Over the past 17 years since 1991, there has been a growing realization among Indian economists and policy makers that in order to significantly accelerate the rate of economic growth in India, a rapid growth in exports is necessary. Accordingly significant reforms in the trade sector have been introduced. The basic objective underlying these reforms has been the creation of environment for achieving rapid increase in exports, raising India’s share in world exports, and making exports an engine of growth.

Following this reform, there has been a perceptible change in India’s export performance during the period 1991-92 to 2007-08 both at overall level and across commodities. The commodity composition of export basket has changed in favour of technologically intensive and industrial products, such as engineering goods. Exports of these goods have emerged as the single largest item of total Indian exports pushing aside other categories of exports.

Objectives of the study:

In the above background our primary objective in this study was to analyse the export performance of engineering goods during the period 1991-92 to 2007-08 in detail with a view to assess as to whether India has been able to realise its full potential in this field. Within the framework of this broad objective, the specific objectives set out for the study were:
(i) To study growth, composition and direction of India’s engineering goods exports during the period 1991-92 to 2007-08;

(ii) To identify factors that have helped the export performance of engineering goods during the period under study;

(iii) To examine constraints and problems faced by engineering goods exports.

(iv) To suggest measures which should be taken to realize the full potential of exports of engineering goods in the years ahead.

Hypotheses:

Following hypotheses were tested in the study:

(i) Expansion of world trade in engineering products contributed to the expansion of engineering exports from India.

(ii) Trade reforms introduced in the Indian economy since 1991 and the export incentives provided by the government through their effects on supply resulted in a positive improvement in the export performance of engineering goods.

We selected exports of engineering goods for a detailed study primarily for two reasons. Firstly, exports of these goods, as noted above, have emerged over the years as the most promising source of export earnings and are potentially capable of contributing to India’s export receipts to a large extent. Secondly, in any future plan to boost India’s exports, this category of exports would occupy a very important place and therefore more attention be given to their problems and prospects.
**Database and Methodology:**

The study is based on secondary sources of data, which include publication of various authors as well as the publications of government. Other sources of data include publications of Economic Intelligence Service, Mumbai, various news papers and other sundry publications. Due acknowledgement has been given to them at appropriate places.

The study has as its period of reference the years from 1991-92 to 2007-08. This is a period which has experienced significant reforms in the India’s external sector and for which comparable export statistics are adequately available.

The methodology used is simple, analytical and involves calculation of percentages, arithmetical averages and year to year as well as compound growth rates. Yearly growth rates are computed as under:

\[
G_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}} \times 100
\]

Where: \( G_t \) = Growth rate for period t.

\( Y_t \) = Value of the Variable in period t.

\( Y_{t-1} \) = Value of the Variable in period t-1.

The compound annual rate of growth has been worked out by estimating the function:

\[
Y = AB^t
\]

Where, \( Y \) = Value of exports of commodity

\( B \) = Growth rate or \((B - 1) \times 100.\)

\( t \) = time variable
The significance of the growth rates has been tested by applying t-test and estimating $R^2$.

**Plan of the Study:**

The study is organized in six chapters. Chapter I sets out the usual preliminaries about the objectives of the study, hypotheses, methodology, data sources, etc. Chapter II is devoted to a brief review of existing literature on India’s exports in general and that of engineering goods in particular. Chapter III provides an overview of the growth of engineering sector in India over the years, its present status and the main challenges before it. Chapter IV provides an empirical analysis of growth, composition and structural changes in India’s exports of engineering goods at aggregate as well as at disaggregate levels during the period of study. Broad trends in commodity and geographical diversification of exports are discussed in this chapter. It also analyses factors that have influenced export performance of the engineering sector. Chapter V analyses the problems and prospects of exports of these goods. Finally, Chapter VI summarises the study and offers policy suggestions.

**Important findings of the study:**

Following are the main findings of the study:

(i) Exports of engineering goods were the most dynamic source of world export earnings during the period 1991-2007. Its rate of growth at 8.2 percent per annum was higher then the annual rate of increase in world exports of all merchandise at 7.9 percent. As a result, the share of world exports of engineering goods in world exports of all commodities increased from 41.1 percent in 1991 to 43.3 percent in 2007.
The reasons for healthy growth in world exports of engineering goods included, among others, a high income elasticity of world demand for such items, substantial progress made in reduction of tariffs and other restrictions to international trade under the successive rounds of GATT/WTO and rapid international flows of investment and technology.

(ii) A similar trend was noticeable in the case of exports of engineering goods from India as well. The export of these goods from India during the period of study experienced the highest rate of growth of 16.4 percent per annum as against 12.5 percent for all goods, 7.9 percent for agriculture and allied products and 10.6 percent for other manufactures. Consequently the share of engineering goods in India’s exports of all goods increased from 12.4 in 1991-92 to 22.8 percent in 2007-08.

(iii) The growth of engineering exports from India was impressive even in relation to the growth of world exports of engineering goods. India’s engineering exports increased at a much higher rate than the world engineering exports over the period under study (16.4 percent per annum as against 8.2 percent per annum respectively). As a result, India’s share in world’s exports of engineering goods increased almost steadily over the period from 0.17 percent in 1991 to 0.65 percent in 2007.

(iv) Among factors that helped expansion of engineering goods exports from India, the favourable international market
conditions and trading environment were the most important ones on the demand side. On the supply side, development of a strong and vibrant engineering goods sector in India, lower cost of products compared to that of other countries, introduction of economic reforms in general and trade reforms in particular and many other government initiatives helped significantly in expansion of engineering goods exports.

(v) There was no major upheaval in the composition of India’s engineering goods exports over the 17 year period considered in this study. In 1991-92 the commodities groups such as electronic goods, machinery and instruments, manufacture of metals, primary & semi-finished iron and steel and transport equipments accounted for the bulk of India’s exports of engineering goods. They continued to be so even after 17 years in 2007-08. This reflects that despite the progress in industrialization over the years, India has not been able to expand its list of engineering goods exports in any significant manner.

(vi) Region-wise, India’s exports of engineering goods to Africa, Europe, North America and OPEC registered a healthy trend over the period studied. The relative shares of these regions in the India’s total exports of engineering goods also increased in a positive and significant way.

(vii) Despite a healthy growth in exports of engineering goods from India, the country continued to remain a marginal player in world exports of these goods. Its share, though
increasing, did not reach the level of even 1 percent over the period of study.

(viii) Exports of engineering goods from India face two sets of problems: (i) external such as veiled protectionist sentiments in the developed countries, in the guise of technical standards, environmental and social concerns, tariff escalation and tariff peaks on imports; (ii) internal that includes mainly the problems of production and export marketing.

Among the former, though considerable progress has been made in tariffs reduction in a large number of developed countries, under the successive rounds of GATT/WTO, the veiled protectionism in most of these countries still persists. The developing countries, including India, often complain about the malfunctioning of the WTO provisions on market access in the case of industrial products in developed countries. Presently, four tariff related concerns are important at the negotiations, namely, tariff reduction, sectoral coverage, tariff bindings and preference erosion.

Indian engineering exports also face stiff competition from other countries of the world. China, Mexico, Hungary, Czechoslovakia and Korea which have emerged as the fastest growing engineering export countries in the world provide formidable challenges and fierce competition to Indian exports. The South East Asian financial crisis of 1997 had put Indian exports at receiving end due to overvaluation of Indian Rupee, curtailment of Indian imports by these
countries (this is because 15 per cent of total engineering exports is accounted for by these countries).

(ix) The internal problems that limit India’s capacity to export include high cost and poor quality of products, inadequate and inefficient infrastructural facility, high transaction cost, inadequate marketing research etc.

(x) Despite the various problems, India has great prospects to emerge as an important player in the field provided an all out and concerted efforts are made to take full advantage of opportunities that exist in the world market. India has an abundant cheap labour, specific skills and wide industrial base. The engineering sector produces a wide range of products ranging from simple metal products to sophisticated machinery and equipment and there are many areas in which India enjoys comparative advantage.

A bond of confidence has also developed between Indian manufactures and Original Equipment Manufactures (OMEs)/ buyers/ actual users in the developed countries of North America, Europe and Far East.

In the global industrial arena, Indian engineering industry today commends respect by rendering suitable cooperation in engineering services by way of updated technological know-how and industrial propensity.

Suggestions for Policy:

In view of the above findings of the study the following suggestions are made for policy purposes:
(i) There can be little doubt that prices of the products serve as one of the main factors in success of an exporting nation in the international markets. Therefore, if India wants to make its presence felt in the international arena, the prices of the products must be competitive. This can be achieved by full utilization of the capacity, supply of bulk raw materials to the exporting units at world prices, reduction in the cost of domestically available raw materials etc.

Some efforts have been made in India in this direction. But there still remains a lot to be done. For example, the procedures relating to the various incentives provided by the government to the exporters need to be streamlined so that exporters may avail of the benefits expeditiously. Things move slowly in the Indian bureaucracy and this effects exporters' desire to avail of the facilities provided.

(ii) Developments of products and improvement in their quality are another factor that will largely determine the prospects for India's exports of engineering goods. The preferences of buyers in developed countries are much different from those of buyers in India and other developing countries. India can, therefore, hope to increase her exports on a sustained basis only if she offers the products which the buyers in them want and not what she produces. This requires continues study of what the developed markets need.

(iii) Presently, our infrastructure services are inadequate, inefficient and expensive. It is necessary that we must plan for an efficient infrastructure both for reducing transaction
costs and promoting a positive image of India abroad to do business.

(iv) For furthering the export of engineering products, India must evolve an aggressive sales promotion effort. It can be done through advertisement, trade fairs, brand promotion – ‘Made in India Brand’, distribution of technical catalogues (giving comprehensive information about the products). Further, commercial intelligence should be made available to Indian exporters as frequently as possible so that they remain updated on the current trends and requirements. Along with the sales promotion effort, strict adherence to delivery schedules is crucial for the success of Indian engineering exports. As foreign buyers have option to procure their requirement from anywhere in the world, Indian exporters must be accurate more than 100 per cent in timely delivery of the products. After sales services and customer care effort is highly indispensable for the growth of engineering exports. This has been one of the neglected areas in India due to our protected market. Now when the environment has changed under the forces of globalization and liberalization and foreign companies are rigorously following after sales services and provide custom care support, Indian engineering exporters have also to rigorously follow the after sales services and customer care support.

(v) Small-scale engineering units contribute around 40 per cent of engineering exports. For the continued contribution of these units to export sector, they must be provided with the
production and exports incentives, support for adoption of latest technology, advisory services, and market support to sustain the competition in the international market. Increasing the investment ceiling and dereservation of major small-scale units can go a long way in overcoming the hurdles in the way of modernization and faster growth of these units and hence higher contribution to total engineering exports. Further, adequate finance must be made available to these units. Due to the high risk involved in lending to these units, banks are often reluctant to lend to them.

(vi) Just to reap the economies of scale in production, Indian exporters must look beyond the domestic market. Although exports can be increased by providing incentives to small scale industrial (SSI) units, there is limit to growth. There is a need for involving large units in exports activities. The exports intensity figure is still very low in India especially for large units. Hence, it is necessary to gradually increase the exports intensity ratio of Indian products by involving more and more large-scale units and exporting more from the existing units.

(vii) India must explore the possibility of setting up Free Trade Area (FTA) and Preferential Trade Agreements (PTA) with countries where exports have largest concentrations.

(viii) Another area which needs special emphasis is establishment of joint ventures and foreign collaborations in engineering production. It is also imperative to attract more foreign direct investment into the engineering sector. This will enable
attraction of more sophisticated technology (which is of utmost importance in high technology products like engineering products), better management technique, modern marketing strategy and exploration of more foreign markets. Penetration of engineering products in developed countries would require good dealer networks, availability of range of products, after sales services etc. This is possible only if Multinational Companies (MNCs) and joint venture units have presence in India on their own or in collaboration with Indian companies. FDI is therefore essential to promote export of engineering goods.

(ix) Since world demand appears to be an important export determinant, attempts must be made to identify the commodity with potential demand. Production and export of such commodities must be encouraged by the government.

An indepth area and commodity specific studies will have to be carried out to formulate a realistic export promotion policy.