

India's International Trade of Cotton in the Recent Past – Some Insights

Preface

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 cotton, to indicate the possible directions policy may take. This study focuses on cotton, because India is one of the largest growers of this commodity and has very high export potential, to generate substantial revenue earnings. Therefore, it is important to investigate the prospects of expansion of trade and of increasing the gains achieved from trade for cotton.

The data used in this study has been sourced from the United Nations Comtrade Database, the Cotton Corporation of India, Export Import Data Bank, Department of Commerce and the FAOSTAT database. Computations are primarily based on data at the ITC-HS two-digit level (HS-52) and the latest finalized data available on the UN Comtrade Database up to year 2019. In several cases, trends from 2015 to 2019 have been shown.

The layout of the study is as follows:

Section 1: An introduction of the Commodity Cotton

Section 2: An overview of the cotton industry in India and some important institutions

Section 3: Socio-Economic Scenario of Cotton Industry Production in India

Section 4: An overview of agricultural production value of cotton in India as well as its trends in Area, Production and Consumption.

Section 5: International Trends in the imports and exports of the Cotton (HS-52) worldwide

Section 6: Deals with India's Export Intensity of the commodity with respect to various countries. Countries where market-specific policies can be implemented to boost exports are identified and the complete list is presented in Appendix A.

Section 7: Analysis using the Revealed Comparative Advantage and the Revealed Comparative Import Inclinations indices.

Section 8: Using the Competitiveness Index, this section discusses the dominating patterns of the major exporters of cotton in the international markets as well as Intra-Industry Trade Values between India and major cotton traders.

Section 9: Discusses India's export of the cotton to the ASEAN, the BRICS, and the EU.

Section 10: Provides relevant data for India's export of cotton and YoY changes, country wise at the ITC-HS 2-digit level.

Section 11: Summary.

Appendix A: List of countries deserving market-specific export promotion policies.

Appendix B: The formulae of the trade indicators used.

Section 1: Introduction

Cotton is a soft, fluffy staple fiber that grows in a boll, or protective case, around the seeds of the cotton plants of the genus *Gossypium* in the mallow family *Malvaceae*. The fiber is almost pure cellulose. The plant is a shrub native to tropical and subtropical regions around the world, including the Americas, Africa, Egypt and India. The fiber is most often spun into yarn or thread and used to make a soft, breathable textile. Although cultivated since time immemorial, it was the invention of the cotton gin that lowered the cost of production that led to its widespread use, dissemination and it is the most widely used natural fiber cloth in clothing today.

Current estimates for world production are about 25 million tonnes or 110 million bales annually, accounting for 2.5% of the world's arable land. In the United States, cotton is usually measured in bales, which measure approximately 0.48 cubic meters (17 cubic feet) and weigh 226.8 kilograms (500 pounds).

Section 2: Cotton Industry in India and some important institutions

In India, cotton is one of the most important cash crops and accounts for around 25% of the total global fiber production. In the raw material consumption basket of the Indian textile industry, the proportion of cotton is around 60%. The consumption of cotton is more than 300 lakh bales (170 kg each) per year. India occupies first position in the world in cotton acreage with around 125.84 lakh hectares under cotton cultivation which is around 36% of the world area. Approximately 62% of India's Cotton is produced on rain-fed areas and 38% on irrigated lands. During 2019-20, India's productivity was 486.33 kg/ha. India has emerged one of the largest producers, consumers and exporters of cotton in the world.

Cotton is one of the principal crops of India and is the major raw material for domestic textile industry. It provides sustenance to millions of farmers as also the workers involved in cotton industry, right from processing to trading of cotton. In the raw material consumption of the textile industry in India, the ratio of the use of the cotton to man-made fibres and filament yarn is 59:41.

The 'Cotton Advisory Board' (CAB) is a representative body of Government agencies, growers, industry & trade. It advises the Government generally on matters pertaining to production, consumption and marketing of cotton, and also provides a forum for liaison among the cotton textile mill industry, the cotton growers, the cotton trade and the government. The tenure of the CAB is two years. Present CAB and Consultative Committee of CAB were constituted Vide Resolution dated 28.1.2015 under the Chairpersonship of Textile Commissioner w.e.f. 1.1.2015 for a period of two years, which has been further extended till the re-constitution of new Board vide Order dated 25.04.2017. The Cotton Advisory Board draws up the Cotton Balance Sheet. The Board operates on a two tier mechanism i.e., through a Consultative Committee which seeks inputs from the cotton growers, cotton trade and cotton mills. The Consultative Committee meets prior to the formal meeting of the Cotton Advisory Board. The inputs of the Consultative Committee recommendations are considered by the CAB.

The Cotton Corporation of India (CCI) was set up in 1970 by the Government of India, as an only Public Sector Organization in the field of cotton marketing. Ever-since its inception, the Corporation has been operating in competition with private cotton traders and other institutional buyers, its market share varying from 5% to 8% except in some years under MSP operations when it has gone up to 31%. With the changing cotton scenario, the role and functions of the Corporation were reviewed and revised from time to time. As per the 20 policy directives announced Ministry of Textiles in 1985, the CCI is the sole agency of the Government for undertaking Minimum Support Price (MSP) Operations, whenever the prices of Kapas (seed cotton) fall below the MSP level. Besides MSP operations, to fulfill the raw

material requirement of the domestic textile industry, particularly during lean season, the Corporation undertakes commercial purchase operations at its own risk. Broad objectives of the Corporation are as under:-

- To undertake price support operations, whenever the market prices of kapas falls below the minimum support prices (MSP) announced by Govt. of India, without any quantitative limit.
- To undertake commercial operations only at CCI's own risk

Section 3: Socio-Economic Scenario

Cotton industry in India plays a major role in sustaining the livelihood of an estimated 5.8 million cotton farmers and 40- 50 million people engaged in related activities such as cotton processing and trade. To support the cotton industry, Government of India announces Minimum Support Price (MSP) for two basic staples groups viz., medium staple and long staple cotton. Cotton Corporation of India (CCI), a Public Sector Undertaking under the Ministry of Textiles, is the nodal agency of Government of India for undertaking MSP operations in the event of prevailing seed cotton (kapas) price touching the MSP level. The procurement of kapas by CCI during the cotton year 2018-19 under MSP was 10.70 lakh bales.

In this report, we will see various analyses and aspects of India's export trade of Cotton. However, before that, we need to understand the classification of data structures available for international comparison and analysis. According to the ITC HS system, the code 52 is assigned to indicate the trade of "Cotton" in India. We work with the ITC-HS two-digit level code (HS-52) and the latest finalized data available on the UN Comtrade Database up to year 2019. Table 1 outlines the relevant categories along with their description. Henceforth, we will use mostly the 2-digit code for our analysis.

Table 1: ITC HS Classification of Cotton

ITC HS Code	Name/Description
52	Cotton
5201	Cotton, not carded or combed
5202	Cotton waste, including yarn waste and garnetted stock
5203	Cotton, carded, combed
5204	Cotton sewing thread
5205	Cotton yarn not sewing thread >85% cotton, not retail
5206	Cotton yarn (except sewing) < 85% cotton, not retail
5207	Cotton yarn (except sewing thread) retail
5208	Woven cotton fabric, >85% cotton, < 200g/m2
5209	Woven cotton nes, >85% cotton, >200g/m2
5210	Woven cotton, <85% cotton with manmade fibre, <200g/m2
5211	Woven fabric, <85% cotton with manmade fibre, >200g/m2
5212	Woven cotton fabric, nes

Section 4: Trends in Production and Consumption of Cotton

Table 2 shows the largest producers of Cotton Lint (quantity in tonnes) in the world for the years 2014 to 2018 wherein China, China-mainland, India, USA and Pakistan are ranked in descending order of magnitude.

Table 2: Countries with largest Gross Production of Cotton Lint (Quantity in tonnes) from 2014-2018

Country	2014	2015	2016	2017	2018	Grand Total	Share in Production(%)
China	6178318	5610000	5343000	5653000	6102800	28887118	19.21
China, mainland	6178318	5610000	5343000	5653000	6102800	28887118	19.21
India	5916850	5100850	5542000	5576850	4767140	26903690	17.90
United States of America	3553130	2806030	3738310	4555340	4003950	18656760	12.41
Pakistan	2374481	1686922	1815038	2031909	1677287	9585637	6.38
Brazil	1412227	1626716	1420282	1498720	1932889	7890834	5.25
Uzbekistan	1106700	1109000	976500	941800	756700	4890700	3.25
Turkey	846000	738000	756000	882000	976600	4198600	2.79
Australia	886858	421564	550895	774488	950395	3584200	2.38
Greece	308000	307000	278000	304000	314000	1511000	1.01
Others	3269287	2908522	2922455	3073033	3169923	15343220	10.21
Total	32030169	27924604	28685480	30944140	30754484	150338877	100

Source: Computed from FAOSTAT database

Table 3: Countries with largest Gross Production of Cotton Seed (Quantity in tonnes) from 2014-2018

Country	2014	2015	2016	2017	2018	Grand Total	Share in Production (%)
India	12017000	10363000	11250000	11848000	9889000	55367000	20.60
China	12320000	11220000	10686000	9900000	10100000	54226000	20.18
China, mainland	12320000	11220000	10686000	9900000	10100000	54226000	20.18
United States of America	4649320	3667750	4870670	5825940	5108360	24122040	8.98
Pakistan	4442697	3184816	3422124	3823116	3151152	18023905	6.71
Brazil	2669161	2524615	2182385	2421009	3122359	12919529	4.81
Uzbekistan	1870000	1850000	1800000	1595000	1300000	8415000	3.13
Turkey	1391200	1213600	1260000	1470000	1542000	6876800	2.56
Australia	1251600	746000	889590	1260000	1496792	5643982	2.10
Greece	470000	408800	370000	405000	843700	2497500	0.93
Others	5466550	4789535	4860493	5535857	5795101	26447536	9.84
Total	58867528	51188116	52277262	53983922	52448464	268765292	100

Source: Computed from FAOSTAT database

Table 3 above shows the largest producers of Cotton Seed (quantity in tonnes) in the world for the years 2014 to 2018 wherein India, China, China-mainland, USA and Pakistan are ranked in descending order of magnitude.

In India, cotton is cultivated in three diverse agro-ecological zones, Northern zone comprising the States of Punjab, Haryana and Rajasthan, Central zone comprising the States of Madhya Pradesh, Gujarat, Maharashtra & Orissa and Southern zone comprising the States of Telangana, Andhra Pradesh, Karnataka and Tamil Nadu. Cotton is also cultivated in small areas of non-traditional states such as Uttar Pradesh, West Bengal and Tripura. India has brought about a quantitative and qualitative transformation in the production of cotton since independence. Production and productivity of cotton in India have improved significantly during the past decades. India has become one of the largest producers, consumers and exporters of cotton in the World. The details of production and consumption of cotton during the last 5 years is given below:

Table 4: Production and Consumption of cotton in India from 2014-15 to 2019-20 (in lakh bales of 170 Kg Each)

Year	Production	Consumption
2014-15	386	309.44
2015-16	332	315.28
2016-17	345	310.41
2017-18	370	319.06
2018-19	330	315.5
2019-20 (P)	360	331

Source: Cotton Advisory Board Meeting dated 28/11/19

**P-Provisional*

Acreage/Productivity: India has the largest acreage with 125.84 lakh hectares under cotton cultivation i.e. around 36% of the world area. Approximately 62% of India's Cotton is produced on rain-fed areas and 38% on irrigated lands. The acreage and productivity of cotton in India for the last 5 years are as follows:-

Table 5: Acreage (in Lakh Hectares) and Productivity (in Kg/Hectares) of cotton in India from 2014-15 to 2019-20

Year	Acreage (lakh ha)	Yield (kg/ha)
2014-15	128.46	511
2015-16	122.92	459
2016-17	108.26	542
2017-18	124.44	500
2018-19	126.58	443.2
2019-20 (P)	125.84	486.33

Source: Cotton Advisory Board Meeting dated 28/11/19P-Provisional

Presently, Cotton is a freely exportable commodity from India. India exports cotton mainly to Bangladesh, China, Vietnam, Pakistan, Indonesia, Taiwan, Thailand etc, out of which Bangladesh & China are the largest importer of Indian cotton. Although India is a major producer and exporter of cotton, some quantity of extra-long staple variety of cotton, which is not available in the country, is imported. The following table gives the import and export figures for the last 5 years:-

Table 6: India's Import and Export of Cotton from 2014-15 to 2019-20 (in lakh bales of 170 Kg each)

Year	Import	Export
2014-15	14.39	57.72
2015-16	22.79	69.07
2016-17	30.94	58.21
2017-18	15.8	67.59
2018-19	31	44
2019-20 (P)	25	50

Source: Cotton Advisory Board Meeting dated 28/11/19

*P-Provisional

Section 5: Trends in International Trade i.e. Exports and Imports of Cotton

A glimpse of the top twenty exporters of Cotton (ITCHS 52) in the world is given in 7 below.

Table 7: Exports of Cotton (ITCHS 52) in billion US dollars

Country	2015	2016	2017	2018	2019	Grand Total
China	15.80	14.97	15.13	15.39	14.14	75.43
USA	5.87	5.69	7.64	8.38	7.91	35.49
India	7.47	6.26	6.92	8.09	6.00	34.75
Pakistan	4.04	3.50	3.50	3.50	3.24	17.78
Viet Nam	1.71	2.10	2.64	2.84	3.06	12.34
Brazil	1.45	1.39	1.50	1.73	2.79	8.85
Turkey	1.70	1.79	1.72	1.83	1.73	8.77
China, Hong Kong SAR	2.35	1.87	1.60	1.45	1.11	8.38
Italy	1.46	1.42	1.44	1.42	1.27	7.00
Australia	0.82	1.22	1.33	0.98	1.10	5.45
Germany	0.99	0.95	0.96	0.95	0.82	4.68
Indonesia	0.82	0.78	0.82	0.81	0.77	4.00
Uzbekistan	0.00	0.00	1.18	1.03	1.29	3.50
Spain	0.65	0.73	0.69	0.64	0.66	3.38
Rep. of Korea	0.64	0.53	0.52	0.45	0.40	2.55
Thailand	0.55	0.48	0.48	0.49	0.44	2.45
Japan	0.56	0.51	0.49	0.45	0.43	2.43
Egypt	0.48	0.47	0.47	0.48	0.47	2.37
Greece	0.38	0.40	0.45	0.46	0.64	2.33
Other Asia, nes	0.48	0.44	0.43	0.46	0.39	2.21
Others	5.72	5.68	5.90	6.22	5.70	29.22
Total Export Value	53.94	51.18	55.80	58.07	54.35	273.34

Source: Computed from UN Comtrade database

Tables 7 and 8 show the top twenty exporters of cotton and their percentage shares. China, USA, India, Pakistan and Vietnam are the top five exporters of cotton from 2015 to 2019. Together, these five countries

cover around 64 per cent of exports. India is the third largest cotton exporter accounting for about 13% per cent of the global exports of cotton from 2015 to 2019.

Table 8: Shares of countries in % in world exports of Cotton (ITCHS 52)

Country	2015	2016	2017	2018	2019
China	29.29	29.24	27.11	26.51	26.02
USA	10.89	11.13	13.68	14.43	14.55
India	13.85	12.24	12.40	13.94	11.04
Pakistan	7.49	6.83	6.27	6.03	5.97
Viet Nam	3.16	4.10	4.73	4.90	5.62
Brazil	2.69	2.71	2.68	2.98	5.12
Turkey	3.16	3.49	3.08	3.15	3.19
China, Hong Kong SAR	4.35	3.65	2.88	2.49	2.04
Italy	2.71	2.77	2.57	2.44	2.33
Australia	1.52	2.37	2.39	1.70	2.01
Germany	1.83	1.86	1.73	1.64	1.50
Indonesia	1.53	1.53	1.47	1.40	1.41
Uzbekistan	0.00	0.00	2.11	1.77	2.38
Spain	1.21	1.43	1.24	1.10	1.21
Rep. of Korea	1.20	1.04	0.93	0.78	0.74
Thailand	1.02	0.94	0.86	0.85	0.82
Japan	1.03	1.01	0.87	0.77	0.79
Egypt	0.88	0.92	0.85	0.83	0.87
Greece	0.71	0.78	0.81	0.79	1.17
Other Asia, nes	0.90	0.85	0.78	0.80	0.72
Others	10.60	11.11	10.57	10.71	10.50
Total	100	100	100	100	100

Source: Computed from UN Comtrade database

We compute similar tables for the top importers of cotton in the world. Tables 9 and 10 below show the total import values of cotton by the top twenty countries and their percentage shares respectively. The top five importers in the list consist of China, Vietnam, Turkey, Indonesia and Hongkong. In fact, 45% of the world import value of cotton from 2015 to 2019 comes from these five countries only.

Table 9: Imports of Cotton (ITCHS 52) in billion US dollars

Country	2015	2016	2017	2018	2019	Grand Total
China	10.25	7.74	8.61	9.89	9.23	45.73
Viet Nam	3.40	3.38	4.06	4.77	4.37	19.97
Turkey	2.26	2.36	3.00	2.51	2.63	12.76
Indonesia	2.12	2.10	2.26	2.40	1.97	10.85
China, Hong Kong SAR	2.15	1.72	1.50	1.35	1.03	7.74
Bangladesh	7.15	0.00	0.00	0.00	0.00	7.15
Italy	1.28	1.24	1.27	1.17	1.03	6.00

Rep. of Korea	1.34	1.19	1.16	1.28	1.00	5.97
India	0.60	1.07	1.16	0.84	1.55	5.22
Mexico	1.04	0.96	1.02	1.04	0.86	4.91
Germany	1.01	0.97	1.05	1.03	0.85	4.91
USA	1.10	0.97	0.94	0.96	0.86	4.84
Pakistan	0.66	0.72	0.97	1.24	0.83	4.43
Egypt	0.69	0.63	0.73	0.91	0.89	3.85
Thailand	0.81	0.74	0.77	0.86	0.67	3.84
Portugal	0.57	0.58	0.66	0.73	0.59	3.13
Tunisia	0.61	0.60	0.62	0.64	0.60	3.08
Japan	0.64	0.62	0.60	0.61	0.54	3.01
Cambodia	0.38	0.45	0.51	0.58	0.65	2.57
Russian Federation	0.42	0.47	0.52	0.59	0.55	2.56
Others	10.96	10.63	11.11	10.82	8.93	52.45
Total Import Value	49.46	39.13	42.51	44.23	39.65	214.98

Source: Computed from UN Comtrade database

Table 10: Shares of countries in % in world imports of Cotton (ITCHS 52)

Country	2015	2016	2017	2018	2019
China	20.73	19.79	20.26	22.36	23.28
Viet Nam	6.87	8.63	9.54	10.77	11.03
Turkey	4.58	6.03	7.04	5.67	6.63
Indonesia	4.30	5.36	5.32	5.42	4.98
China, Hong Kong SAR	4.34	4.40	3.52	3.06	2.59
Bangladesh	14.46	0.00	0.00	0.00	0.00
Italy	2.59	3.17	2.99	2.64	2.61
Rep. of Korea	2.72	3.04	2.73	2.89	2.53
India	1.22	2.74	2.72	1.90	3.91
Mexico	2.11	2.44	2.39	2.35	2.16
Germany	2.03	2.49	2.47	2.32	2.16
USA	2.23	2.49	2.21	2.17	2.18
Pakistan	1.34	1.84	2.29	2.81	2.10
Egypt	1.40	1.62	1.71	2.06	2.24
Thailand	1.63	1.89	1.81	1.95	1.68
Portugal	1.14	1.49	1.56	1.65	1.49
Tunisia	1.23	1.54	1.47	1.46	1.52
Japan	1.30	1.58	1.40	1.38	1.37
Cambodia	0.77	1.14	1.20	1.32	1.63
Russian Federation	0.84	1.20	1.23	1.34	1.40
Others	22.16	27.16	26.13	24.47	22.52
Total	100	100	100	100	100

Source: Computed from UN Comtrade database

Tables 11 and 12 below show the top twenty destinations for Indian exports of cotton, denoting the values and percentage shares respectively. Bangladesh, China, Pakistan, Vietnam and Sri Lanka are the countries which constituted the largest markets for India's cotton exports in 2019 with export-value shares of 26%, 17%, 3%, 4% and 4% approx. respectively.

Table 11: India's exports of Cotton (ITCHS 52) to various countries (in billion US dollars)

Partner Country	2015	2016	2017	2018	2019	Total Export Value
Bangladesh	1.59	1.45	1.74	2.02	1.55	8.35
China	1.99	1.26	1.15	1.47	1.04	6.91
Pakistan	0.62	0.46	0.52	0.76	0.16	2.51
Viet Nam	0.29	0.25	0.39	0.51	0.23	1.67
Sri Lanka	0.23	0.24	0.22	0.24	0.24	1.17
Rep. of Korea	0.21	0.18	0.18	0.26	0.19	1.03
Egypt	0.19	0.16	0.18	0.21	0.22	0.97
Portugal	0.12	0.13	0.16	0.16	0.15	0.72
Indonesia	0.11	0.13	0.16	0.14	0.08	0.61
Peru	0.10	0.10	0.13	0.13	0.13	0.59
Italy	0.10	0.10	0.11	0.10	0.08	0.48
Thailand	0.07	0.07	0.10	0.13	0.11	0.47
Colombia	0.09	0.09	0.08	0.11	0.10	0.47
Turkey	0.06	0.09	0.13	0.09	0.07	0.45
USA	0.09	0.08	0.08	0.10	0.10	0.44
Germany	0.08	0.09	0.10	0.09	0.08	0.43
United Arab Emirates	0.12	0.10	0.08	0.06	0.06	0.42
Senegal	0.07	0.08	0.08	0.08	0.10	0.41
Malaysia	0.05	0.04	0.04	0.13	0.05	0.32
Japan	0.06	0.05	0.05	0.06	0.06	0.29
Others	1.24	1.11	1.23	1.26	1.21	6.05
Total	7.47	6.26	6.92	8.09	6.00	34.75

Source: Computed from UN Comtrade database

Table 12: Various countries' share (in %) in Indian exports of Cotton (ITCHS 52)

Partner Country	2015	2016	2017	2018	2019
Bangladesh	21.29	23.10	25.16	24.99	25.80
China	26.58	20.17	16.68	18.11	17.38
Pakistan	8.30	7.33	7.47	9.36	2.67
Viet Nam	3.88	4.02	5.68	6.25	3.86
Sri Lanka	3.02	3.89	3.20	2.93	4.05
Rep. of Korea	2.85	2.94	2.67	3.16	3.14

Egypt	2.61	2.56	2.64	2.63	3.60
Portugal	1.58	2.10	2.31	2.03	2.48
Indonesia	1.47	2.02	2.27	1.68	1.29
Peru	1.32	1.61	1.81	1.64	2.19
Italy	1.33	1.57	1.53	1.19	1.27
Thailand	0.88	1.18	1.40	1.59	1.78
Colombia	1.22	1.44	1.15	1.32	1.66
Turkey	0.87	1.46	1.95	1.06	1.21
USA	1.19	1.24	1.16	1.22	1.61
Germany	1.06	1.37	1.44	1.09	1.28
United Arab Emirates	1.64	1.55	1.14	0.76	1.03
Senegal	0.88	1.23	1.21	1.01	1.72
Malaysia	0.64	0.70	0.60	1.65	0.88
Japan	0.75	0.88	0.79	0.80	0.93
Others	16.66	17.66	17.72	15.53	20.18
Total	100	100	100	100	100

Source: Computed from UN Comtrade database

In similar vein, tables 13 and 14 show the top twenty sources for Indian imports of cotton, denoting the values and percentage shares respectively. USA, China, Australia, Egypt and Mali are the countries from which India imported cotton, in descending order of magnitude of import-values, from 2015-2019 with import-value shares of 40%, 8%, 2%, 6% and 1% respectively in 2019. Thus, Indian cotton imports of value around 57% were sourced from these five countries in 2019.

Table 13: India's imports of Cotton (ITCHS 52) from various countries (in billion US dollars)

Partner Country	2015	2016	2017	2018	2019	Total Import Value
USA	0.11	0.23	0.48	0.35	0.62	1.79
China	0.14	0.12	0.13	0.12	0.12	0.63
Australia	0.02	0.29	0.14	0.06	0.03	0.54
Egypt	0.03	0.05	0.05	0.07	0.10	0.30
Mali	0.07	0.06	0.07	0.01	0.02	0.23
Côte d'Ivoire	0.01	0.03	0.03	0.01	0.08	0.16
Cameroon	0.02	0.02	0.04	0.00	0.03	0.12
Pakistan	0.05	0.03	0.01	0.01	0.01	0.11
Benin	0.01	0.03	0.03	0.00	0.03	0.10
Bangladesh	0.02	0.01	0.02	0.02	0.04	0.10
Brazil	0.00	0.02	0.01	0.00	0.06	0.09
Burkina Faso	0.01	0.01	0.05	0.00	0.02	0.08
Switzerland	0.00	0.00	0.00	0.01	0.06	0.07
Singapore	0.00	0.00	0.00	0.01	0.05	0.07

United Rep. of Tanzania	0.00	0.02	0.01	0.02	0.01	0.06
Greece	0.00	0.02	0.00	0.01	0.01	0.06
Togo	0.01	0.01	0.00	0.00	0.03	0.05
China, Hong Kong SAR	0.01	0.01	0.01	0.01	0.01	0.05
Viet Nam	0.00	0.00	0.00	0.01	0.02	0.04
Italy	0.01	0.01	0.01	0.01	0.01	0.04
Others	0.07	0.11	0.08	0.07	0.19	0.52
Total	0.60	1.07	1.16	0.84	1.55	5.22

Source: Computed from UN Comtrade database

Table 14: Various countries' share in % in Indian imports of Cotton (ITCHS 52)

Partner Country	2015	2016	2017	2018	2019
USA	18.25	21.74	41.33	41.94	39.83
China	22.59	11.37	11.06	14.68	8.01
Australia	4.01	26.70	12.08	6.97	2.15
Egypt	5.14	4.56	4.13	8.77	6.30
Mali	11.48	5.64	5.72	1.38	1.46
Côte d'Ivoire	2.37	2.83	2.41	1.23	5.29
Cameroon	4.00	2.04	3.69	0.31	1.93
Pakistan	8.41	2.34	0.94	1.76	0.67
Benin	2.07	2.59	2.48	0.23	1.96
Bangladesh	2.59	0.92	1.46	2.47	2.37
Brazil	0.71	1.56	0.97	0.58	3.67
Burkina Faso	0.84	1.02	4.34	0.28	1.03
Switzerland	0.19	0.07	0.05	1.29	3.60
Singapore	0.04	0.03	0.07	1.51	3.37
United Rep. of Tanzania	0.35	1.66	0.54	2.72	0.59
Greece	0.64	1.97	0.41	1.63	0.79
Togo	2.05	0.53	0.06	0.29	2.05
China, Hong Kong SAR	1.40	1.13	0.79	0.89	0.60
Viet Nam	0.33	0.31	0.15	1.39	1.47
Italy	1.60	0.69	0.59	1.10	0.48
Others	10.92	10.31	6.72	8.58	12.38
Total	100	100	100	100	100

Source: Computed from UN Comtrade database

While the supply-side of cotton in the international market is strong, we need to assess the countries which have a significant share of the commodity in their import basket but do not give enough importance to India as a source country. To do this, we resort to the Export Intensity Index, explained in the following section.

Section 6: 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 15 below shows the indices of the countries with the highest imports of cotton from the world and from India.

Table 15: Export Intensity Indices for Cotton (ITC-HS Chapter 52) of Countries w.r.t. India

Countries	2015	2016	2017	2018	2019
Bangladesh	2.30	2.13	2.22	2.17	2.26
China	1.43	1.45	1.33	1.20	1.05
Viet Nam	0.56	0.53	0.70	0.72	0.44
Brazil	0.89	0.84	1.24	0.78	1.30
South Africa	0.46	0.56	0.75	0.46	0.52
USA	0.51	0.62	0.57	0.61	0.88
Russia	0.13	0.18	0.15	0.07	0.07
Sri Lanka	2.45	2.96	2.74	2.58	3.54

Source: Computed from UN Comtrade database

Table 15 shows that among the main importers of cotton and some other important trading nations, the Export Intensity Indices of India with respect to Bangladesh, China and Sri Lanka for cotton are greater than 1, implying India gives much more importance to these countries as a destination for its exports of cotton than the rest of the world does. There is room for improvement for India in cotton trade with Vietnam, Brazil, South Africa, USA and Russia as their respective indices are less than 1.

Rearranging the Export Intensity Index, we can comment on the regions where market (i.e. destination) specific policies need to be taken. If India has a market share in the world, for commodity P (say s), which is greater than India's overall market share (for all commodities) in the world (say t), there is no reason to expect that India's market share for P in Country J, say $g < s$. g can be $< s$ only when, for some reason, Country J imports P, but not sufficiently from India. In terms of the index, $g < s$ is algebraically equivalent to when Export Intensity Index is less than 1. In such cases, market or destination-specific promotional policies will be needed. The same will be true when Country J's share in India's export of P falls below Country J's share in total world imports of P. When both coincide, there is an even stronger case for adoption of the market-specific promotional policies. Appendix A shows the list of such countries in the case of India's exports of cotton.

Section 7: 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 cotton, 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). RCA index for a commodity (or commodity group) exported from the source country is higher than 1 if its importance is more in the source country's total exports than in world exports, and vice versa. 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 country's overall imports than in world imports, and vice versa.

To list countries with high RCA or RCII for cotton in a year, it is sufficient to find of the share of the commodity in the country's export or import basket respectively, since its share in the world exports or imports remains constant in a given year. Using this for the year 2019, the RCA of various countries' exports of Cotton (ITCHS 52) is given in table 16 below. India has a huge comparative advantage in supply-side for exports of cotton to the world (since $RCA > 1$) as seen from table 15 below.

Table 16: RCA of various countries' exports of Cotton (ITC-HS Chapter 52)

Countries	2015	2016	2017	2018	2019
China	2.22	2.28	2.28	2.33	1.90
USA	1.11	1.09	1.48	1.66	1.43
Pakistan	58.00	53.99	53.67	55.15	47.36
Viet Nam	3.37			4.40	4.06
Brazil	2.43	2.39	2.35	2.72	4.54
India	9.04	7.68	8.03	8.91	6.45

Source: Computed from UN Comtrade database

Similarity, if the RCII in the destination country is greater than 1 then the country imports cotton to an extent more than overall world trends warrant. Therefore, if India seeks to expand its exports, these countries are the preliminary list of options. Table 17 shows the RCII indices of various countries' imports of Cotton (ITCHS 52). Table 17 below shows all the countries listed, viz., China, Vietnam, Turkey, Indonesia and Bangladesh have $RCII > 1$ indicating a higher than average appetite for imports of cotton than the rest of the world and these countries should thus serve as potent destination markets for India's cotton exports.

Table 17: RCII of various countries' imports of Cotton (ITC-HS Chapter 52)

Countries	2015	2016	2017	2018	2019
China	2.11	2.16	2.17	2.22	2.07
Viet Nam	7.02			9.78	8.03
Turkey	3.76	5.12	5.96	2.73	5.71
Indonesia	5.10	6.83	6.29	6.17	5.39
Bangladesh	51.15				
India	0.53	1.33	1.21	0.76	1.48

Source: Computed from UN Comtrade database

However, India already exports to many of these countries with a RCII greater than 1. The question that remains is, are the exports sufficiently high? If the RCA of India to these importing countries (not to the world, as was being discussed earlier) is > 1 , it may be said that the exports are sufficiently high. This is applicable only because the importing countries' RCII (for the world) for the product is also > 1 . On the other hand, if the RCA is < 1 , then export of cotton (in value terms) to those countries are not sufficiently high and it needs closer examination. The policy measures, in this case, must be directed towards making Indian exporters increase the share of cotton in their export basket to these countries.

By a similar logic as given above, it can be established that if for a particular commodity, RCA for India and RCII for the importing country are both > 1 , it can be expected that RCII for that commodity in that country's imports from India will be > 1 . If this is not the case, the reasons thereof need to be investigated, and appropriate policy measures need to be taken. Actually, it implies that the country is not importing the particular commodity, here cotton, in sufficient amount (in value terms) while importing from India. It is not necessarily that they are averse to buying from India in general, they may very well purchase other commodities from India, but – for some reason – not this particular product. Policies designed to make these products from India attractive to the importers of the destination country need to be adopted.

Section 8: 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 cotton 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 18 shows the indices of Indian exports as well as other exporters of cotton (China, USA, Pakistan, Vietnam and Brazil) for the top importing countries (China, Vietnam, Turkey, Indonesia and Hongkong). For Indian exports, the index is high only for China (>1). It has index values < 1 for other countries, implying India must step up its game in these importing countries to compete with other exporters of cotton.

Table 18: Competitiveness Indices (Product) of various exporter countries w.r.t Cotton (ITCHS 52)

Competitiveness Index (Product) of Exporter(Reporter) to Importer(Partner) in 2019						
		Partner				
		China	Viet Nam	Turkey	Indonesia	Hongkong
Reporter	China	N/A	1.21	0.11	1.01	2.77
	USA	0.55	2.5	1.69	1.52	0.01
	India	1.19	0.52	0.26	0.32	0.18
	Pakistan	0.64	0.17	1.11	0.2	0.34
	Viet Nam	4.65	N/A	0.39	0.38	1.28
	Brazil	1.98	1.73	1.73	3.61	0.01

Source: Computed from UN Comtrade database

Table 19: Competitiveness Indices (Market) of various exporter countries w.r.t Cotton (ITCHS 52)

Competitiveness Index (Market) of Exporter(Reporter) to Importer(Partner) in 2019						
		Partner				
		China	Viet Nam	Turkey	Indonesia	Hongkong
Reporter	China	N/A	1.03	0.32	1.00	1.54
	USA	1.34	6.56	4.45	4.16	0.04
	India	16.22	3.44	0.88	1.51	1.09
	Pakistan	46.22	17.07	45.26	5.95	131.26
	Viet Nam	8.45	N/A	2.96	0.93	4.17
	Brazil	2.70	8.15	7.85	15.95	1.07

Source: Computed from UN Comtrade database

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 20) shows varying degrees of IIT between India and some major cotton importers and other nations. The values are low (<0.3) between India and these countries, showing lesser interdependence (exports and imports by the same sector) in international trade within the same industry. The key factors that affecting intra-industry trade are product differentiation, human capital intensity and economies of scale (Hu & Ma, 1999). 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 20: Intra-Industry Trade in HS-52 (Cotton) between India and Some Major Cotton Importing Countries in 2019

IIT between India and Partner Countries (Cotton Importers)	
Countries	Grubel-Lloyd Index in 2019
Bangladesh	0.05
China	0.21
Viet Nam	0.18
Sri Lanka	0.03
USA	0.27
Australia	0.25

Source: Computed from UN Comtrade database

Section 9: India's exports to Trading Blocs and associations

This section discusses India's export of Cotton (ITCHS 52) to the trading blocs, namely the EU and the ASEAN, and the members of BRICS. Table 21 shows India's export, in terms of trade value, to the aforementioned trading blocs and associations.

Table 21: India's export of Cotton (ITCHS 52) to ASEAN, BRICS and EU (in million US \$)

(Export Values in US Million \$)

	2015-16	2016-17	2017-18	2018-19	2019-20
ASEAN	601.73	625.58	869.17	875.11	538.68
BRICS	2022.27	1299.06	1220.26	1511.38	1078.50
EU Countries	476.00	503.31	558.02	477.30	414.52

Data is sourced from Export Import Data Bank, Department of Commerce.

Section 10: Indian Exports of Cotton

This section analyses the data on Indian exports of Cotton at the ITCHS 2-digit level showing YoY growth rate in value in Million US\$.

Table 22: Indian exports of Commodity: ITC HS Code 52 (Cotton) showing YoY growth rate (%) and value in Million US\$

Sl.No.	Country	Values in US\$ Million		
		2018-2019	2019-2020	%Growth
1	AFGHANISTAN	2.38	1.56	-34.64
2	ALBANIA	0.02	0.1	367.43
3	ALGERIA	8.24	4.24	-48.53
4	ANDORRA	0		
5	ANGOLA	12.64	6.51	-48.47
6	ANTIGUA	0.01		
7	ARGENTINA	3.06	5.71	86.52
8	AUSTRALIA	6.34	4.75	-25.17
9	AUSTRIA	3.81	3.63	-4.67
10	ARUBA	0		
11	AZERBAIJAN		0.05	
12	BAHAMAS	0	0.02	9,150.00
13	BAHARAIN IS	8.79	4.12	-53.08
14	BANGLADESH PR	1,878.04	1,649.99	-12.14
15	BARBADOS	0.26	0.02	-90.51
16	BELIZE		0.01	
17	BELGIUM	33.94	18.5	-45.49

18	MAYOTTE	0.39	0.44	12.01
19	BENIN	22.57	24.64	9.18
20	BERMUDA	0		
21	BHUTAN	0.17	0.27	60.73
22	BOLIVIA	0.17	0.05	-68.34
23	BOSNIA-HRZGOVIN			
24	BOTSWANA	0.04	0.01	-63.4
25	BRAZIL	20.49	17.29	-15.61
26	BRUNEI	0.04	0.03	-24.94
27	BULGARIA	6.28	2.4	-61.74
28	BURKINA FASO	7.43	12.23	64.6
29	BURUNDI	3.71	2.96	-20.21
30	BELARUS	0.07	0	-98.89
31	CAMBODIA	7.59	4.61	-39.2
32	CAMEROON	1.05	2.8	166.57
33	CANADA	6.5	6.51	0.17
34	C AFRI REP	0.36		
35	CHAD	0.1	0.48	395.57
36	CHILE	19.68	17.99	-8.59
37	TAIWAN	54.16	40.77	-24.72
38	CHINA P RP	1,786.77	777.96	-56.46
39	COLOMBIA	105	109.88	4.64
40	COMOROS	2.53	2.8	11.05
41	CONGO P REP	4.42	4.21	-4.62
42	COOK IS	0	0.01	79.49
43	COSTA RICA	0.23	0.07	-70.94
44	CROATIA	3.99	3.77	-5.36
45	CUBA	0.3		
46	CYPRUS	0.12	0.14	24.2
47	CZECH REPUBLIC	8.14	5.89	-27.65
48	DENMARK	4.75	5.12	7.69
49	DJIBOUTI	4.22	1.4	-66.76
50	DOMINIC REP	15.76	14.39	-8.69
51	DOMINICA	0.04	0.18	334.65
52	ECUADOR	9.9	6.84	-30.98
53	EGYPT A RP	221.08	217.64	-1.56
54	EL SALVADOR	0.62	0.63	2.19
55	ESTONIA	1.1	1.46	32.04
56	ETHIOPIA	4.2	3.57	-15.02
57	EQU TL GUINEA	0.3	0.01	-96.34
58	FINLAND	0.51	0.44	-14.02
59	FIJI IS	1.03	0.83	-19.67
60	FRANCE	9.13	8.38	-8.24

61	FR GUIANA	0.05	0.04	-23.27
62	FR POLYNESIA		0.06	
63	GABON	2.13	1.9	-10.64
64	GAMBIA	34.28	49.83	45.36
65	GEORGIA	0	0.07	4,018.75
66	GERMANY	84.29	76.29	-9.49
67	GHANA	9.54	8.06	-15.52
68	GREECE	5.64	5.53	-1.94
69	GUADELOUPE	0.15	0.16	4.03
70	GUATEMALA	52.68	36.38	-30.95
71	GUINEA	13.68	16.83	22.98
72	GUYANA	0.04	0.01	-80.29
73	HAITI	0.09	0.06	-30.73
74	HONDURAS	2.44	1.84	-24.38
75	HONG KONG	33.59	13.19	-60.73
76	HUNGARY	0.65	0.54	-17.95
77	INDONESIA	104.21	105.99	1.71
78	IRAN	12.08	55.27	357.61
79	IRAQ	0.07	0.09	40.64
80	IRELAND	0.18	0.43	138.87
81	ISRAEL	16.98	19.13	12.68
82	ITALY	93.61	68.89	-26.4
83	COTE D' IVOIRE	9.34	7.49	-19.87
84	JAMAICA	0.14	0.13	-10.25
85	JAPAN	65.61	51.83	-21.01
86	JORDAN	9.15	10.73	17.23
87	KAZAKHSTAN	0.13	0.11	-13.85
88	KENYA	11.57	9.13	-21.07
89	KOREA DP RP	1.72	0.13	-92.56
90	KYRGHYZSTAN	0.03	0.05	80.2
91	KOREA RP	237.03	189.19	-20.18
92	KUWAIT	4.98	5.16	3.55
93	LAO PD RP		0	
94	LATVIA	0.32	0.55	71.99
95	LEBANON	4.16	3.17	-23.89
96	LESOTHO	10.88	9.43	-13.29
97	LIBERIA		0.04	
98	LIBYA		0	
99	LITHUANIA	1.28	0.9	-29.49
100	LUXEMBOURG	0		
101	MACAO	0	0	-9.38
102	MACEDONIA	0.85	0.11	-87.31
103	MADAGASCAR	16.62	19.23	15.72

104	MALAWI	0.58	0.06	-88.86
105	MALAYSIA	97.56	41.6	-57.36
106	MALDIVES	0.32	0.36	13.18
107	MALI	12.3	21.93	78.28
108	MALTA	0.02	0	-87.34
109	MARTINIQUE	0.06	0.06	2.48
110	MAURITANIA	19.77	21.4	8.27
111	MAURITIUS	45.36	36.14	-20.32
112	MYANMAR	46.49	47.99	3.25
113	MEXICO	22.34	21.6	-3.3
114	MONGOLIA	0.01	0.02	130.77
115	MONTSERRAT	0		
116	MOROCCO	29.26	27.61	-5.65
117	MOZAMBIQUE	22.35	26	16.35
118	NAMIBIA	0	0.01	1,316.67
119	NEPAL	70.04	66.19	-5.49
120	NETHERLAND	10	4.82	-51.8
121	NETHERLANDANTIL	0.11	0.01	-89.98
122	NEW CALEDONIA	0	0.05	2,366.67
123	NEW ZEALAND	0.51	0.53	4.7
124	NICARAGUA	0.26	0.17	-36.29
125	NIGER	14.59	11.42	-21.75
126	NIGERIA	24.57	44.57	81.43
127	NORWAY	0.69	0.67	-2.61
128	OMAN	6.55	24.33	271.15
129	PAKISTAN IR	550.33	64.25	-88.33
130	PALAU	0.01	0.01	-52.67
131	PANAMA REPUBLIC	0.75	0.75	1.13
132	PAPUA N GNA	0.19	0.09	-55.34
133	PARAGUAY	3.42	1.87	-45.2
134	PERU	128.55	137.2	6.74
135	PITCAIRN IS.	0		
136	PHILIPPINES	33.95	28.91	-14.85
137	POLAND	33.08	27.69	-16.29
138	PORTUGAL	142.44	156.69	10
139	TIMOR LESTE		0	
140	PUERTO RICO	0.09	0	-95.2
141	QATAR	1.7	1.31	-22.67
142	REUNION	0.11	0.12	5.46
143	ROMANIA	1.53	1.34	-12.46
144	RUSSIA	4.99	3.45	-30.79
145	RWANDA	0.01	0.12	891.2
146	SAN MARINO		0	

147	SAUDI ARAB	15.08	17.48	15.91
148	SERBIA	0.44	0.24	-44.65
149	SENEGAL	84.7	97.51	15.13
150	SEYCHELLES	0.08	0.07	-6.34
151	MONTENEGRO	1.85	2.51	35.22
152	SIERRA LEONE	1.84	0.4	-78.02
153	SLOVAK REP	0.01	0.13	1,627.27
154	SINGAPORE	3.29	1.98	-39.67
155	SLOVENIA	2.96	2.43	-18.04
156	SOMALIA	0.11	0.02	-82.82
157	SOUTH AFRICA	17.16	13.26	-22.77
158	SPAIN	27.6	17.41	-36.93
159	SRI LANKA DSR	239.89	236.01	-1.62
160	ST VINCENT	0.02	0.02	10.95
161	SUDAN	47	80.41	71.09
162	SOUTH SUDAN	0	0	82.61
163	SURINAME	0.13	0.16	19.71
164	SWAZILAND	0.04	0.01	-72.7
165	SWEDEN	1.93	1.16	-40.23
166	SWITZERLAND	3.52	4.42	25.45
167	SYRIA	10.92	9.13	-16.38
168	TAJIKISTAN	0	0.01	2,066.67
169	TANZANIA REP	27.64	19.01	-31.21
170	THAILAND	126.87	101.49	-20.01
171	TOGO	51.2	40.4	-21.09
172	TONGA	0.02		
173	TRINIDAD	0.66	0.4	-39.27
174	TUNISIA	18.43	13.95	-24.27
175	TURKEY	75.4	81.81	8.5
176	UGANDA	2.63	4.4	67.04
177	U ARAB EMTS	62.65	61.6	-1.67
178	U K	24.61	19.76	-19.71
179	UKRAINE	6.13	2.44	-60.28
180	U S A	101.39	93.22	-8.05
181	US MINOR OUTLYING ISLANDS	0.01		
182	URUGUAY	0.1	0.04	-61.4
183	UZBEKISTAN	0.35	0.54	53.35
184	VANUATU REP		0	
185	VENEZUELA	2.46	6.42	160.82
186	VIETNAM SOC REP	455.12	206.06	-54.72
187	SAMOA	0.01		
188	YEMEN REPUBLC	4.43	4.99	12.52

189	CONGO D. REP.	6.08	2.03	-66.63
190	ZAMBIA	4.78	5.22	9.32
191	ZIMBABWE	0.15	0.03	-80.19
192	UNSPECIFIED	0.71	0.15	-79.32
	Total	7,887.95	5,736.40	-27.28
India's Total		3,30,078.09	3,13,361.04	-5.06
%Share		2.3897	1.8306	

Source: Export Import Data Bank, Department of Commerce

Section 11: Summary

In India, cotton is one of the most important cash crops and accounts for around 25% of the total global fiber production. Cotton industry in India plays a major role in sustaining the livelihood of an estimated 5.8 million cotton farmers and 40- 50 million people engaged in related activities such as cotton processing and trade.

India remains the third largest exporter of cotton in the world, accounting for about 13% per cent of the global export value of cotton from 2015 to 2019. China, USA, India, Pakistan and Vietnam are the top five exporters of cotton from 2015 to 2019. Together, these five countries cover around 64 per cent of exports. In terms of imports of cotton, India's world ranking is ninth, accounting for 2.43% of the total import value of cotton from 2015-19. The top five importers in the list consist of China, Vietnam, Turkey, Indonesia and Hongkong. In fact, 45% of the world import value of cotton from 2015 to 2019 comes from these five countries only.

Bangladesh, China, Pakistan, Vietnam and Sri Lanka are the countries which constituted the largest markets for India's cotton exports in 2019 with export-value shares of 26%, 17%, 3%, 4% and 4% respectively. USA, China, Australia, Egypt and Mali are the countries from which India imported cotton, in descending order of magnitude of import-values, from 2015-2019 with import-value shares of 40%, 8%, 2%, 6% and 1% respectively in 2019. Thus, Indian cotton imports of value around 57% were sourced from these five countries in 2019.

The market indicators for India in terms of cotton trade can be improved with respect to other major importers. The Export Intensity Indices of India with respect to Bangladesh, China and Sri Lanka for cotton are greater than 1, however there is room for maneuvering India's cotton trade with Vietnam, Brazil, South Africa, USA and Russia as their respective Export Intensity Indices are less than 1.

Lower values of the Competitiveness index between India and the major importing countries of cotton, namely Vietnam, Turkey, Indonesia and Hongkong are also a testament to the untapped possibility of Indian exports of cotton in these territories.

Appendix A

Countries requiring market-specific export-promotion policies. This list of destination countries for India with respect to export of cotton items (at the 6-digit ITC- HS level) is based on the UN Comtrade data for year 2019.

To Destination Country	Source Country	Commodity Code 6
AUSTRALIA	INDIA	521225
BELGIUM	INDIA	520822
		520911
		521159
CHINA P RP	INDIA	520526
		520528
		520542
		520544
		520623
		520624
		520912
		521215
FRANCE	INDIA	520851
		520951
GERMANY	INDIA	520911
		520919
GREECE	INDIA	520522
HONG KONG	INDIA	520931
		520942
		520959
		521142
INDONESIA	INDIA	520623
		520831
		520851
		520921
ITALY	INDIA	520531
		520813
		520821
		520822
		520831
		520911
		520929
		520942
JAPAN	INDIA	520912

		521214
KOREA RP	INDIA	520931
MALAYSIA	INDIA	520932
PAKISTAN IR	INDIA	520812
		520852
		520859
PORTUGAL	INDIA	520411
		520822
SRI LANKA DSR	INDIA	520959
SWITZERLAND	INDIA	520822
THAILAND	INDIA	520832
TURKEY	INDIA	520299
		520511
		520512
		520513
		520524
		520841
		520859
		521031
		521142
		521213
		521214
U K	INDIA	520299
		520851
		520951
VIETNAM SOC REP	INDIA	520526
		520528
		520544
		520547
		520622
		520623
		520624
		520822
520942		

Appendix B

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,

$$RCA_{ij} = (x_{ij}/X_{it}) / (x_{wj}/X_{wt})$$

where x_{ij} = country i's exports of commodity j

X_{it} = country i's total exports

x_{wj} = world exports of commodity j

X_{wt} = total world exports.

When $RCA_{ij} > 1$, i.e. when j's weight in i's exports (x_{ij}/X_{it}) is more than j's weight in world exports (x_{wj}/X_{wt}), country i is said to have a revealed comparative advantage in commodity j. There is a revealed comparative disadvantage if $RCA_{ij} < 1$. When $RCA_{ij} = 1$, 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. (x_{ij}/X_{it}) may have risen less or fallen more than proportionately than (x_{wj}/X_{wt}).

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).

$$ESI = (x_{ij}/X_{it}) / (m_{kj}/M_{kt}), \text{ where}$$

m_{kj} = import of commodity j to market k

M_{kt} = world imports of commodity k.

(m_{kj}/M_{kt}) gives the weight of j in market k. So, if RCA_{ij} 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.

$$RCII = (m_{ij}/M_{it}) / (m_{wj}/M_{wt})$$

where m_{ij} = country i's imports of commodity j

M_{it} = country i's total imports

m_{wj} = world imports of commodity j

M_{wt} = 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:

$$TCI = 1 - \sum (| m_{ik} - x_{ij} | / 2), \text{ where}$$

m_{ik} = share of commodity i in the imports of market k

x_{ij} = 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, m_{ik} and x_{ij} 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).

$$EII = (x_{ij}/X_{it}) / (x_{wj}/X_{wt})$$

where x_{ij} = country i 's exports to country j

X_{it} = country i 's exports to the world

x_{wj} = world exports to country j

X_{wt} = 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 it is low, and if TCI is high, bilateral trade can very well be increased through trade agreements.

6. A related indicator is the Export Similarity Index (XSI), which helps us identify a country's competitors.

$$XSI = \sum [\min (X_{ij}, X_{ik}) * 100]$$

where X_{ij} = share of commodity i in exports of country j

X_{ik} = share of commodity i in exports of country k

XSI can vary between 0 and 100. It will be seen that when $X_{ij} = X_{ik}$ for all i 's, $XSI = 100$, which means complete export similarity between countries j and k . As X_{ij} and X_{ik} 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. A high 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.

$$HI = \sqrt{[\sum Sq(xi/Xt)]}$$

where x_i is the country's exports of commodity i

X_t 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).

$$IIT_{jk} = 1 - [\sum |X_{ijk} - M_{ijk}| / (X_{ijk} + M_{ijk})]$$

where X_{ijk} = exports of products of industry i from country j to country k

M_{ijk} = 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).
