India's International Trade of Turbo-jets, turbo-propellers and other gas turbines (ITC HS 8411)

Section 1: Introduction

The study uses trade indicators to analyze merchandise export and import data in a way that should be useful for the purpose of formulation of policy. The indicators provide a glimpse of the trade patterns of the world and the performance of India in comparison to various other countries. They have been used in the case of India's exports of Turbo-jets, turbo-propellers and other gas turbines (ITCHS 8411), to indicate the possible directions policy may take.

Computations are primarily based on data at the ITC-HS two-digit level (HS-84) and ITC-HS six-digit level (HS-841111) and the latest finalized data available on the UN Comtrade Database up to year 2021.

Table 1: (ITC HS Classification of Turbo-jets, turbo-propellers and other gas turbines*)*

ITC HS Code	Name/Description
8411	Turbo-jets, turbo-propellers and other gas turbines/ Turbo-jets, turbo-propellers and other gas turbines.
841111	Turbo-jets; of a thrust not exceeding 25kN/ of a thrust not exceeding 25 kN

Section 2: Trends in International Trade i.e. Exports and Imports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS 8411)

A glimpse of the top fifteen exporters of Turbo-jets, turbo-propellers and other gas turbines, in the world is given in table 2.

Table 2: Exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111) in million US $

Country	2017	2018	2019	2020	2021
United Kingdom	22729.70	24915.27	26392.58	20144.56	23208.48
France	12464.03	16206.17	18876.38	11550.82	12901.08
Germany	9706.09	11980.25	13168.46	9382.74	6508.56
Singapore	6487.32	11912.75	14445.48	13727.72	0.00
USA	9637.07	8955.66	9380.96	8506.81	9052.64
Hong Kong SAR	4107.70	5055.98	8227.28	8440.58	9618.47
Canada	5834.22	6529.62	6352.66	4618.21	5150.36
Japan	4657.07	5214.82	5020.81	4044.15	3818.48
The Netherlands	4291.84	4484.98	4454.87	2887.28	3160.13
Italy	3861.13	3511.44	4505.29	3280.56	3642.77
China	3952.75	3495.68	3712.27	2658.31	2702.24
Mexico	3026.82	3353.48	3897.60	2564.23	2494.95
Poland	2730.37	2987.91	3372.04	2406.10	3421.29
India	1761.32	3507.11	3566.95	2851.74	2805.91
Brazil	3223.47	3449.70	2079.30	773.95	475.24
Others	18402.64	18538.72	17005.36	14928.89	10880.62
Grand Total	**116873.53**	**134099.54**	**144458.30**	**112766.65**	**99841.25**

Sources: Computed from UN Comtrade Database

Table 3: Shares of countries in % in world exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111)

Country	2017	2018	2019	2020	2021
United Kingdom	19.45	18.58	18.27	17.86	23.25
France	10.66	12.09	13.07	10.24	12.92
Germany	8.30	8.93	9.12	8.32	6.52
Singapore	5.55	8.88	10.00	12.17	0.00
USA	8.25	6.68	6.49	7.54	9.07
Hong Kong SAR	3.51	3.77	5.70	7.48	9.63
Canada	4.99	4.87	4.40	4.10	5.16
Japan	3.98	3.89	3.48	3.59	3.82
The Netherlands	3.67	3.34	3.08	2.56	3.17
Italy	3.30	2.62	3.12	2.91	3.65
China	3.38	2.61	2.57	2.36	2.71
Mexico	2.59	2.50	2.70	2.27	2.50
Poland	2.34	2.23	2.33	2.13	3.43
India	1.51	2.62	2.47	2.53	2.81
Brazil	2.76	2.57	1.44	0.69	0.48
Others	15.75	13.82	11.77	13.24	10.90
Grand Total	**100**	**100**	**100**	**100**	**100**

Sources: Computed from UN Comtrade Database

Tables 2 and 3 show the top fifteen exporters of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111) and their percentage shares. UK, France, Germany, Singapore and USA are the top five exporters of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111) from 2017 to 2021. Together, these five countries covered more than 51.76% per cent of export value in 2021.

Table 4: Imports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111) in million US $

Countries	2017	2018	2019	2020	2021
USA	23669.64	26315.62	30752.54	19748.58	19674.08
United Kingdom	20678.02	20420.89	20700.78	13892.49	15127.37
France	20060.04	15317.28	17157.79	8762.70	9334.43
Germany	10564.76	13029.34	14359.92	10124.61	11009.66
Singapore	8731.98	14178.86	19481.89	15062.59	0.00
Hong Kong SAR	5313.50	7011.57	9847.04	11217.63	11987.46
China	6593.43	6841.73	8188.25	6351.48	7074.83
Japan	6566.32	8207.72	6874.94	4900.37	4862.10
UAE	5736.66	6231.17	5918.12	4103.40	4279.75
Canada	4646.31	5699.97	6219.61	4646.74	4571.63
Brazil	3125.81	3487.35	4291.85	3332.16	4231.80
India	2287.23	3044.51	4240.36	2182.03	2480.85
The Netherlands	2893.42	3149.87	3444.64	2223.86	2043.26
Mexico	2504.18	2587.79	3234.27	2159.35	2053.40
Italy	2118.07	2286.83	2221.11	2065.39	2301.86
Others	29435.27	31186.65	30504.01	26014.60	20670.64
Grand Total	**154924.67**	**168997.14**	**187437.12**	**136787.98**	**121703.12**

Sources: Computed from UN Comtrade Database

Table 5: Shares of countries in % in world imports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111)

Countries	2017	2018	2019	2020	2021
USA	15.28	15.57	16.41	14.44	16.17
United Kingdom	13.35	12.08	11.04	10.16	12.43
France	12.95	9.06	9.15	6.41	7.67
Germany	6.82	7.71	7.66	7.40	9.05
Singapore	5.64	8.39	10.39	11.01	0.00
Hong Kong SAR	3.43	4.15	5.25	8.20	9.85
China	4.26	4.05	4.37	4.64	5.81
Japan	4.24	4.86	3.67	3.58	4.00
UAE	3.70	3.69	3.16	3.00	3.52
Canada	3.00	3.37	3.32	3.40	3.76
Brazil	2.02	2.06	2.29	2.44	3.48
India	1.48	1.80	2.26	1.60	2.04
The Netherlands	1.87	1.86	1.84	1.63	1.68
Mexico	1.62	1.53	1.73	1.58	1.69
Italy	1.37	1.35	1.18	1.51	1.89
Others	19.00	18.45	16.27	19.02	16.98
Grand Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Sources: Computed from UN Comtrade Database

Tables 4 and 5 show the top fifteen importers of Turbo-jets, turbo-propellers and other gas turbines in the world and their percentage shares. USA, UK, France, Germany and Singapore are the top five importers of Turbo-jets, turbo-propellers and other gas turbines from 2017 to 2021. Together, these five countries contribute 45.32% per cent of import value in 2021.

Table 6: India's Exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111) to various countries (in million US $)

Partner Country	2017	2018	2019	2020	2021
USA	2730.15	3732.05	4475.27	3948.28	5246.24
Germany	1164.56	1537.87	1350.84	1160.46	1314.35
United Kingdom	914.01	1057.15	1086.44	653.28	1062.68
China	665.63	827.31	840.50	718.92	1036.46
UAE	687.78	640.07	701.38	777.76	866.24
Singapore	488.81	702.91	834.41	686.34	864.96
Thailand	334.93	607.70	701.14	706.95	1112.92
Bangladesh	534.01	646.00	829.40	536.33	694.44
Nepal	509.26	648.56	558.08	387.28	640.31
France	424.39	427.54	509.93	445.34	608.32
Turkey	487.10	484.60	387.99	431.14	541.03
Italy	428.80	467.09	462.76	365.47	563.97
Nigeria	251.69	406.56	667.48	432.88	394.78
Japan	265.39	424.24	303.02	283.64	535.26
Indonesia	301.20	495.98	412.69	224.23	340.43
Others	23079.33	27746.50	28406.08	24183.45	32509.17
Grand Total	**33267.05**	**40852.14**	**42527.43**	**35941.77**	**48331.56**

Sources: Computed from UN Comtrade Database

Table 7: Varies countries share in % in Indian exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111)

Partner Country	2017	2018	2019	2020	2021
USA	8.21	9.14	10.52	10.99	10.85
Germany	3.50	3.76	3.18	3.23	2.72
United Kingdom	2.75	2.59	2.55	1.82	2.20
China	2.00	2.03	1.98	2.00	2.14
UAE	2.07	1.57	1.65	2.16	1.79
Singapore	1.47	1.72	1.96	1.91	1.79
Thailand	1.01	1.49	1.65	1.97	2.30
Bangladesh	1.61	1.58	1.95	1.49	1.44
Nepal	1.53	1.59	1.31	1.08	1.32
France	1.28	1.05	1.20	1.24	1.26
Turkey	1.46	1.19	0.91	1.20	1.12
Italy	1.29	1.14	1.09	1.02	1.17
Nigeria	0.76	1.00	1.57	1.20	0.82
Japan	0.80	1.04	0.71	0.79	1.11
Indonesia	0.91	1.21	0.97	0.62	0.70
Others	69.38	67.92	66.79	67.29	67.26
Grand Total	**100**	**100**	**100**	**100**	**100**

Sources: Computed from UN Comtrade Database

Tables 6 and 7 below show the top fifteen destinations for Indian exports of Turbo-jets, turbo-propellers and other gas turbines, denoting the values and percentage shares respectively. USA, Germany, UK, China and UAE are the countries which constituted the largest markets for India's exports of commodity class ITC-HS 600110 from 2017-2021 with export-value share of 19.70% in 2021.

Table 8: India's import of Turbo-jets, turbo-propellers and other gas turbines (ITC HS - 841111) from Varies countries(in million US $)

Partner Country	2017	2018	2019	2020	2021
USA	1865.51	1451.46	1888.60	833.08	864.25
Germany	109.12	392.72	435.73	293.18	179.81
United Kingdom	48.50	346.70	448.15	173.47	169.36
France	122.05	86.54	266.24	158.13	256.03
Singapore	0.54	147.78	336.56	188.47	214.20
Belgium	0.01	60.38	131.13	27.95	146.76
Turkey	0.13	62.40	46.24	129.63	44.54
UAE	0.61	51.51	64.46	85.77	77.74
Japan	13.73	91.27	41.30	18.22	64.98
Malaysia	0.46	61.27	119.47	13.84	8.74
Ireland	0.00	0.01	42.25	3.87	152.22
China	11.83	66.50	76.55	15.41	23.11
Netherlands	13.42	28.98	28.20	34.66	87.94
Canada	59.91	53.96	32.47	11.63	19.20
Hong Kong SAR	2.67	25.10	98.85	38.37	10.21
Others	2325.99	3162.43	4424.53	2338.38	2642.60
Grand Total	**4574.46**	**6089.03**	**8480.72**	**4364.06**	**4961.70**

Sources: Computed from UN Comtrade Database

Table 9: Varies countries share in % in Indian imports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111)

Partner Country	2017	2018	2019	2020	2021
USA	40.78	23.84	22.27	19.09	17.42
Germany	2.39	6.45	5.14	6.72	3.62
United Kingdom	1.06	5.69	5.28	3.98	3.41
France	2.67	1.42	3.14	3.62	5.16
Singapore	0.01	2.43	3.97	4.32	4.32
Belgium	0.00	0.99	1.55	0.64	2.96
Turkey	0.00	1.02	0.55	2.97	0.90
UAE	0.01	0.85	0.76	1.97	1.57
Japan	0.30	1.50	0.49	0.42	1.31
Malaysia	0.01	1.01	1.41	0.32	0.18
Ireland	0.00	0.00	0.50	0.09	3.07
China	0.26	1.09	0.90	0.35	0.47
Netherlands	0.29	0.48	0.33	0.79	1.77
Canada	1.31	0.89	0.38	0.27	0.39
Hong Kong SAR	0.06	0.41	1.17	0.88	0.21
Others	50.85	51.94	52.17	53.58	53.26
Grand Total	**100**	**100**	**100**	**100**	**100**

Sources: Computed from UN Comtrade Database

Similarly, tables 8 and 9 show the top fifteen destinations for Indian imports of Turbo-jets, turbo-propellers and other gas turbines denoting the values and percentage shares respectively. USA, Germany, UK, France and Singapore are the countries from which India imported Turbo-jets, turbo-propellers and other gas turbines, in descending order of magnitude of import- values, from 2017-2021 with total import-value share of 33.93% in 2021.

Section 3: Export Intensity Index

Export Trade Intensity Index (ETII) of a country with respect to an importing country is the share of the exporting country's merchandise going to that particular importing country divided by the share of world exports going to that importing country. In other words, it is the importance of that importing country as a destination for the exporting country's merchandise outflow, as compared to the importance that importing country enjoys as a destination of world exports. But algebraically, it is equal to the exporting country's share in the importer's market as compared to the same country's market share in the world market. Table 10 below shows the indices of some countries with respect to India for ITC-HS Chapter 84, Turbo-jets, turbo-propellers and other gas turbines belong.

Table 10: Export Trade Intensity Indices for Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84) of countries w.r.t. India

Countries	***2016***	***2017***	***2018***	***2019***	***2020***
United Kingdom	1.40	2.02	1.83	1.62	0.97
France	0.77	0.91	0.80	0.73	0.93
Germany	0.72	1.29	1.34	0.97	1.15
Singapore	1.49	1.59	1.83	2.13	2.06
USA	0.88	0.97	1.04	1.23	1.24
Hong Kong SAR	0.08	0.12	0.22	0.11	0.22
Canada	0.29	0.24	0.31	0.31	0.28

Source: Computed from UN Comtrade database

Table 10 shows that the Export Intensity Indices of India with UK, Germany, Singapore and USA, are greater than 1, implying India gives much more importance to these countries as a destination for its exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84) & w.r.t other countries such as France, Hong Kong SAR & Canada are lesser than 1, implying India gives less importance to these countries as a Destination for its export of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84).

Section 4: RCA and RCII

While looking at the Export Intensity Index is one approach, the other involves the use of information regarding source countries which places high importance on its exports of Turbo-jets, turbo-propellers and other gas turbines, in terms of value, relative to the importance in world exports; and likewise, also enjoying similar relative importance in the destination country's imports. The first is known as Revealed Comparative Advantage (RCA) and the second Revealed Comparative Import Inclination (RCII). Similarly, RCII index for the destination country's imports for a commodity (or commodity group) is higher than 1 if its importance is more in the destination countries overall imports than in world imports and vice versa.

Table 11: RCA of various countries exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84)

Countries	2016	2017	2018	2019	2020
USA	0.86	1.05	1.14	1.25	1.22
Germany	1.73	2.50	2.71	2.35	2.27
United Kingdom	1.45	1.81	1.71	1.86	1.27
Singapore	1.03	0.75	1.06	1.13	1.21
China	1.00	0.94	0.80	0.79	0.60
Belgium	0.50	0.50	1.20	0.70	0.60
Turkey	2.15	1.75	1.47	1.25	1.74

Source: Computed from UN Comtrade database

RCA index for a commodity (or commodity group) exported from the source country is higher than 1 if its Importance is more in source country's total exports than in world exports, and vice versa. For the year 2020, the RCA of various countries exports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84) is given in table 11. India is at disadvantage in supply-side for exports of Turbo-jets, turbo- propellers and other gas turbines, to the world since RCA >1 as seen from below table 11.

Table 12: RCII of various countries imports of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84)

Countries	2016	2017	2018	2019	2020
United Kingdom	1.59	1.57	0.89	1.42	1.22
Singapore	1.03	0.69	1.14	1.68	1.25
USA	0.83	0.86	1.06	0.97	0.90
France	1.40	1.25	1.25	1.03	1.29
Germany	1.57	1.46	1.77	1.47	1.33
Belgium	0.58	0.58	0.70	0.83	NIL
Hong Kong	0.07	0.05	0.13	0.09	0.24

Source: Computed from UN Comtrade database

Similarity, if the RCII in the destination country is greater than 1, then the country imports Turbo-jets, Turbo-propellers and other gas turbines, to an extent more than the overall world trends warrants. Therefore, if India seeks to expand its exports, these countries are the preliminary list of options. Table 12 shows that RCII>1 in United Kingdom, Singapore, USA, France & Germany indicating a higher than average appetite for imports of the commodity than the rest of the world and these countries should thus serve as potent destination markets for India's Turbo-jets, turbo-propellers and other gas turbines exports.

Section 5: Competitiveness Index and Intra-Industry Trade

The idea of market dominance can be viewed from a different perspective. The competitiveness index of India's export of Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111) tells how important India's product is (in terms of market value share) with respect to its competitors in a destination country. While an index value greater than 1 is definitely good for India, a value less than 1 shows that it has been overshadowed by the products of other exporters.

Table 13: Competitiveness Indices Product) of various exporter countries w.r.t Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84)

Countries	2016	2017	2018	2019	2020
UK	0.60	0.59	0.83	0.83	0.77
France	0.46	0.51	0.47	0.59	0.58
Russia	0.98	0.77	0.47	0.39	0.68
Singapore	1.37	1.21	2.13	2.39	2.36
Germany	0.95	0.87	0.88	0.80	0.76

Source: Computed from UN Comtrade database

Table 14: Competitiveness Indices Market) of various exporter countries w.r.t Turbo-jets, turbo-propellers and other gas turbines (ITC HS -841111)

Countries	2016	2017	2018	2019	2020
UK	1.70	1.93	1.86	1.84	1.77
France	1.49	1.35	1.94	2.17	1.78
Russia	0.25	0.18	0.14	0.12	0.16
Singapore	1.81	1.89	1.90	1.98	1.88
Germany	3.34	3.66	3.79	3.53	3.13

Source: Computed from UN Comtrade database

Table 13 & 14 shows the indices of top exporters of Turbo-jets, turbo-propellers and other gas turbines. For Indian exports, the index is very high for UK, France, Singapore & Germany (>1). It has less values, for Russia, implying India must step up its game in these Importing countries to compete with other exporters of Turbo-jets, turbo-propellers and other gas turbines.

Intra-industry trade is of importance as it can increase and expand markets. The standard indicator is the Index of Intra-industry Trade (IIT). The index can be calculated within individual sectors as well. Intra- industry trade is generally high in case of the manufacturing sector. An increase in IIT may signify a maturing of this sector, and hence, a regular monitoring of this index may be useful. Intra-industry trade is a common world-wide phenomenon — export and import of the commodities produced by the same industry or sector. The degree to which this occurs is generally measured by the Grubel-Lloyd Index, which is the difference between the exports of the particular sector to a partner country and imports of the products of the same sector from the same partner, divided by the sum of these two, and whole thing obtained subtracted from one.

The following table (Table 15) shows varying degrees of IIT between India and some major partners. The values are very high (>0.9) between India and France, showing greater interdependence (exports and imports by the same sector) in international trade within the same industry. The sources of gains from intra-industry trade between similar economies—namely, the learning that comes from a high degree of specialization and splitting up the value chain and from economies of scale—are not contradictory to the earlier theory of comparative advantage.

Table 15. Intra-Industry Trade in Turbo-jets, turbo-propellers and other gas turbines (ITC HS -84) between India and Some Major Importing Countries in 2020)

IIT between India and Partner Countries	
Countries	**GrubeI-Lloyd Index in 2020**
USA	0.83
Germany	0.57
United Kingdom	0.89
France	0.93
Singapore	0.47
Belgium	0.54
Turkey	0.81

Source: Computed from UN Comtrade database

Section 6: Summary

For Turbo-jets, turbo-propellers and other gas turbines, UK, France, Germany, Singapore & USA are the top five exporters of Turbo-jets, turbo-propellers and other gas turbines from 2017 to 2021. Together, these five countries covered more than 51.76% per cent of export value in 2021. USA, UK, France, Germany & Singapore are the top five importers of Turbo-jets, turbo-propellers and other gas turbines from 2017 to 2021. Together, these five countries around 45.32% per cent of import value in 2021. USA, Germany, UK, China & UAE are the countries which constituted the largest markets for India's exports of commodity class ITC-HS 84 from 2017-2021 with export-value share of 19.70% in 2021. USA, Germany, UK, France & Singapore are the countries from which India imported Turbo-jets, turbo-propellers and other gas turbines, in descending order of magnitude of import-values, from 2017-2021 with total import-value share of 33.93% in 2021. The market indicators for India in terms of Turbo-jets, turbo-propellers and other gas turbines trade can be improved with respect to other major importers. Lower values of the Competitiveness index between India and the major importing countries, particularly Russia stands testimony to this. Export Intensity Indices of India with UK, Germany, Singapore & USA are greater than 1, implying India gives much more importance to these countries as a destination for its exports of Turbo-jets, turbo-propellers and other gas turbines than the rest of the world does.

Appendix A

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1. Revealed Comparative Advantage Index (RCA): RCA for a commodity exported from a country means the importance of this commodity in the export trade of the country in comparison with the importance of the commodity in world exports. Mathematically,

RCAij = (xij/Xit)/(xwj/Xwt)
where xij = country i's exports of commodity j
Xit = country i's total exports
xwj= world exports of commodity j
Xwt= total world exports.
When RCAij > 1, i.e. when j's weight in i's exports (xij/Xit) is more than j's weight in world exports (xwj/Xwt), country i is said to have a revealed comparative advantage in commodity j. There is a revealed comparative disadvantage if RCAij 1. When RCAij = 1, there is neither comparative advantage or disadvantage.

By studying the RCA for a commodity exported from a country over time, it can be seen whether the country in question is gaining in comparative advantage regarding a particular commodity. If RCA is falling, the reasons require investigation. (xij/Xit) may have risen less or fallen more than proportionately than (xwj/Xwt).

2. One way of checking the reasons for a fall in RCA for a particular commodity is seeing which markets are responsible for this fall. This can be seen from another, slightly different, indicator called Export Specialization Index (ESI).

ESI = (xij/Xit)/(mkj/Mkt), where
mkj = import of commodity j to market k
Mkt= world imports of commodity k.
(mkj/Mkt) gives the weight ofj in market k. So, if RCAij is seen to fall, then it can be found out for which markets ESI has fallen. Special attention may then be given to those markets regarding the commodity in question.

3. Like RCA, the revealed comparative import intensity (RCII) can also be measured.
RCII = (mij/Mit)/(mwj/Mwt)
where mij = country i's imports ofcommodity j
Mit = country i's total imports
mwj= world imports of commodity j
Mwt= total world imports.
This gives an idea whether the proportion of imports of any commodity is more than expected, in terms of the share of that commodity in world imports.

4. Bilateral trade between countries is an important area of trade policy in that bilateral trade agreements are signed to increase trade. However, some points require to be examined before entering into these

agreements. Firstly, it is necessary to see whether there is trade complementarity between the two countries. That is, whether the exports of one country match with the imports of the other, and vice versa. Naturally, when trade complementarity is high between two countries, it is beneficial to enter into a trade agreement. If a partner country does not import what India generally exports, there is little point in entering into a trade agreement with that country. The Trade Complementarity Index (TCI) is given as follows:

TCI = 1 Z 1 ' ik - xij /2) , where
mik= share of commodity i in the imports of market k
xij = share of commodity i in the exports of country j.
It is evident that TCI can have values between 0 and 1. When these shares, are mik and xij are close to each other, (i.e. when trade complementarity increases) TCI is close to 1. As their difference increases, TCI falls.

TCIW = TCI between a country and the World.
RTCI (Relative Trade Complementarity Index) between country k and country j = (TCI between country k and country j) / (TCI between country k and the world)

RTCI gives a measure of the complementarity between two countries as compared to the complementarity between the first country and the world.

5. But another fact may be checked while proceeding to enter into a trade agreement. The trade between the two countries may already be quite high. This can be measured by the Export Intensity Index (EII).
TH = (xij/Xit)/(xwj/Xwt)
where xij = country i's exports to country j
Xit = country i's exports to the world
xwj = world exports to country j
Xwt = total world exports.
This essentially measures the relative importance of country j in country I's export trade, in comparison with country j's importance as world export destination. EII 1 or >1 implies less than or more than expected bilateral trade, respectively. If EII is already high, there is little scope of further increasing bilateral trade between i and j. But if is low, and if TCI is high, bilateral trade can very well be increased through trade agreements.

6. Arelated indicator is the Export Similarity Index (XSI), which helps us identify a country's competitors.
XSI = Z [min (Xij, Xik)*100]
where Xij= share of commodity i in exports of country j
Xik= share of commodity i in exports of country k
XSI can vary between 0 and 100. It will be seen that when Xij= Xik for all i's, XSI = 100, which means complete export similarity between countries j and k. As Xij and Xik start to differ, XSI falls. Countries exporting the same commodities are competitors in the world market, and export strategies, taking in to account such competition, have to be designed accordingly.

7. It is necessary to know whether the exports of a country are concentrated in a few products. Ahigh concentration, while enabling a country to reap the benefits of specialization and economies of scale, also exposes a country to the risks arising from the vicissitudes of global trade. The Hirschman Index (HI), used by UNCTAD, is a handy measure for monitoring export concentration.

HI = [ZSq(xi/Xt)]

where xi is the country's exports of commodity i

Xt is the country's total exports.

HI ranges from (1/n) to 1. The higher the value of HI, the higher the concentration of exports.

8. Intraindustry trade is of importance as it can increase and expand markets. The standard indicator is the Index of Intraindustry Trade (IIT).

IITjk = 1 [Z 1 Xijk — Mijk / (Xijk + Mijk)]

where Xijk = exports of products of industry i from country j to country k

Mijk = imports of products of industry i from country k to country j.

IIT can take values from 1 (extremely high intra-industry trade, exports equaling imports) to 0 (no interindustry trade at all).