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New Economic Reforms and Changes in Trends of India's Engineering Goods Export's

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Abstract: ***The Engineering Goods Exports sector is an integral part of India's Export sector which contributes about 25 % of in its total exports earnings. The Engineering Goods Exports have experienced tremendous growth during the last three decades as we can see that the value of Engineering Goods Exports which was about 18 b US $ in 1990 , now has increased to 81 b $ in 2019 . The Engineering Goods Exports Industries constitutes about the 30 % share in Industrial Production Index. There have been tremendous change in the direction and composition of India's Engineering Goods Exports since the implementation of New Economic Reforms in 1991. This sector also provides employment opportunities to about 44 lakh skilled and unskilled labourers in the country. The Engineering Export industry is one of the most fast growing industries in India. The export sector has played a very significant role in the development of India's Economy during the last two three decades .The major item of Engineering Exports constitute the Iron and Steel products , Automobile Products , Motor Vehicle, Cars ,Capital Goods , Heavy Machinery , Computer Hardware etc. The Iron and Steel constitute the largest share in India's Exports of Engineering Products with 14.71 % share in total Engineering Goods Exports. An Attempt have been made about the change in trends , Composition and Direction of India's Engineering Goods Exports after the Implementation of New Economic Reforms in 1991 (NEP-1991).***

Keywords: Engineering Goods; Engineering Exports; Trends of Engineering Goods Trade; Exports Sector; New Economic Reforms

1. 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
a) Heavy Engineering Industry, and
b) Light Engineering Industry

The importance of exports to economic development has been well documented in empirical as well as theoretical literature. A number of studies have examined how exports are beneficial for economic development of an economy. A common point among them is that, exports may lead to greater capacity utilization, economics of scale, incentive for technological improvement and efficient management due to competitive pressure abroad. The interest in the relationship between exports and economic growth has led to the emergence of two schools of thought, namely

(A) Outward Oriented Strategy (export led growth), higher export leads to higher economic growth
(B) Inward Oriented Strategy (import substitution)

Although India has been following an import substitution strategy for long, exports promotion has always got the attention of the policy-makers and planners. Export promotion strategy became more pronounced in India particularly after the new economic policy (NEP) of 1991. It is a fact that although India's share in world exports is less than 2 percent today (1.67), its share in total GDP of the country is 27.8 % in 2020 , a down from 31.8 percent in 2019, which is a substantial percentage that can play an important role in ushering faster economic development of the country.

Exports from India constitute agricultural and allied commodities (9.9%) in 2018-19, ores and minerals (5.29%), manufactured goods (73.40%) (such as Engineering Goods, Gems & Jewellery, chemical products and so on), crude oil and petroleum products (8.5%) and others (2.64%). Engineering industry has significance to the economic development of the country. Engineering goods industry constitutes the prime mover of industrial growth in India economy as it has played a pivotal role in industrial resurgence of India since the advent of independence, especially after the adoption of the Mahala Nobis capital goods oriented strategy from the second plan onwards.

Indian Engineering Exports have shown phenomenal growth over many years and are making a distinctive contribution to the overall export effort. The up trend in the export of engineering goods during half a century of our independent existence is a reflection of the progress achieved by the engineering industry over the years. Engineering industry is now exporting an increasingly wide variety of light, medium and heavy engineering goods. Engineering goods exports have grown by leaps and bounds from a mere Rs. 5.16 crore in 1956-57 to an impressive in all time high of Rs. 5.5 lakh crore in 2019-20. Thus they have grown over many hundred folds in Rupee terms. They have been among the most dynamic elements of India's exports, and have accounted for the largest increment in (constant prices) India's exports during 1960-61 – 2019-20. Besides, there has been a marked shift in the commodity composition as well as direction of engineering exports over the years.

2. Review of Literature

Several studies have been done on the trends, composition and direction of Engineering Goods Exports to analyses its importance in world and India's trade

Nayyar 9 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. He identifies bilateral trading agreements, domestic recession, export promotion policies of the government of India and the closure of the Suez Canal in 1967 as causative factors in the growth of these exports. Further, he finds that the impact of devaluation is almost negligible. In the 1970's the demand boom in West Asia, particularly OPEC countries, increased supplies of export due to slack domestic demand in the Indian economy and marked depreciation of the Indian rupee vis-à-vis the currencies of major importing countries coupled with continued subsidization contributed towards achieving higher rate of export growth.

Patil[11] agrees with **Nayyar** that devaluation is not an important factor for rapid growth in engineering exports. The causative factors for him are underutilization of capacity due to recessionary trends in domestic demand which rather forced the producers of engineering goods to turn towards export section to minimize costs, and the closure of the Suez Canal which reduced freight charges for India to the countries of Asia and some of the African countries. He cautions at the possible shortage of raw materials that obstruct exportable surpluses, and advocates for the creation of production capacity ahead of total demand (domestic plus export). Such and advocacy may be harmful to the economy in view of scarce resources, particularly foreign exchange. He projects exports on the basis of extrapolation, which suffers from usual drawbacks.

Trehan's[17] study is also in tune with **Patil's** to the extent of identifying domestic recession in 1967 and the closure of the Suez Canal as helping factors. For him, the devaluation of Indian rupee in 1966 also contributed to achieve higher export growth. This type of controversy regarding the effect of devaluation arises due to insufficient statistical application to estimate its effect. Even the effect of other factors has not been properly estimated. Hence, their conclusions may be taken to be suggestive.

The study of **IIPO**[7] identifies the strengthening of competitiveness of the engineering industry due to dynamic trend in production and unutilized capacity as responsible for export growth. It is mentioned that "the process of take-off of the engineering sector into the realm of export promotion from that of import substitution needs to be studied alongside rates of growth of engineering exports". But no attempt is made to study the import substitutions on export growth. In fact, this has received scant attention in the literature.

Deb's[4]study also agrees with other in the identification of causative factors but considered them as temporary. He mentions the strengthening of industrial base as an important factor. Assuming 8 percent growth in world trade of engineering goods and India's share 0.3 percent, he projects India's engineering export to 1980-81. The basis of projection is inappropriate us India may increase its share, and further world trade may increase more than 8 percent, as has been the case in seventies.

Rao[14]recognizes a favourable shift in the composition of engineering exports from traditional items like textile and leather machinery, household equipment of base metals, etc, to non-traditional item like electric power machinery, electric distribution equipment etc. World demand, relaxation of import restrictions under GSP, recession in the Indian economy and export promotion measures of the Government of India acted as determinants of engineering exports. He does not make any attempt to separate the relative influence of each factor, the absence of which undermines any attempt by the policy maker to further aim increasing export earnings.

Wadhva and **Sharma**[18] point out the possibility of instability in the case of engineering exports from India. They argue that high commodity/ geographical concentration coupled with low elasticity of demand causes instability in the case of engineering goods. What is thus needed, according to them, is diversification of exports of engineering goods. This could be measured by the reduction in the **Ginni's** coefficient of concentration. Accordingly, the coefficient of commodity concentration for India's engineering exports could be defined as

$$C_{Et} = 100\sqrt{\sum_{i=1}^{n}\left(\frac{X_{it}}{X_{Et}}\right)^2}$$

Where C_{Et}=coefficient of commodity concentration expressed in percentage
X_{it}= India's exports of ith engineering goods in year t
X_{Et}= India's total engineering exports in year t.

The maximum possible value is 100 if all exports consist of a single good. The value is minimum of exports are evenly distributed over all commodities. Then, the lowest value would be 100/✓n where 'n' is the number of commodities.

The coefficient of Regional concentration may be defined as follows:

$$R_{Et} = 100\sqrt{\sum_{r=1}^{s}\left(\frac{X_{rt}}{X_{Et}}\right)^2}$$

where R_{Et}=coefficient of Regional concentration in year t

X_{rt} = India's exports of exports to 'r'th region in year t.
X_{Et} = India's total engineering exports in year t.
The maximum and minimum values are 100 and 100/√s respectively, where 's' is the number of regions.
The coefficient of country concentration could be given as

$$G_{Et} = 100\sqrt{\sum_{j=1}^{m}\left(\frac{X_{jt}}{X_{Et}}\right)^2}$$

Where G_{Et}= coefficient of country concentration in year t.

X_{jt}= India's engineering exports to 'j' market in year 't'
X_{Et}= India's total engineering exports in year 't'

The value of commodity concentration would be sensitive to the level of commodity classification adopted. For aggregate exports, three digit group level Revised India Trade Classification is considered as desirable.

But the desirability of diversification lo overcome instability is questionable because "the only significant relation that has emerged in the empirical studies... is between export instability and investment, with higher levels of instability appearing to cause higher growth rates of investment." In other words, instability positively contributes to Economic Growth. In such a case, realization of higher exports growth would depend on the exports of commodities and import markets whose growth is more than the average growth of world exports as such. Hence, export growth depends on dynamic commodity basket catering to dynamic markets albeit it involves concentration in commodities/market. Constant Market Share models (CMS model) is useful to evaluate export performance of a country in this regard.

The Hypotheses:
In the light of these studies the following hypothesis are formulated:
1) Whether the export of engineering goods have increased or not during the period of the study?
2) Is there any charge in diversification and composition of there exports of engineering goods during the period of the study?
3) Whether it has contributed to the overall growth of the export sector or not?

3. Methodology/Methods of Study

The research paper is mainly based on secondary sources of data collected from the agencies of the Central and State Governments of India. The data's from Engineering Export Promotion Council (EEPC), Ministry of Trade and Commerce, WTO, DGCI and S, Kolkata, Research Gate website, RBI Bulletin, Foreign Trade Review Reports etc. In this study an attempt is made to examine the empirical validity of the aforementioned hypotheses. Export performance of a country could be analysed in three ways:
(1) Trend analysis,
(2) Constant Market Share Analysis, and
(3) Multiple Regression Analysis.

(A) Trend Analysis:
The growth of engineering exports, to some extent, depends on their composition and the pattern of geographical distribution. Trend analysis helps in knowing such changes. Average annual growth rates are estimated for total engineering exports using the formula

$$Y=ae^{bt}$$

Where Y= Engineering exports in value terms,
t= time period.
Exponential form is used as scatter diagrams that have shown a non-liner relationship. Same method is used in calculating growth rates for products at three digit group level of revised India trade classification and countries which import India's engineering goods. The changes in the composition, regional and country-wise distribution of engineering exports are further analyzed through percentage shares of products, regions and countries during the period of study. However, as observed earlier, trend analysis does not help establishing the magnitude of cause-effect relationship. Keeping in view this shortcoming, the growth of India's engineering exports is examined with the help of Constant Market Share Analysis.

(B) Constant Market Share Analysis:
Any change in India's exports of engineering goods could be decomposed with the help of Constant Market Share (CMS) Model into four components, viz.,
(a) Change due to growth in world trade,
(b) Change due to commodity composition,
(c) Market distribution effect, and
(d) Residual component representing competitiveness due to price and non-price factors.

Nargund[53] using Regression Analysis estimates an income elasticity of 4.37 in the U.S. market for India's engineering goods. The equation estimated is

$$X_{eg} = -8.98 + 0.0242Y$$
$$\text{-(7.48) (9.40)}$$
$$\bar{R}^2 = 0.92, D.W. = 1.56$$

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.

India's trade in Engineering Goods
The changes witnessed in the structure of Indian exports helped in the emergence of new manufactured goods like engineering goods, chemicals etc., on the export front. These products have been identified as dynamic exports that would lead to buoyant growth. As such, an analysis of trends, growth, composition and direction of engineering exports would help in identifying the factors responsible for ex-post export performance. An attempt is made in this chapter in two stages. First the broad trends are analyzed and then by using Constant Market Share Model the various factors at work are analysed.

Trends in India's Trade of Engineering Goods
Table- 1 presents the profile of India's engineering exports and imports for the period 1990 – 91 to 2019-20. It may be observed that engineering export have shown enormous increase. The value index shows that engineering export rose by 689 percentage points. The increase is particularly evident in the last two decades of the period. As could be discovered from the same table, the growth appears to be more due to quantitative changes (from a mere 8 points, the quantum index shot up to 133 points) than price increase,

which rose from 86 points in 1990-91 to 167 points in 2019-20.

On the other hand, engineering imports rose by 1.5 percentage points only in value terms during this period. The increase as in the case of exports is pronounced only during 2001-03. This is due more to price increase than quantity increase. This is evident from an increase of 179 percentage points during the whole period in unit value index against a decline in quantity index to the extent of 38 points. Thus the observed trend reveals that engineering exports have witnessed remarkable increase, more due to quantitative rise whereas imports recorded a rise due to price increases.

Table 1: India's Trade In Engineering Goods (1990-91 = 100)

Year	Export			Import			Exports as % of imports (in value)
	Value Index	Unit Value Index	Quantum Index	Value Index	Unit Value Index	Quantum Index	
1990-91	12	86	8	75	53	120	1.21
1996-97	34	91	43	89	117	92	4.41
2000-01	170	115	134	76	94	79	25.76
2002-03	193	116	133	105	106	91	20.97
2005-06	209	123	143	124	119	103	21.54
2009-10	245	138	154	141	132	123	28.29
2015-16	280	149	169	159	159	142	31.21
2019-20	314	167	184	179	172	163	25.23

Source[2]: Monthly Statistics of the Foreign Trade of India, DCIS Kolkata

The quantitative decline in engineering imports appears to be a reflection of import licensing policy of the government of India and increasing tempo of industrialization. While the government followed a policy of 'essentiality' and 'indigenous non-availability' thereby restricting imports to the necessary minimum, the strategy of development appears to have altered the structure of imports without increasing imports. Moreover, the state of food production in India tended to bear an inverse relationship to non-food imports, particularly engineering imports. Low agricultural production used to reduce engineering imports[3]. Another striking feature is that engineering exports as a proportion of engineering imports shows manifold increase. From a mere 1.21 percent in 1990-91, it increased to 31.21 percent in 2015-16 finally settling up to 25.23 percent in 2019-20. This shows that the capacity of this his sector to finance its imports has vastly improved, though it is still low covering only one fifths of imports.

A comparison of engineering exports vis-à-vis engineering imports at RITC (Revised Indian Trade Classification) division level is given in Table-2. It shows that the share of metal manufactures in engineering exports has steadily declined to 25.33 percent in 2019-20 from 33.34 percent in 1990-91. The share of transport equipment shot up to 20.74percent in 2019-20 from 12.11 percent in 1990-91. The contribution of machinery, both non-electrical and electrical has been more or less constant during 1990-91 and 2019-20 with fluctuations in between. In value terms all the four divisions have shown considerable increase. The structure of engineering imports has also experienced considerable change. The share of transport equipment has declined from 23.52 percent in 1990-91 to 10.65percent in 2019-20. The share of metal manufacture has slightly improved while the contribution of non-electrical machinery significantly increase from 55.40 percent in 1990-91, finally standing at 58.34 percent in 2019-20 with fluctuations in between. The proportion of electrical machinery witnessed mild fluctuations finally showing an increasing share at 21.87 percent in 2019-20 against 19.43 percent in 1990-91.

Table 2: RITC division level composition of India's Engineering Exports and Imports (in percentage)

Year	Engineering Exports				Engineering Imports			
	Metal Manufactures	Non-Electric Machinery	Electric Machinery	Transport Equipment	Metal Manufactures	Non-Electric Machinery	Electric Machinery	Transport Equipment
1990-91	33.34	32.05	20.80	12.11	1.60	55.40	19.43	23.52
1995-96	29.71	31.52	21.19	16.40	3.47	64.39	16.89	13.48
1999-00	29.69	30.06	20.97	20.97	1.75	68.02	15.61	12.33
2004-05	28.23	29.43	22.43	21.43	2.43	69.34	16.23	14.43
2009-10	28.43	32.12	23.16	22.54	2.98	64.98	18.54	12.87
2014-15	27.43	30.21	24.64	19.41	3.62	61.76	20.65	11.34
2019-20	25.54	32.54	21.65	20.74	4.76	58.34	21.87	10.65

Source: Monthly Statistics of the foreign Trade of India, DCI&S, Kolkata.

In terms of growth, India's engineering exports and imports present a contrasting picture shown in the table-3. Total engineering exports have grown at 24.5 percent annually, while imports during the whole period recorded a negativegrowth of -1.53 percent annually. In fact, in the 2000s India's total imports recorded negative growth (1.53 percent). Transport equipment in exports showed tremendous growth except for the last sub-period. In the case of imports, imports of metal manufactures, non-electric machinery and transport equipment recorded negative growth rates during the period 1990-2020 with fluctuating growth rates during the other sub-periods. Even in the 2000s, the growth of exports is higher than imports in all RITC divisions. On the whole, the growth rates conform to the trends observed earlier (Table- 3).

Table 3: Average Annual Growth of India's Engineering Exports and Engineering Imports: Selected Periods

	Exports		Imports	
RITC Division	1990-2002	2002-2020	1990-2002	2002-2020
Metal Manufactures	21.30	28.76	19.75	-7.83
Non-Electric Machinery	22.84	27.54	15.08	-1.41
Electric Machinery	21.22	23.43	11.76	-4.10
Transport Equipment	32.33	17.29	3.37	-7.60
Average	24.50	24.25	10.08	-1.53

Further, it is pertinent to know whether the observed trends and growth rates are due to price variations or quantitative changes at the disaggregated level. This can be estimated as follows. A change in the value of export could come through either a change in the price received or a change in the quantity of goods exported or both. The value of exports in year 'O'[4] could be expressed as

$$V_{\infty o} = P_{\infty o} Q_{\infty o} \quad \ldots\ldots 1$$

Where V=value, P = price and Q = quantity. Similarly, the value of exports in years 't' could be represented as

$$V_{xt} = P_{xt} Q_{xt} \quad \ldots.. 2$$

Them the change in the value of exports is given by

$$V_{xo} - V_{xt} = P_{xo} Q_{xo} - P_{xt} Q_{xt} \ldots.. 3$$

This could be decomposed into

$$V_{xo} - V_{xt} = Q_{xo}\left(P_{xt} - P_{xo}\right) + P_{xo}\left(Q_{xt} - Q_{xo}\right) + \left(P_{xt} - P_{xo}\right)\left(Q_{xt} - Q_{xo}\right) \quad \ldots.. 4$$

In equation (4) the first part denotes the price effect assuming base year quantities and the second part expresses the quantity effect assuming base year prices and the third part is an interaction term combining the effects of both price and quantity.

The result with regards to the decomposition of the value of India's engineering exports into price and quantity effects are presented in table-4 and -5. The results are given for the total period 1990-2020 and for the sub periods 1990-2002 and 2002-2020. It may be observed that for the total engineering exports the contribution of price factor is rather marginal at 3.85 percent while quantity factor contributed 44.11 percent of the growth during 1990-2002 conforming the earlier conclusion. Even during 1990-2002 the contribution of price with 10.76 percent is lower than quantity effect with 38.48 percent. Similar trend could be discerned in the case of exports of non-electric machinery, electric machinery and transport equipment during all the sub-periods considered. For metal manufactures, the price effect is positive for all the periods. On the whole, the growth in engineering exports of India could be attributed more to quantity increases than to price increases.

Out of the total increase due to quantity effect or prices effect, what is the contribution of each commodity division? This could be seen in Table -5. During 1990-2002 out of the change due to price factor, 51.01 percent was contributed by metal manufactures, 24.19 percent by non-electric machinery, 15.68 percent by electric machinery and 9.11 percent by transport equipment. During 2002-20, all other divisions except metal manufactures suffered due to price disadvantage, the major sufferer being non-electric machinery. Out of the quantity effect, non-electric machinery shared more at 28.96 percent, followed by electric machinery with 16.90 percent, transport equipment with 20.63. percent and metal manufactures with 33.50 percent.

Table 4: Price and Quantity Effect in India's Engineering Exports

Products	1990-2002				2002-2020			
	P	Q	I	T	P	Q	I	T
Metal Manufactures	9.29	29.95	60.76	100.00	6.15	55.44	38.41	100.00
Non-Electric Machinery	3.30	48.35	48.35	100.00	10.67	35.73	53.60	100.00
Electric Machinery	3.42	48.29	48.29	100.00	14.72	34.11	51.16	100.00
Transport Equipment	1.71	49.15	49.15	100.00	11.00	35.60	53.40	100.00
Total Engineering Exports	3.85	44.11	52.05	100.00	10.76	38.48	50.76	100.00

Source: Monthly Statistic of the Foreign Trade of India, DCI&S, Kolkata.
P = Price Effect; Q = Quantity Effect; I = Interaction Effect; T = Total Effect

Table 5: Price and Quantity Effects across RITC Division of Engineering Exports

Products	1990-2002			2002-2020		
	P	Q	I	P	Q	I
Metal Manufactures	51.01	16.38	28.45	14.26	33.50	18.88
Non-Electric Machinery	24.19	35.35	30.25	33.20	28.96	35.33
Electric Machinery	15.68	22.11	18.92	28.04	16.90	20.62
Transport Equipment	9.11	26.16	22.38	24.51	20.63	25.18
Total Engineering Exports	100.00	100.00	100.00	100.00	100.00	100.00

Source: Monthly Statistic of the Foreign Trade of India, DCI&S, Kolkata.
Note: P = Price Effect; Q = Quantity Effect; I = Interaction Effect

Engineering Trade by Trade Blocks

Conclusions drawn from the results of the analysis of engineering products imports by various trade blocks and India's export relation with them (in respect of engineering products) were used in supporting the findings of thrust product and thrust market analysis.

(A) ASEAN

In the ASEAN context, the following observations deserve consideration:

1) Marginal Indian Presence
   In 2009, India's engineering exports were just over 23USb $ of the total ASEAN engineering import from outside the block, which has increased toUS $ 57 in 2018.
2) Intra-ASEAN trade
   In 2003, the intra-ASEAN stood at only US $32 Bn compared to ASEAN's imports of US $107 Bn from the rest of the world. This signifies that there exists significant potential for exports/trade n the region. Therefore, it is critical that India gives serious consideration to trade arrangements with ASEAN.
3) Product Export Opportunity
   Aluminum products, Prime Iron Steel, Office Equipment's and Other non-ferrous products not only make up for close to 53% of India's engineering exports to ASEAN, but also at the same time occupy 22% of ASEAN's import in that category. In addition, the following product categories present opportunities for growth:-
   (a) Automobile Parts
   (b) Industrial Castings

(B) NAFTA

N the NAFTA context, the following observations deserve consideration:-

1) Marginal Indian Presence
   In 2003, India's engineering exports was 0.49% of the NAFTA engineering imports from outside the block.
2) Intra- NAFTA Trade
   In 2003, NAFTA's within block imports accounted for 46% of its total imports. Thus, NAFTA in itself is a significant market. This free trade area is indeed a challenging entry barrier to any geography looking at trade opportunity. Its imports from outside the block accounted for o one-sixth of the world imports. India's share at 0.26% of this presents the need for growth. The US is the largest country in NAFTA which imports 91% of NAFTA'S imports from India at present
3) Product Export Opportunity
   Automobile Parts Instruments All Types, Electric Power Equipment Parts, Prime Iron and Steel make up for close to 31% of India's engineering exports to NAFTA. The following product categories present opportunities for growth owing to the marginal presence in import basket of NAFTA.
   a) Industrial Casting
   b) I.C. Engines and Parts
   c) Commercial Vehicles: NAFTA's Imports from outside the block stood at 20.5% in 2002, while India's export stood at eighteenth place at present.

(c) European Union (EU)

In the context of EU, the following observations deserve consideration:

1) Marginal Indian Presence
   In 2003, India's engineering exports accounted for 0.71% of the total EU engineering imports from outside the block. This marginal presence could be increased focus on thrust products. Now Exports to EU stands at US $Million 1347.21 in April 2018 which is a significant increase.
2) Intra-EU trade
   In 2018, EU's within block imports accounted for 67% of its total imports. This much magnitude of free trade area is indeed a challenging entry barrier to any geography looking at trade opportunity here. Thus, it is important that India focuses on thrust products to increase market share.
3) Product Export Opportunity
   Commercial vehicles, electric power equipment & parts, automobile parts, Prime Iron and Steel account for 37% of India's exports and 38% of EU imports. Thus, significant opportunity for increasing the India's share in these categories exists. It is important to note that commercial vehicles are significant unlike in the case with NAFTA. The following products deserve attention for growth:-
   a) Industrial Castings
   b) Office Equipment's
   c) Commercial Vehicles

Exports of Engineering Goods:

Engineering Goods exports constitute the major part of the exports from India. Trade in engineering products has been growing at a healthy rate over the last decade. World imports grew at a CAGR of 6.1% over the period 1990-2020. On the other hand, India registered a better export growth rate of 21% during this period . But, the share of India's engineering exports in total world imports has remained historically low. The following table presents a bird's eye view of the share and associated growth of India's engineering exports for major product categories in global trade.

Table 6: World Engineering Trade and India's Exports (unit in US$ Bn)

Particulars	1990			2020			CAGR %	
	World Imports	India Exports	% Share	World Imports	India Exports	% Share	World	India
Capital Goods	1058	1.32	0.12	1371	3.34	0.24	5.32	20.40
Primary Iron, Steel and Items thereof	251	1.5	0.60	347	4.37	1.26	6.69	23.84
Non-Ferrous Metals and products thereof	114	0.4	0.35	134	1.03	0.77	3.29	20.82
Consumer Durables	523	1.1	0.21	907	2.58	0.28	11.64	18.59
Non-Engineering Items	5	0.01	0.20	11	0.08	0.73	17.08	51.57
Grand Total	1951	4.33	0.22	2770	11.4	1.67	7.26	21.36

Source, EEPC, 2020 Data. 617

From Table-6 it is found that though share of Indian exports has almost doubled in world imports. It still is very low at1.67% in 2019. The higher growth rates for Indian exports compared to world imports give strong indications of a higher share of Indian exports in world imports in the consequent years. In 2003, India exported only US $ 11.4 billion compared to word imports of US $ 2.77 trillion. At present in 2018 the total value of India's exports stood at US $322,291 million where as the total value of imports stood at US $ 617,945 million.

In 2003, of the 61 product categories, the share of India's exports, in the world imports was more than 1% only in the categories presented in the following table:

Table 7: List of Categories for India With Share of >1% of World Engineering Imports (2003)

Category	World's imports (2003) (US $ Mn.)	Share of Category of world imports (2003)	Indian Exports2003 (US $ Mn.)	India's Exports as % of Category Imports (2003)
Stainless Steel Utensils	2510	0.11	126	5.0
Steel Files	174	0.01	7	3.8
Electrodes	3405	0.15	120	3.5
Sanitary Castings	7790	0.34	229	2.9
Ferrous Holloware	8667	0.38	245	2.8
Hand Tools	5260	0.23	140	2.7
Prime Iron and Steel	142521	6.28	2283	1.6
Bright Bars	4727	0.21	67	1.4
2/3 Wheelers	11845	0.52	167	1.4
Steel Wire Ropes	972	0.04	14	1.4
Razor Blades	2383	0.10	26	1.1
Ferro Alloys	9488	0.42	100	1.1
Bots and Nuts	12213	0.54	123	1.0

Source: UNCTAD PCTA data, EEPC, 2018-18 Data
Note: Figures above are rounded off.

From Table-.7 it is interesting to note that except for the Prime Iron and Steel category, the remaining account for an insignificant share in engineering imports of the world. India's share is higher in product categories that are not significant in the world imports.

All the above information and presentation points to the fact that a focused approach on important product categories could enable India to increase its share in world imports of engineering products. Thus arises the need for identification of thrust products and important destinations of them namely the thrust markets.

Aggregate Trends in Engineering Goods Trade:
The engineering goods sector has witnessed a tremendous change n its structure, direction and composition over the years. Its share in total sports is continuously rising. It is clear from the table-8 that in 1956-57 the value of engineering exports was only 5.16 crore which rose to 4245 crore in 1990-91 , 73,800.39 crore in 2004-05.

Table 8: Engineering Exports Vis-À-Vis Total Exports (Crores)

Year	Total Exports	Engg. Exports	% share for Engg Exports to total Exports
1956-57	97	5.16	0.5
1960-61	1,011.65	10.31	1.0
1970-71	1,535.16	115.76	7.5
1980-81	6,710.70	874.17	13.0
1990-91	32,552.00	4,245.00	13.0
1996-97	118,817.32	17,481.75	14.7
1997-98	130,100.65	19,580.14	15.04
1998-99	141,603.53	18,444.47	13.10
1999-00	159,288.92	22,154.23	13.91
2000-01	201,684.93	30,887.95	15.31
2001-02	209,729.06	33,193.99	15.83
2002-03	255,799.55	43,625.94	17.05
2003-04	294,143.23	56,802.83	19.31
2004-05	356,795.46	73,800.39	20.68
2009-10	845,534.00	181,444.30	21.46
2014-15	1,897,025.85	436,310.78	23.45
2019-20	159,713,510.00	39,929,752.50	25.00

Source: Economic Survey of India, 2021.

The figure in table 3-8 indicate that engineering goods exports have shown commendable performance on the export front over the years and it is steadily increasing over time. The percentage share of engineering exports in total exports increased from a mere 0.5 percent in 1956-57 to a respectable 13.0percent in 1990-91 and again to 25.00 percent in 2019-20, emerging as an important and single largest item of export basket in India. All these are a reflection of increased acceptability of Indian engineering products in developed countries market, aggressive marketing strategy, entry into new markets and promotional role of engineering export promotion council and more liberal policies of the government especially after 1991.

Average annual growth rate of engineering exports
Engineering exports have been registering much higher annual average rate than total exports during the decades of 1960s, 70s and 90s. The average annual growth rate of engineering as well as all India's exports is depicted in table 3.9.

Table 9: Average Annual Growth Rate Of Engineering Exports

Period	Total Exports	Engg. Exports
1956-57 to 1960-61	1.15	19.3
1961-62 to 1970-71	4.64	29.71
1971-72 to 1980-81	16.36	23.99
1981-82 to 1990-91	17.10	16.8
1991-92 to 2000-01	20.083	29.35
2001-02 to 2004-05	17.00	25.59
2005-06 to 2019-20	19.23	28.85

Source: Monthly Statistics of the foreign Trade of India, DCI&S, Kolkata.

From table- it is clear that engineering exports had registered an impressive growth rate of 29.71 percent during 1961-62 to 1971-72 which marginally declined during 1971-72 to 1981-82. However, engineering exports sharply declined to 16.80 percent during 1981-82 to 1990-91. However, the position improved since 1990-91 after the implementation of New Economic Reforms in 1991. Then onwards, engineering exports have grown at a faster rate. Economic liberalization of 1991 was a major boost to the engineering exports. It has opened new vistas, opportunities as well as challenges. A few factors that gave fillip to the development of Indian engineering exports under new regime are:

1) Adoption of export policy resolution
2) Conferring priority to exports,
3) Recognition and concession to export houses and EPZs,
4) Liberalization of imports,
5) Relaxation of investment and licensing policies,
6) Priority to Software and Hardware Technology Park and so on.

It is to be remembered that although there has been a quantum jump in the all India exports after liberalization of 1991, there has been large slowdown in all India exports since 1995-96. This slowdown can be explained by slow growth rate of world total export demand, South East Asian financial crisis and consequent overvaluation of India rupees, reducing exports to these countries which account for nearly 15 percent of the total Indian engineering exports and also reducing the competitive edge of Indian engineering exports in the world market, since some of these countries are major competitors of Indian engineering exports.

However, total exports exhibited a sharp turn around since 1999-2000. Bulk of the rise was contributed by a volume increase in exports. This acceleration in exports reflected buoyant global demand coupled with improvement in world commodity process in 2000 and the revival of world trade following the Asian crisis. Besides various export facilitating measures announced by the government, significant gains in selected sectors like textiles engineering goods electrical goods chemicals a leather & leather structure ones & minerals and petroleum products also contributed to the strengthening of exports. The exchange rate of rupees remained relatively stable in real effective terms during 2000-01 suggesting a broad retention of competitiveness of India's exports in global market. Products also contributed to this strengthening of exports. The exchange rate of rupees remained relatively stable in real effective terms during 2000-01 suggesting a broad retention of the competitiveness of India's exports in global market.

4. Conclusion

It is clear from the above discussion that the Exports of Engineering Goods is an integral part of India's Exports Earnings which contributes about 25% of its total exports. It is the leading sector in Export Industry which constitute about 30 % in total Index of Industrial Production of the country. There have been tremendous change in the trends of exports of Engineering Goods since the implementation of the new Economic Reforms by India in 1991. The New economic Policy of Globalisation , Liberalisation and Privatization have completely transformed the overall Industrial Sector and particularly the Engineering Export Sector of the country . The composition and direction of Engineering Exports have also witnessed enormous change in its nature. The new goods like Capital goods , Heavy Machinery , Auto Mobiles , Vehicles , Iron and Steel Products , Computer Hardware's , Electrical Products, Transport Equipment's have replaced the traditional Engineering Exports like Sewing Machine , Light Machinery , Wires and Cable etc. The destination of Engineering Goods Exports have also changed to large extent after the implementation of New Economic Reforms . The developed countries of the world now is the major importer of India's Engineering Products The top 25 country imports more than 75 % of India's Engineering Exports.

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