CHAPTER IV

LITERATURE REVIEW

This chapter provides a review of the existing literature on exports determinants of India. These studies examine the demand function of exports or supply functions of exports or examine both demand and supply functions in simultaneous equation framework, using cointegration or other econometric techniques, or using gravity equation models. We divide these studies into three categories; Aggregate level analysis, Commodity level analysis and direction wise analysis.

IV: 1 Determinants of Indian Export: Aggregate Level Analysis

One of the first studies on exports determinants of India in the post independence period is by Murti and V. Kasi Sastri (1951). They examined the determinants of Indian exports to eight major countries (UK, USA, Germany, France, Japan, Netherland, Australia, Canada, since these countries accounted for 68% of India’s exports during the quinquennium ending 1938-39) for the period 1928-29 to 1938-39. Income index and relative price index of Indian exports to these countries were constructed using the weighted average method. The price elasticity is estimated at -0.78 and income elasticity at 1.19 for the short term and long term. So the Indian exports during the study period was inelastic to price and elastic to income.

Contrary to this, Nurkse (1961) noted that the slowly growing world demand was the main reason for the stagnation of Indian exports in the 1950s.
Da Costa (1965) estimated the demand function of Indian exports for the period 1953 to 1962 using annual data. The variables included in the study were exports price and real world income. An Ordinary Least square method is used to estimate the price and income elasticities of Indian exports. The estimated price elasticity was -0.48 and the income elasticity of Indian exports was 0.20. Peera (1979) provides a review of the literature on exports determinants of India.

Banerji (1972) analysed firstly, the relationship between the level of economic development and share of manufactures in total exports and secondly, whether there is any systematic change in the structure of the manufactured exports with economic development. For the first objective the share of manufactured exports to 72 countries (including India) were regressed upon the level of industrialisation, per capita income, population and density of population. It is found that the share of manufacturing in total manufactures is positively related with per capita income, level of industrialisation, population and density of population. Father the analysis was conducted in a reduced sample of 64 developing countries, including India, but the authors provide mixed results for these estimations since the coefficient of per capita income is not significant. Regarding the pattern of manufactured exports change, the study found that capital and skill intensive goods exports increases with the level of economic development, while the labour intensive goods’ share decreases.

Nguyen and Bhuyan (1977) have estimated elasticities of demand for Indian exports and imports while estimating the same for four South Asian countries such as Pakistan, Sri Lanka and Bangladesh other than India. The analysis was done in the period 1957 to 1969. For total exports income elasticity was 1.47 and price elasticity was -0.47, both are significant.

Bahmani-Oskooee (1986) used Distributed Lag approach to estimate the export demand function for India and to examine the effect of relative price and real exchange rate on export.
flows. The price and income elasticity of Indian exports were found to be low and price elasticity is significant at the 10 % level. The Distributed Lag estimation of the effect of exchange rate and relative price on Indian exports indicates that an even fourth and fifth lags of relative price have a negative effect on Indian exports.

Nayyar (1987) identified the internal and external factors responsible for the export performance of India during 1970 to 1985. He noted that the slow growth of agricultural production reduced exports of agricultural items, while the internal demand was a discouragement for exporters of manufactured goods. But favourable external factors such as foreign demand helped India to sustain export growth during this period.

Bond (1985) analysed trends and determinants of developing country exports for the period 1965 to 1980. Instead of doing the analysis on commodity or country level Bond did his study of various country groups and commodity groups. For examining the determinants of exports, the author used log linear demand and supply functions of exports. In the demand function the quantity of exports of commodity group ‘k’ of country group ‘r’ is regressed on export price of ‘k’ from country group ‘r’, world import price of ‘k’ and the income of importing countries. In supply function, export, supply of ‘k’th commodity from country group ‘r’ is a log linear function of log-linear function of current and lagged ratios of the export price of commodity ‘k’ to domestic price levels in producing countries in the region ‘are’, an index of productive capacity in regional ‘r’, and supply shocks. The price elasticity of demand for the Asian country group, which includes India, is estimated at -0.33 (total exports), for agricultural raw materials, in -0.34, minerals at -0.40 and energy at -0.36 and for food items at -0.33 and the income elasticity of demand is estimated at 1.14 for food items, 0.46 for agricultural raw materials, minerals 1.19 and energy 3.56, all are significant. The price elasticity of supply was also found significant in the study.
Ifzal (1987) has analysed the supply factors of Indian manufacturing exports for the period 1967-68 to 1980-81 and observed that export supply is positively affected by relative price and negatively affected by the domestic demand, as an indication of the growth bias against exports. Further, this study separated the relative price effect into effect of the subsidy and the effect of exchange rate. It is found that both are positively affecting exports, while the effect of exchange rate is more than that of subsidy.

Arize (1990) used quarterly data for the period 1973 through 1985 to examine demand and supply factors of Indian exports. The price and income elasticities of demand for Indian exports are found to be significant and coefficients are -0.87 and 0.63 respectively. On the supply side, this study found a positive effect of relative price and a negative effect of domestic income on exports.

Virmani (1991) estimated supply and demand functions of India’s manufactured exports and primary exports by using annual data for the period 1970-71 to 1985-86. The exogenous variables used in demand function were price of the Indian export / price of imports of the rest of the world, the price of the all other goods consumed by the rest of the world. In supply function the independent variables used were rate of export subsidy, the price of non-exported commodities (proxy by the wholesale price index), domestic income, and rainfall and capacity utilisation. He found that for manufacturing exports, price factors such as the real exchange rate and relative price are the important determinants.

Athukorala (1991) examined the determinants of agricultural exports of a sample of seven developing countries from Asia such as Malaysia, Thailand, the Philippines, Indonesia, India, Pakistan, and Sri Lanka for the period 1960 to 1986. Three factors, namely, the relative importance of external demand conditions, competitiveness and commodity diversification were considered in the analysis using time series regression approach. The variables used
were world demand, index of competitiveness in traditional export and exports diversification index. The results indicated that export diversification and competitiveness can contribute substantially to the export growth of agricultural goods of developing countries. This shows that even if demand side factors are unfavourable supply side factors such as diversification and competitiveness can stimulate the agricultural exports of developing countries.

Another important study was by Aksoy and Tang (1992). They analysed India’s trade and industrial performance for the period 1970-88. They constructed an export function, which includes supply and demand factors to analyse the determinants of India’s total and manufactured exports. For total exports, the results indicate a supply constrained nature of Indian exports, where the domestic demand is negatively affecting the exports. For manufactured exports also it is found that the domestic demand and real exchange rate negatively affecting the exports.

Koshal et al (1992) suggested a multiplicative simultaneous equation system to estimate the determinants of Indian exports for the period 1960 to 1986. This study estimated a short run price elasticity of demand as -0.95 and long run price elasticity as -2.90. The respective income elasticities are 1.31 and 4.01. The estimated long run supply price elasticity was 25.50 against short run value of 1.91. The high price elasticity of supply indicates that the exports surge during this period is attributed by the devaluation.

Vinod and McCullough (1994) criticised the results of KSK on the grounds of sample size and the reliability of the estimates since KSK estimated a price elasticity of supply of 25. Vinod and McCullough used 2stage LS and bootstrapping methods to re-estimate the model used by KSK with same dataset. Since the bootstrapped distribution is different from asymptotic distributions, the authors observed that the small sample problem is severe in KSK’s results and the results are not reliable.
Gupta and Keshava (1994) estimated price and income elasticity of demand for Indian exports for the period 1960-61 to 1990-91, using annual data. The analysis has been done for the trade between India and the rest of the world and India with its 11 export partners separately. In exports demand functions independent variables used were Income of the export market, Price of Indian exports, Price of exports of India’s competitors in the respective markets and two dummy variables. The dummy variables were used to take into account the effect of devaluation in 1966 and economic stabilisation policies in 1980’s. The model was estimated using the usual Ordinary Least Squire method (OLS). The estimated price elasticity of -0.68 and income elasticity of 0.50 for Indian exports for the period 1960-61 to 1990-91 using annual data. The income elasticity estimated in this paper is less than that in the previous papers.

Banik (2001) did his study in the context of the turnaround in India’s export growth during 1996-97 (export growth was 5.3% and in 1997-98 it was 1.5%). This was preceded by high growth rates during 1993-94 to 1995-96 after the implementation of economic reforms in 1991. Banik examined demand and supply side factors responsible for exports turnaround and possible impediments for a sustained export growth. The study depicts role of the decline in price competitiveness due to nominal exchange rate depreciation (mainly to South East Asian countries) and the imposition of trade barriers by the developed countries as the main demand side factors responsible for the low growth rate in exports. On the supply side procedural delays and poor infrastructure are the main constraints to the poor export growth.

Sharma (2003) used a simultaneous equation model using two stages least square (TSLS) method to examine the determinants of India’s exports especially the role of FDI in export performance. The demand side results indicate that real effective exchange rate and lagged exports are the main demand side determinants of Indian exports and world income is not significantly affecting the export performance. On the supply side, the relative price of
exports has a positive impact on exports and the domestic demand pressure has a negative impact. The other significant variable is the lagged exports and time trend. But infrastructure facilities have no significant impact on exports.

Majeed and Eatzaz (2006) examined the determinants of the exports of developing countries. For this, they have selected a sample of 75 developing countries, including India. The period of study was 1970 to 2004 and panel data estimation technique is used. The exports as percentage of GDP were regressed on FDI, National saving, Development assistance, Indirect taxes, industry value added (all the above mentioned variables were taken as a percentage of GDP), GDP, GDP growth, real exchange rate, no of telephone per thousand population, and number of television for 1000 populations and total labour force. The study found that GDP growth, communication facilities, real exchange rate etc are important determinants of developing country exports.

Recently Razmi and Blecker (2008) examined the fallacy of composition hypothesis in the context of 18 developing countries including India. It is found that the expenditure elasticity (the authors used the total expenditure for imports as a proxy for foreign demand) is 1.18 and it is found that the relative price of India with industrial countries are significantly affecting the exports.

Banga (2006) analysed the exports diversifying behaviour of FDI and the importance of source of FDI in India. For this, industry level and firm level analysis have been carried out using panel analysis and Tobit model. The study found that FDI has a positive impact of export diversification of firms in non-traditional sector in India and source of FDI is also matters in export promotion. US (United States) FDI has exports diversifying impact on the manufacturing firms in India, while the Japanese FDI has no significant impact. This is

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Sectors with less than 1% exports share in world exports are considered as nontraditional sector.
because US FDI has vertical integration where as Japanese FDI follows horizontal integration.

Another study on FDI is by Prasanna (2010), which have two objectives, firstly to analyse the effect of FDI on the export performance of India and secondly to analyse the effect of FDI on the exports of high technology exports of India. The period of study was 1991-92 to 2006-07. The variables used for the study were a ratio of manufactured exports to real GDP, the ratio of high technology exports to real GDP, FDI as percentage of GDP and manufactured value added. This study found that the FDI has a positive effect on manufacturing and high technology, manufacturing exports of India for the period 1991-92 to 2006-07.

Another set of studies is related to the effect of devaluation or exchange rate or exchange rate volatility on exports to India.

Bahmani-Oskooee (1985) examined the existence of the J curve in Indian current account to examine the effect of devaluation of trade balance. He used a multiplier based analysis for this using quarterly data for the period 1973 to 1980. In his model trade balance is regressed on real output, the real income of the rest of the world, real exchange rate, high powered money at home and high powered money for the rest of the world. His analysis showed the existence of the J curve in Indian context.

Ghosh (1990) examined the effect of exchange rate movements and trade balance of India during 1973-74 to 1986-87. She observed that the devaluation of rupee won’t improve the trade balance of India since nominal exchange rate changes have little effect on real exchange rate change. Another important observation was regarding the insignificant relation between exchange rate and export growth.
Arize (1994) addressed the same issue of exchange rate and trade balance of India, while studying the same for Asian countries for the period 1973Q1 through 1991Q1. The significant cointegrating relationship between the real exchange rate and trade balance was found in this study.

Buluswar and Upadhaya (1996) examined the presence of the J curve in the current account balance of India for the period 1985 to 1992. Unlike Bahmani-Oskooee (1985), this study didn’t find any J curve in Indian current account. Further, they found that India’s trade balance is not cointegrated with real exchange rate and other macroeconomic variables used in the study.

Mookerjee (1997) analysed the nexus between the exchange rate, world economic growth and the export volume of India for the period 1970–1992, using cointegration and causality test. It is found that the exchange rate and world economic growth were cointegrated with an export volume of India. The exchange rate coefficient is estimated at 1 (lagged values are not significant) and for world economic growth the four year coefficient is 3.4 (lagged values are also significant).

Sarkar (1992) analysed the effect of exchange rate on exports and imports of India for the period 1971-1990. The regression results indicated that the exchange rate has no significant effect on the dollar value and volume of exports during the study period. The same is the case for imports also and a devaluation of the rupee won’t have a favourable effect on trade balance of India. Sarkar (1994) re-examined the results of Sarkar (1992) by checking the stationary properties of the study variables and then done an Engle-Granger two step procedure for checking cointegration between the variables. But the results indicated that real exchange rate and export earnings of India are not cointegrated during the study period. Sarkar (1995) focused on the effect of exchange rate on exports value and volume of India for the post 1991 period (1991-1994). The regression results using real and nominal exchange
rates found no significant relationship between exports and exchange rate of rupee. Sarkar (1997) analysed the same issue for the period January 1980 to May 1996 using monthly data of real and nominal exchange rate series and dollar value of India’s exports. The analysis didn’t find any statistically significant relationship between exports and exchange rate series.

Dholakia and Saradhi (2000) estimated the exchange rate pass-through on imports and export prices of India during the pre and post reform period and the effect of exchange rate risk of India’s foreign trade. Exports demand and supply equations were used to examine the effect of exchange rate and exchange rate volatility on exports of India. It is found that the exchange depreciation is affecting the exports during both the pre and post reform period; the effect is more for the post reform period.

Arora et al (2003) pointed out the aggregation problem as a reason for not finding ‘J’ curve in India’s trade balance in previous studies and done his analysis for India’s seven trading partners for the period 1977-1998 using quarterly data. The study failed to find any ‘J’ curve in the trade balance of India with its seven largest trading partners; it found a long term relationship between the real exchange rate and trade balance of India in Australia, Germany, Italy and Japan.

Singh (2004) examined the presence of J curve and the effect of exchange rate volatility in the trade performance of India, by using quarterly data for the period 1975:02 to 1996:03. Two types of exchange rates, namely trade and export weighted real exchange rates were used for the study. The study didn’t find any J curve or the effect of exchange rate volatility on trade of India.

Veeramani (2008) used an eclectic model to analyse the relation between exchange rate appreciation and exports of India during 1960 to 2007. He has regressed exports of India on real exchange rate, India’s GDP and world exports in his eclectic model. They found a
structural break in 2001 and the exchange rate (1\textsuperscript{st} lag) coefficient is significant in the period 1960 to 2001 and 2001 to 2007 period. First lag of Indian GDP (as a representative of supply capacity) and the world exports were found significant in determining India’s exports.

Prusty (2008) examines the relationship between the exchange rate and exports of India for the period 1992 to 2007 using monthly data. The Granger causality analysis indicated a bidirectional causal relationship between the variables. Further the Johanson-Juselius cointegration analysis also indicated a long run relationship between the exchange rate and exports of India.

The effect of exchange rate volatility on trade is also widely examined in the Indian context. The volatility in the exchange rate means is risk in the foreign exchange market for exporting firms and this is expected to be negatively related to the exports of the country. But the theoretical literature also depicts the positive relation between exports and exchange rate volatility. Dholakia and Saradhi (2000) found that export quantity is sensitive to exchange rate but found that exchange rate volatility is not affecting exports of India. Singh (2002) also found that the exchange rate volatility is not affecting the trade balance of India for the period 1975 to 1996. Dash and Narasimham (2004) found the presence of a negative relationship between exchange rate volatility and exports in Indian context. Dash and Narasimham (2005) observed that India’s import volume is also sensitive to exchange rate risk.

Santos-Paulino and Thirlwall (2004) analysed the effect of tariff reduction in the export growth, imports growth, balance of trade and balance of payments of a sample of 22 developing countries including India. For this purpose panel data technique was employed by using annual data for the period 1972 to 1997. The study found that for a 1% reduction in tariff will increase exports by 0.02, while import increases by 0.02 to 0.04%. Further liberalisation increased the income elasticities of demand for exports and imports.
Batra (2006) is one of the first studies in India using a gravity model (estimated with Ordinary least squire (OLS) method) and she analysed the trade determinants as well as estimated trade potential of India with its trade partners. The significant factors affecting India’s trade are GDP, Distance with trade partner common border, common language and membership in regional trade agreements. The GDP coefficient is 0.86 but the distance coefficient is estimated at -1.04. But the inclusion of dummy for common boarder reduces the distance coefficient.

Tharakan et al (2005) has used the threshold Tobit model to estimate the gravity model to examine the determinants of India’s goods exports and services exports. The independent variables used in the model were GDP of importing country, Population size, distance variable, measure of remoteness, language dummy etc. Regarding the goods exports, the study found that GDP of the export market, population and people of Indian origin are positively affecting the exports while distance variable has a negative effect as expected. Further, it is found that determinants of service exports are significantly different from that of goods exports from India.

Another study using Gravity model is of by Kaliranjan and Kanhaiya (2008) by comparing exports determinants of India and China. For this the estimation method was Maximum likelihood against the previous gravity model studies. They used two types of models; model assuming no behind the boarder constraints and model assuming behind the boarder constraints. It is found that distance variable is significantly affecting the exports of India negatively and this indicates the cost disadvantage of India compared to China, as for China distance measure is insignificant when tariff variable is introduced. It is observed that low values of the GDP coefficient for India indicates that the domestically produced goods are not matched to the global demand.
Franco and Sasidharan (2010) analysed the effect of Multinational Enterprises (MNEs) through FDI on the export intensity (and exports decision) of Indian firms for the period 1994 to 2006 using firm level data. It is found that the exports externalities of MNEs are not affecting the export intensity (FOB value of exports divided by sales turnover of the firm) of firms significantly, whereas the R&D activities of MNEs have a positive effect on the export intensity of Indian firms.

Another firm level study by Dholakia and Kapoor (2004) examined the influence of firm level characteristics in determining export performance by using data for 557 firms for the period 1980-81 to 1995-96. They found that firm size as indicated by Krugman (1980) has a positive effect of the export performance. Other important variables affecting the export intensity of Indian firms are product development expenditure, import of technology, advertisement, capital intensity and growth. Separate analysis for the post and pre reform period indicates that the economic reforms in 1991 have significant impact on firm level exports intensity.

IV: 2 Determinants of Indian exports: Commodity level analysis

Chatterjee and A. R. Sinha (1941) is one of the first studies estimating demand function of raw jute. The authors estimated the demand function of raw jute for the period 1920-1938 by using annual data. This study used US industrial production data as an indicator of world income, gold price of raw jute as the price of Indian jute exports and the price of Burlap in London market as the world price of jute. They found that a one percent increase in world income will increase the demand for raw jute by 0.45 percent and one percent increase in the price of raw jute will decrease the demand for raw jute by 0.35%. But this study has not considered the supply factors of raw jute from India.
Murti and V. Kasi Sastri (1951) estimated the demand elasticities of various export commodities of India such as, groundnut, skins (raw), hides (raw), skins and hides (dressed), tea, jute manufactures, linseed and pepper. Among these Groundnut, Skins (raw), skins and Hides (dressed) and Jute manufactures are inelastic with respect to price. But for raw hides, dressed hides and shins, and pepper have elastic demand with respect to price. The interesting finding is the inelastic nature of demand for jute with respect to world income.

Frankena (1975) analysed the role of industrial recession, devaluation in the exports of new manufactured goods (iron and steel, engineering goods, and tires) from India during the 1960’s. It is found that exports boom of these goods in the 1960’s, was attributed by the relaxation of material-supply constraints on production, the industrial recession, and expansion of export subsidy schemes and devaluation.

Cohen (1964) found significant inverse relationships between exports and relative prices of Indian export of tea, cotton, manganese, goat skins and cattle hides to the UK. Cohen explains that the export promotion policies were conflicting with other economic goals of the government like to get foreign aid⁴, regulate the domestic price, protection of domestic employment⁵ of export commodities etc at that time. These conflicts resulted in an increase in the relative price of India’s traditional goods because of the increase in production cost.

Dutta (1965) used annual data on Indian tea exports from 1951 to 1960 to examine the role of price in exports. The tea export earnings of India at 1953 prices were regressed on world income (proxy by the per capita income of the UK, for UK was the largest importer of India tea), and a set of relative prices such tea price in India divided by the tea price in the United Kingdom, the tea price in India divided by the tea price in Ceylon and the price of tea in London divided by the price of coffee in New York. They found price competition between

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⁴ The author noted that a dramatic decline in foreign exchange was considered as a prerequisite for getting foreign aid for the five year plans
⁵ The government placed a ceiling on the clothing mills production for domestic market
Indian and Ceylon tea, since the price of Indian tea relative to that of Ceylon tea is significant. Another important variable found significant was the coefficient of Indian tea price relative to that in the UK, which was estimated at -1.22.

Rosario, J A (1967) analysed whether the devaluation of the Indian rupee in 1966 had any effect on India’s exports. The author used monthly data for the period June –December 1966. The analysis was done for 26 commodities using quantity and unit value of these exports, which constitutes more than 75% of total exports. The study found that devaluation exercise had not increased the exports from India, but for some commodities the exports increased because of the increase in prices.

Trehan (1970) found that a devaluation in June 1966 and the closure of the Suez Canal had a positive effect on India’s on the engineering exports. Nayyar (1973) analysed the stagnation of Indian textile exports during the sixties. He observed that despite the stagnation of world demand for cotton, the share of cotton exports of other Asian countries such as Hong Kong, Pakistan, Taiwan and South Korea have increased, while the share of India declined drastically during the sixties. This necessitates the comparison of Indian cotton textile industry with other industries in terms of competitiveness. The problem of Indian textile industry was mainly on the cost of production, the lack of modernisation of the Indian textile industry, the domestic demand pressure, and the lack of significant positive effect of devaluation on the exports.

Nguyen and Bhuyan (1977) have estimated the trade elasticities of India (for the period 1957 to 1969) for food (SITC0), tea, mineral fuel, Chemicals, manufactures, Jute goods, and machinery and transport equipment and total exports. It is found that, except in the case of

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6 The stagnation of world demand was mainly because of the shift of demand from cotton to the synthetic fiber and the quantitative restrictions on the trade of cotton imposed by developed countries following the Long term agreement (LTA) under GATT in 1962
7 Nayyar (1973) agrees with Cohen that the policies of the government of India to protect employment and the limitations of foreign exchange reserve was the main culprit for the lack of modernization of Indian cotton textile industry
8 Being a low income country with large population, the elasticity of demand for cotton textiles was quit high
raw jute, all other goods’ export demand is price elastic. For food items the income elasticity also found to be very low and for tea the income elasticity is negative.

Riedel, Hall, and Roger (1984) have examined the factors affecting Indian exports for the period 1968 to 1978 for 30 commodities. They have used three variables such as relative price, domestic profitability and relative domestic demand for the study. It is found that domestic market conditions such as domestic profitability and domestic demand are significant in 23 out of 30 cases. Relative price is significantly affecting the exports of only 10 commodities.

Golder and Bharadwaj (1984) analysed the exports determinants of iron and steel from India, as part of the 13 developing countries analysed. The study found that the income elasticity of demand for India’s iron and steel exports was 1.89, while the price elasticity was -0.91. As per the conventional view, it is found that the exports from developing countries including India are price elastic. Another disaggregate level study was Lucas (1988), who analysed the world demand for 23 exports items of India for the period 1965-66 to 1979-80. These 23 items constitute more than 95% of India’s manufactured exports during the study period.

Agarwal (1988) analysed the export performance of India during 1965-80 and compared the Indian export performance with other major exporters such as Argentina, Brazil, Chile, Colombia and Mexico (Latin America) and Hong Kong, Korea, Malaysia, Pakistan, Philippines, Singapore, Taiwan and Thailand (Asian countries). The author used Constant market share analysis to decompose the export performance into competitive and market growth effects. The authors observed a decline in India’s share of world exports in all agricultural goods, raw materials and manufactured goods for the study period. The decline in

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9 Domestic profitability is defined “as the ratio of the Indian wholesale price index in a given industry (Pi) to the weighted average wholesale price index in each sector supplying the industry, using technical coefficients (a^) derived from the 1979/80 input-output table as weight”( Riedel, Hall, and Roger (1984), page 57)
the share is visible for various regions also such as Africa, Asia, Latin America, and Middle East (developing countries), USA, EEC, Japan and others (developed countries). This can be attributed to a decline in market penetration effect in different markets against a small effect of market growth effect.

Rath and Amarendra (1990)’s study was on the capital goods exports from India and its determinants. The authors have relaxed the small country assumption made by Goldar (1989), and Lucas (1986) in their studies and considered both demand and supply factors in a simultaneous equation framework to analyse the determinants of Indian capital goods exports for the period 1971 to 1987. It is found that demand for exports with respect to export price is inelastic while with respect to supply it is elastic, supporting the elasticity pessimism argument. But the experts are elastic to world exports (the value is 1.68). The elastic nature of exports supply to prices supports the argument that relative profitability is a factor affecting the exports. The authors are suggesting a devaluation of the rupee simultaneously with export subsidies to increase the exports of capital goods.

Rajaraman (1990) analysed the effect of real exchange rate (as a measure of relative competitiveness of Indian exports) on Indian’s textile, garment export share to two non MFA (multi fibre agreement) countries namely Japan and Australia compared to other countries for the period 1974 to 1987. From SITC three digit classification, cotton textiles (SITC code 652), textile made ups (658) and women's garments (843) were used for the study. It is found that India is losing its share of imports of Japan and Australia to China except for textile made-ups of Japan. Other than China, Hong Kong and South Korea were identified as major competitors of India in Japanese and Australian markets.

Mukerjee (1992) occupies a prominent place in the literature, since she analysed the exports behaviour of 38 disaggregated sectors of the economy by estimating equations for foreign
demand, while considering production, domestic demand and labour and capital demand of these sectors using Two stage least squares method. It is found that the disaggregate level price elasticity is significantly different from the aggregate one estimated in previous studies. Price elasticity of demand is found to be not different from zero for the commodities such as tea, tobacco products, silk and synthetics, textile products, soaps and perfumes and other foods, while for six commodities the price elasticities are elastic and for other commodities have significant inelastic price elasticities.

Pant (1993) set up a model to explain the factors determining the external orientation (measured by the export intensity) of firms in the Indian manufacturing industry. The analysis has been done for Chemicals and Engineering industries with data set of 218 firms in Chemical industry and 202 firms in nonelectrical machinery industry for the period 1985 to 1990 (average values of the data are used for the regression analysis. The analysis supports the imperfect market hypothesis, since it indicates a negative relationship between firm size and exports. Secondly, imports intensity is higher in exporting firms, and thirdly the India’s comparative advantage lies in labour intensive industries since they found a negative relationship between exports intensity and capital intensity of production. The industry specific factors are significant in case of non-electrical machinery industry.

Ghemawat and Patibandla (1998) analysed the effect of economic reforms in 1991 on three industries, namely Diamond Cutting and Polishing, Garments and Software. This study noted that reforms such as devaluation of rupee enhanced the competitive advantage of India in labour and skill intensive industries. Secondly, allowing free imports reduced cost of production and increased the competitiveness of Indian exports by reducing the price.

Athukorala and Sen (1998) examined factors determining the processed goods exports from developing countries. For this 36 developing countries were selected, including India, based
on the availability of data for the period 1970 to 1994. But average values over the period were taken for the analysis. The independent variables used were outward-orientation (openness) of the policy regime (OPEN), agricultural resource endowment (RE), the level of per capita income (Y) and the growth rate of per capita income (GY). The openness of the economy and economic growth rate were the significant variables found in the estimation, while resource endowment was found insignificant.

Recently Sinha Roy (2007) used a simultaneous Error correction model to examine the determinants of India’s disaggregate exports for the period 1960-99. He found that demand side factors are important in explaining disaggregate level exports of India. In exports demand function, the independent variables used were exports price, price of world imports and world income. While in the export supply function, export price, domestic price and domestic supply capacity were used as independent variables. Dummy variables were added in the model to take into account the structural breaks if any. The analysis has been done for commodities such as Chemicals, Machinery and Transport, Leather manufactures and Iron and Steel. In the demand equation, the price variables, world income and the error term were found significant for all the commodities except for iron and steel. In the supply equation also the price elasticity is significant for all the commodities except iron and steel. This indicates that the price is a major factor in determining the exports of Indian during the study period and increasing the profitability of exports by giving incentives could boost the exports during this period.

Khondoker and Kaliappa (2012) examined the determinants of labour intensive products (garments products) by the developing countries. For this they have used a sample of 65 developing countries (as given in the World Bank list of developing countries). They have used a gravity model, where exports from a country $i$ is considered as a function of ratio of capital available to labour availability, ratio of arable land to labour availability, labour
availability, distance between trading partners, infrastructure variables, and a set of dummy variables for landlocked countries, low income countries, year dummy etc. The model was estimated using the Random Effect Generalized Least Square estimation process. It is found that availability of cheap labour, the accumulation of capital, basic infrastructure, and business friendly environment and quality of public services are important to facilitate the development and the exports of labour-intensive garment industries by the developing countries.

Saini (2011) examines the implications of non-tariff barriers on the international operations of Indian textile and Garment exporting firms. The study was based on primary survey and it identified technical barriers, product and production process standards, and conformity assessment requirement for technical barriers as the major non-tariff barriers facing the Indian firms in European Union and US markets. These barriers are the major determinants of the compliance cost in EU and US markets.

Mayer and Wood (2001) analysed the determinants of exports structure of India, while analysing the same for the world and for different regions.

**IV: 3 Determinants of Indian exports: Direction wise analysis**

Dutta (1964) analysed the export demand of India in markets such as dollar area, sterling area, Continental Europe in OECD and the rest of the world. For dollar area and sterling area, the study found that Indian exports are not price sensitive, while it is positively related with the industrial production of dollar area. For the insignificant price variable, Dutta noted that “no substantial sources of home supply within the (dollar or sterling or Continental Europe) area for the major export items that India sells to this area”. This is because during the study period India’s prime exports commodities to these areas were mica, burlap etc. But for “rest of the world (ROW)” relative price and income of ROW are found to be significant.
Gupta and Keshava (1994) has estimated the price and income elasticities of Indian exports to Australia, Belgium, Canada, France, Germany, Italy, Japan, Netherland, Switzerland, United Kingdom and USA. Income elasticity of India's exports is high with France, Belgium, Switzerland, and Germany, and low with regard to those to Canada, Japan, Australia, and the UK. Price elasticity of India's exports is high in Italy, and low in Japan, the UK, and Germany.

Eckaus (2008) analysed supply and demand determinants of India and China in a comparative perspective. For this he has used a sample of 13 countries, which includes industrialised countries and developing Asian countries. The authors estimate imports demand estimation of the 13 countries and the results indicated that relative wages, GDP per capita of the importing country and import price index are found significant in explaining the imports from India to the 13 countries. Later the demand equations were estimated for 10 Asian countries and the results was same. But for the three developed countries relative wage rate coefficient is found insignificant.

Bahmani-Oskooee and Mitra (2008) has analysed the effect of exchange rate risk on disaggregate level commodity import of US from India. The authors have used bounds testing approach to cointegration and error-correction modelling to analyse the short run and the long run effect of exchange rate risk on U.S. imports from India. Forty commodities were analysed and they observed that at disaggregate level, 40% of the commodities traded between India and USA has been affected by the exchange rate risk. One of the interesting findings is the presence of positive relation also between trade and exchange rate risk at disaggregate commodity levels.

Pradhan (2009) analysed the export potential of India with Gulf Cooperation Council (GCC) countries and estimated the export potential of India with these countries. The period of study
was 1996 to 2006. An augmented Gravity model, with variables such as GDP, Distance, common language dummy, RTA dummy, trade affinity etc, was estimated using Ordinary least square methods. All the variables were found significant with a GDP coefficient of 0.38 and a distance coefficient of -0.65. Oman has highest exports potential with Oman followed by Qatar, Bahrain and Kuwait. For United Arab Emirates (UAE) and Saudi Arabia, India don’t have any further exports potential, showing that India is trading more with these countries.

Beena and Hrushikesh (2010) analysed the role of exchange rate and other factors in determining India’s Textiles and Clothing exports to eight largest exports destinations of India. The panel data analysis indicated that the exchange rate has a significant effect on India’s Textile and clothing exports in the short run, but in the long run exchange rate depreciation would not boost India’s textile and clothing exports.

Sahoo and Bimal (2010), used, an error correction model to assess the exports of India to Canada for the period 1980 to 2004. The independent variables used in the model were GDP of India, and Real exchange rate between Indian and Canadian currency. The elasticity of exchange rate for the pre-reform period (1980 to 1991) was estimated at 0.36 against 0.46 during the post reform. For the overall period, it is estimated at 0.82. The elasticity of GDP of India is estimated at 0.31, while in the post reform period the sign is negative. The negative sign of GDP coefficient indicates that the economic growth in India is not boosting the exports to Canada.

Tiwari (2012) aimed at estimating the price and income elasticity of demand for India’s exports to the USA and the causality between exports and other independent variables in static and dynamic framework. The independent variables used for the study were GDP per capita of the USA, WPI of India, Exchange rate between US dollar and Indian rupee and WPI
of USA. The period of study was 1960 to 2007. It is found that GDP per capita of the US, WPI of the India and the US, and exchange rate are affecting the exports of India to USA.

IV: 4 Research Gaps

International organizations such as UNCTAD and UNIDO have conducted studies in the context of south-south trade. Studies by UNCTAD and other agencies have pointed out the importance of India in the growing South-South trade. Considering the importance of trade with Southern countries, no empirical study has been done in exports determinants literature in Indian context. With the background of the ongoing economic crisis in developed countries, it is important for India to expand its exports to Southern markets. This is further justified by the overwhelming growth of developing countries in recent years.

Another drawback in the literature is the scarcity of disaggregate level studies in exports determinants literature. The studies in the Indian context are mostly at aggregate level and this ignores the different scale of production of different products, which may cause misleading results.

Thirdly, many studies have noted the potential threat of Chinese exports to other developing countries especially the other Asian countries. But no study examined the effect of Chinese exports on Indian exports in third markets. This is important in South-South trade of India, since China has a major share in the global South–South trade.

The gaps in the literature can be summarized as:

- No study examined the determinants of India’s exports to Southern and Northern markets in a comparative perspective.

- The literature is biased to aggregate level studies as there are less number of studies analysing the direction wise exports at disaggregate level.
No study examined the effect of Chinese exports on Indian exports in third markets.

**IV: 5 Research Objectives**

The present study intends to fill the above mentioned gaps in the literature. We are examining the determinants of India’s manufactured exports to South and North. Apart from this we are examining the effect of Chinese exports on Indian manufactured exports in Southern and Northern exports.

For the analysis we have selected a sample of 32 countries from the south and 32 countries from the north. The countries are selected based on the share of these countries in the manufactured exports of India to south and north. We are doing the analysis at both aggregate as well as disaggregate levels.

Thus we undertake study at both aggregate level and disaggregate levels. The specific objectives of this thesis are:

1. To examine the determinants of India’s manufactured exports to Northern and Southern markets at aggregate as well as disaggregate levels. Specifically:
   a. To examine the determinants of India’s aggregate level manufactured exports to Northern markets (for a sample of 32 countries) and Southern markets (for a sample of 32 countries).
   b. To examine the disaggregate level manufactured exports to Northern markets and Southern markets.

2. To study whether Chinese exports is affecting Indian exports in Northern and Southern markets at the aggregate level and disaggregate level.
3. To examine whether the exports determinants of Southern markets are different from Northern counterparts.

*Developing countries (South)*: Countries included in the south panel are Algeria, Angola, Bangladesh, Brazil, Brunei, Chile, China, Columbia, Egypt, Hong Kong, Indonesia, Iran, Kenya, South Korea, Kuwait, Malaysia, Mauritius, Mexico, Nepal, Nigeria, Pakistan, Peru, Philippines, Qatar, Saudi Arabia, Singapore, South Africa, Sri Lanka, Thailand, Turkey, UAE and Vietnam.

*Developed countries (North)*: For the north panel we considered Australia, Austria, Bermuda, Bulgaria, Canada, Denmark, Finland, France, Japan, Iceland, Belgium, Luxemburg, Cyprus, Estonia, Germany, Greece, Ireland, Israel, Italy, Latvia, Lithuania, Malta, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, U.S.A, and the United Kingdom. We have considered Belgium and Luxemburg as one country.

**Time period**

We use the period 1992 to 2012 for the present study. This is because of the economic reforms implemented in India from 1991 onwards and the availability of trade value and quantity data in WITS database provided by the World Bank.