends upon their absorptive capacity. Hence, the future studies on FDI spillovers could focus on the impact of vertical spillovers on the domestic firms considering their absorptive capacity.
- One more aspect which is largely neglected in the FDI spillover studies is the export spillovers from FDI. The export activity of the foreign firms could affect the export decision and export intensity of the domestic firms as it is confirmed by the current study. Hence future studies could take up vertical FDI spillovers and its impact on the export performance of indigenous firms.
- The current study has considered technology intensity of the domestic firms and has also considered the structure of foreign ownership while investigating the spillovers from foreign firms. Future studies on FDI spillovers can consider

other characteristics of domestic firms' viz., firms in public sector and private sector and the like, for a better understanding of the impact of foreign firms on the performance of the indigenous firms.

- The main focus of the existing literature on FDI spillovers has been on the manufacturing sector. There is lack of research investigating the spillover effects of FDI on the services sector. Therefore, FDI spillover studies could be undertaken in the services sector in future. It would also be interesting to investigate and compare the extent of spillovers accruing from FDI and absorbed by the manufacturing sector and the services sector.
- Many of the FDI spillover studies, including the current study have considered those domestic firms having a foreign equity of at least 10 per cent as foreign firms. Future studies on FDI could define the foreign firms in a different way i.e., a minimum foreign investment of 20 per cent or 25 per cent could be treated as foreign firms. The way in which a foreign firm is defined can lead to different results and important policy implications.