



ISSUES AND CHALLENGES OF INDIA'S ENGINEERING GOODS EXPORT'S SECTOR

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ABSTRACT Engineering Exports Sector is by far the largest segment in the Indian Industry employing approximately 40 lakh skilled and semi- skilled workers .The Engineering sector has witnessed tremendous growth, led by significant investment in power projects and infrastructural development. Not only the share of engineering exports has jumped from 0.5 per cent in 1956-57 to 25 per cent in 2020-21 fiscal year but also there has been a marked shift in commodity composition and direction in the engineering exports over the last four decades. The Indian export structure has undergone rapid changes giving ways to dominance of manufacturer vis-à-vis primary commodities during the period 1991-2020. Among manufactured exports to India, Engineering Goods have been identified as one of the major dynamic forces. This study has addressed itself to this sector. This sector is faced by several challenges such as shortage of capital ,obsolete technology ,stiff competition from developed countries products ,labour problems ,marketing problems etc.

KEYWORDS :Engineering Exports, Economic Development, Economic Infrastructure, Exports, Imports, Capital Goods, Export Earning.

INTRODUCTION:

The engineering sector is the largest segment of the overall Indian industrial sector. India has a strong engineering and capital goods base. The important groups within the engineering industry include machinery & instruments, primary and semi finished iron & steel, steel bars & rods, non-ferrous metals, electronic goods and project exports. The engineering sector employs over 4 million skilled and semiskilled workers (direct and indirect).The sector can be categorized into

- (i) Heavy Engineering Industry, and
- (ii) Light Engineering Industry
- (iii) Heavy engineering segment forms the majority of the engineering sector in India. In the year 2019, out of the total engineering production of US\$ 92 billion, the heavy engineering market contributed over 80 per cent with the light engineering segment accounting for the remaining. The heavy and light engineering segments in this sector can be further classified as shown in the table. As the sector demands a high level of capability and investment, it is dominated by large organized players.

Table 1 Classification Of Engineering Industry

Industry Segment	No. of Organized Players
(A) Heavy Engineering Industry	
Cement Machinery	18
Sugar Machinery	27
Rubber Machinery	19
Metallurgical Machinery	39
Machine tool	125
Material handling equipment	50
Mining Machinery	32
Dairy Machinery	16
(B) Light Engineering Industry	
Welded Steel pipes & tubes	123
Process control instrument	26
Antifriction roller bearing	19
Plain paper copier	12

The Engineering industry comprises multinational companies, joint ventures, large domestic players, regional players in the organized sector and large number of small players in the unorganized sector. Some unorganized players also exist at lower levels where the technology required is very basic.

Heavy Engineering Industry Capabilities/Capacities of Indian Manufactures :

The main areas of Heavy Engineering Industry includes Heavy Electrical Industry, Turbines & Generator Sets, Boilers Indian Industry .Switchgear and Control ,Textile Machinery Industry, Cement Machinery Industry, Sugar Machinery Industry, Rubber Machinery Industry, Material's Handling. Metallurgical Machinery ,Mining Machinery , Dairy Machinery and Machine Tool Industry etc.

Light Engineering Industry Capabilities/Capacities of Indian manufacturers:

The Light Engineering Industry includes following industries as follows:

Welded Steel Pipes, Process Control Instrument, Medical & Surgical Equipment's ,Industrial Fasteners, Industrial Gears, Antifriction Roller Bearing, Plain Paper Copier, Sewing Machine , Bicycle Industry, Steel Forgings etc.

REVIEW OF LITERATURE

The review of literature includes the studies which were conducted before this study. The studies of **Singh, Singh and Nanda** are mainly descriptive. **Singh** maintains that Indian engineering export growth could be attributed to the changing composition and direction of these goods which is in tune with the trends in world engineering exports.. The study of **Singh** also belongs to the same category. He also attributes commodity composition following world engineering export trends, commodity-commodity-wise, as responsible for India's ex- port performance. For him, India's comparative advantage lies in labour intensive products. **Wadhva** and **Sharma** divide engineering exports into traditional and non-traditional groups based on the time of their appearance in the export list. The growth in the non-traditional groups has been considerable. **Nayyar** in his study compares India's performance vis-a-vis other developing countries, and finds that India fares better. He maintains that commodity composition of engineering exports is diversified with declining importance of simple manufactures.. **Nargund** using regression analysis estimates an income elasticity of 4.37 in the U.S. market for India's engineering goods. The equation estimated is

$$X_{eg} = -8.98 + 0.0242 Y$$

$$-(7.48) (9.40) \quad R^2 = 0.92, D.W.=1.56$$

Where X_{eg} is India's engineering exports to the U.S.A. and Y is personal disposable income as in the U.S.A. Firstly, personal disposable income as the only measure of income may not be appropriate as demand criterion, differs across engineering products. Engineering imports of the U.S.A. may be more appropriate. Secondly, the high elasticity which he obtained may be spurious because of high correlation between income and exports. Inclusion of other factors could have reduced this bias. Thirdly, the model is incomplete as he does not consider other variables, which limits the usefulness of the study.

Methodology/Methods of Study:

In this study an attempt is made to examine the empirical validity of the aforementioned hypotheses. Export performance of the country is analyzed in three ways: (1) Trend analysis, (2) Constant Market Share Analysis, and (3) Multiple Regression analysis. The data have mainly been collected through secondary sources .The EEPIC reports ,Ministry of Trade and Commerce Annual Reports, ResearchGate sources. Data's from India stats etc. were consulted.

OBJECTIVES OF THE STUDY

The purpose of the present research paper is to achieve certain objectives which are as follows:

1. To find out the problems of the Engineering Goods Exports sector in India.
2. To analyze the causes of increase in exports of Engineering Goods from India.
3. To understand the current policies of Government of India towards Engineering Goods Exports And its impact on its performance.
4. To find out the solutions for the problems of this sector.

PROBLEMS OF ENGINEERING GOODS SECTOR

So far as the study has dealt with a general scenario of the engineering good exports that does not mean that engineering goods exports are free of problems. Like any other item of export, engineering goods exports are also facing a number of problems, prominent among them are discussed below:

PROBLEMS OF ENGINEERING EXPORTS SECTOR:

1. Stiff Competition:

Indian Engineering Exports have been facing stiff competition from other countries. China, Mexico, Hungary, Czechoslovakia and Korea which have emerged the fastest growing engineering export countries provide formidable challenges and fierce competition to Indian engineering exports.. Therefore, it has reduced the competitive edge of Indian exports in the world market.

2. Technological Problems:

Technological competitiveness of Indian engineering goods sector is low. Some of the Indian exporters are still at disadvantages in international market vis-à-vis their counterparts in terms of product design, finish, specific features, performance and raw materials substituted.

3. High Cost of Industrial Inputs:

The engineering industry mainly uses raw materials of domestic origin. The raw materials price index has risen faster than the machinery price index. It is difficult for engineering manufacturer to pass on the rise in prices to the consumers thereby impacting their profitability. Similarly the quality of raw materials is also not up to the international standards and it in turn affects the quality of final products.

4. Tariff Barriers:

Another major problem faced by the engineering export sector is protectionism policy adopted by developed countries. Developed countries have always tried to block the products from developing countries through barriers, both tariff and non tariff..

5. Infrastructural Bottlenecks:

A recent study by CII and World Bank has found that although India has the advantage of cheap labour, this advantage is nullified by infrastructural bottlenecks. Infrastructural bottlenecks are the major problem hindering both domestic and export production. The quality of infrastructure (transport, communication, and power) is poor, thus affecting competitive delivery schedule and increasing operating costs.

6. High Transaction Cost:

The export transaction costs for Indian engineering goods industry are among the highest in the world. Heavy transactions costs not only increase the prices of the final export products, but also result in inordinate delay in export fulfilment, thus affecting export competitiveness .Other problems are listed as High Inventory Cost, Lack of Demand due to poor quality ,Low income, High incidence of inland ,rail and freight charges. Delay in payments .Lack of Finance.

PROSPECTS OF THE ENGINEERING EXPORT INDUSTRY:

Since the Engineering Export industry has emerged as the most dynamic export seek in the economy as contributing about 25% of total exports, these is a wide scope and better prospect for this sector in future. For the better and prospect development in future, numerous Thrust Products and Thrust Markets have been identified.. The value of Engineering exports sector has stood at US92b\$ in 2019 and is estimated to be at 125b\$ in 2025.The Government is planning to invest about 100 lakh crore in the next five years. The Engineering Export Industry have completely been delicensed and 100% FDI is allowed in this sector .Following measures should be adopted to enhance the value of this sector.

1. Identification and Selection of Thrust Products:

(a) Thrust Products

Analysis has been carried out for important world-import product categories as well as India's important export categories.

Table 2 Final List Of Selected Thrust Products (tp)

Categ. Sr. No.	Product Category	Product/product Subcategory	Final selected Thrust Products (existing)	Final selected New Thrust Products
1.	Commercial Vehicles	Commercial Vehicles and Passenger Cars	Commercial Vehicles and Passenger Cars	Luxury Buses and Higher horse-power trucks
2.	Electrical power equipment and parts	Electrical transformers and static converters	Transformers (both power as well as distribution) and static converters	-
		Electric motors and generators	Electric motors and generators	High efficiency motors and generators
3.	Automobile parts	Parts of motor vehicles	Electric motors and generators	High efficiency motors and generators
4.	Instruments – All Types	Instruments used in Medical/surgical Applications including X-Ray Machines	Medical/surgical Instruments, Optometry Instruments and X-Ray Equipment	-
		-	-	Orthopedic appliances, artificial parts and implants, etc.
		Analytical and Measuring Instruments	Oscilloscopes, measuring Instruments for Electrical Quantities	-
5.	Prime Iron and Steel	Flat Rolled products of Stainless steel	Flat rolled products of stainless steel	-
6.	Other Industrial Machinery	-	Printing and processing machines	-
		-	Transmission shafts	-
		-	-	Electric Furnaces
7.	I.C. Engines and Parts	Various types of IC Engines	Compression Ignition and Electrical Ignition	Compact Engines
		Parts of IC Engines	Parts of IC Engines	-
8.	Electric Manufacturers NOS	Electric Filament or Discharge Lamps	Electric Filaments or Discharge Lamps	-
9.	Aluminum and Products thereof	Unwrought Aluminum	Alloyed and Unalloyed aluminium ingots	-

		Aluminum plates and sheets and strip	Aluminium plates and sheets and strip including electrolytic grade	-
		Other articles of aluminium (including foil, bars and rods, extrusions, profiles and scrap)	Aluminium foils	Can stock (identified only from the long term possibility (more than 5 years) of development of this product)
10.	Other non-ferrous metal and products	Copper and copper products	Primary copper	FRC copper, Oxygen free copper, High dimension CC rods (16 mm and above)
11.	Other chemical Plant	Centrifuges including centrifugal dryers	Centrifuges including centrifugal dryers	Machinery for working rubber or plastics
12.	Electric wires and cables	Electric wires and cables	Insulated wires, electric conductors and optical fibre cables	Wires and cables of oxygen free copper
13.	Heating & cooling Equipment	Refrigeration and Air-Conditioning (including commercial and industrial)	Refrigeration and Air-Conditioning (including commercial and industrial)	-
14.	Tractors and Agricultural Equipment	Tractors and trailers	Tractors and trailers	-
		Agricultural machinery	Agricultural Machinery	-
15.	Cranes, Lifts and winches	Parts suitable for use in pulley tackle and hostels and construction, excavating machinery	Parts suitable for use in pulley tackle and hostels and construction, excavating machinery	-
16.	Industrial Castings	Moulding boxes for metal foundry	Moulding boxes for metal foundry	-
		Transmission shafts (incl. crankshafts and camshaft)	Transmission shafts (incl. crankshafts and camshaft)	-
17.	Steel Pipes and Tubes	Tubes, pipes and hollow profiles seamless of iron or steel (excl. cast iron)	Seamless pipes and tubes of iron and steel	-
		Other tubes and hollow profile (e.g. open seam/welded/riveted/similarly closed) of iron/steel	Welded pipes and tubes of iron/steel	-
		Tube or pipe fittings of iron or steel	Tube or pipe fittings of iron or steel	-
		Welded steel pipes of diameter greater than 40.64 mm	-	Welded steel pipes of diameter greater than 40.64 mm
18.	Cutting tools	Handsaws and blades for saws of all types	-	Grinding stones and grinding wheels
		Handsaws and blades for saws of all types	-	Grinding stones and grinding wheels
19.	Bicycles and parts	Bicycles	Bicycles	High-end bicycles
		Bicycle parts and others	Bicycle parts	High-end bicycle parts

The above table 2 shows that different product categories have been identified and in each product categories, existing and new Thrust Products have been identified which has great prospects in future for exports of engineering goods sector.

2. Identification and Selection of Thrust Markets:

In line with the selected Thrust Products, Thrust Markets have been identified..The final list of the selected Thrust Markets grouped according to the continents based on the above selection criteria is provided in the table 3.

Table 3
Continent And Country-wise Final List Of Selected Thrust Markets (TMS)

Continent/Group	Selected Thrust Countries/Markets	Comment
Asia	China	Mainly Developing Countries
	Hong Kong	
	Indonesia	
	Iran	
	Japan	
	Malaysia	
	Oman	
	Philippines	
	Russia	
	Saudi Arabia	
	Singapore	
	Turkey	

	UAE	
Europe	Austria	Mainly Developed Countries
	Belgium	
	Czechoslovakia	
	France	
	Germany	
	Italy	
	Motherlands	
	Norway	
	Poland	
	Spain	
	Sweden	
	Switzerland	
	UK	
Australia and Oceania	Australia	Developed Country
Africa	South Africa	Developing Countries
North America	Canada	Developed Country
	Mexico	Developed Country
	USA	Developed Country
Latin America	Argentina	Developing Countries
	Brazil	
	Chile	

Source: UNCTAD PCTAS Data analysis, AFF Research.

Future Outlook

The engineering sector's future outlook is promising. Drivers like infrastructure development, industrial growth and favourable policy regulations will ensure growth in manufacturing merging trends such

as outsourcing of engineering services can provide new opportunities for quantum growth. Engineering and design services such as new product designing, product improvement, maintenance and designing manufacturing systems are increasingly getting outsourced to countries like India. It has been estimated that the present market potential for outsourced engineering services is between US \$7 billion and US \$ 12 billion, while the value of work currently undertaken by vendors in India is estimated between US \$ 400 million and US \$ 500 million. India's engineering sector has a significant potential for future growth, both in manufacturing as well as services.

CONCLUSION

The Indian engineering industry has emerged as a dynamic sector in the country's industrial economy and has made the country self reliant in key areas. The total production of the Indian engineering industry was approximately US\$ 92 billion in 2019. The engineering goods industry enjoys 30.5 percent weight in the Index of industrial production, 29.9 percent share of total investment in all industry, 33.5 percent share in the value of output of all industry, 37.1 percent share in value added by all Industry, 30.6 percent share in employment of all industry, and 62.8 percent share in number of foreign collaborations (EIPC). Further more, recently it has emerged as a major exporting sector and also provides technical know-how and consultancy services to a number of African and Arabian states. As per the data available for the year 2019-20, engineering export which had been dominating Indian export basket as the single largest item for some time now. Thus engineering industry is reckoned as an engine of economic development and one of the dynamic sectors of the Indian Economy. The performance of the engineering sector is linked to the performance of the end user industries for this sector. The value of Engineering exports sector has stood at US\$92b\$ in 2019 and is estimated to be at 125b\$ in 2025. The Government is planning to invest about 100 lakh crore in the next five years. The Engineering Export Industry have completely been delicensed and 100% FDI is allowed in this sector.

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