

Union Budget 2022-2023 through the Lens Of Boosting International Trade And Enhancing Domestic Manufacturing Capability

I. Budget 2022-23: An Introductory Note

Last year's Economic Survey (2021) was sanguine in its outlook on the V-shaped recovery for India in the next fiscal that was to be supported by the mass vaccination drive and hopes of a robust recovery in the services sector. Thus, the sharp rebound, indicative of the economy's resilience is manifested in the economic growth estimate at 9.2% in the current year. A slew of major structural reforms were launched in agriculture markets, labour laws and definition of MSMEs for growth and job creation in the primary and secondary sectors. These supply – side measures along with the demand thrust through the gargantuan public investment programme centred around the National Infrastructure Pipeline (NIP) projects on sectors namely, Energy, Road, Urban, Railways and Others, purportedly, have kept the growth buoyant. The Performance Linked Incentive (PLI) Scheme across 14 sectors has gained traction over the past year, with estimated potential to create 60 lakh new jobs, and an additional production of INR 30 lakh crore during next 5 years. Fiscal deficit in 2022-23 is targeted at 6.4% of GDP, lower than the revised estimate of 6.9% of GDP in 2021- 22 (marginally higher than the budget estimate of 6.8% of GDP). Some policy observers have praised the narrative of “deficit is good” in the times of a pandemic and ramping up public capital investment. PM GatiShakti was announced as a transformational design for inclusive economic growth encompassing seven engines viz. Roads, Railways, Airports, Ports, Mass Transport, Waterways, and Logistics Infrastructure, which were to be aligned with the NIP. Clearly, this government has explicitly pointed out its thrust on infrastructure development (hence higher spending on CAPEX, estimated to be 4.1% of GDP in 2022-23) and reducing logistics cost from the present 14% of GDP to the world average of about 8%, to plug supply-side bottlenecks, in a few years' time. This is the ethos of the draft National Logistics Policy. Unified Logistics Interface Platform (ULIP), designed for Application Programming Interface (API) is also expected to enhance international competitiveness of domestic manufacturers. For enhancing export competitiveness, the Special Economic Zones Act is proposed to be supplanted by a new legislation so that the states can partner in ‘Development of Enterprise and Service Hubs’. The Budget also proposes a comprehensive review that will evaluate the prior customs rate and tariff structure especially for sectors like chemicals, textiles and metals (details may be perused in the report on “Customs Duty Rationalization in the Union Budget 2021: An Assay”) towards the mission of achieving the objectives of ‘Make in India’ and ‘Atmanirbhar Bharat’. To help exports, exemptions are being provided on items of embellishment, trimming, fasteners, buttons, zipper, lining material, specified leather, furniture fittings and packaging boxes that may be used by exporters of handicrafts, textiles and leather garments, leather footwear and other goods. Duty is being reduced on certain inputs required for shrimp aquaculture for its export promotion. India is very much on its way to achieving the export target of \$400 billion USD in the FY 2021-22.

II. Relooking the recent past

In our previous report titled “Customs Duty Rationalization in the Union Budget 2021: An Assay”, we examined the Budget 2021 proposals through few trade indices. Doing away with unwarranted exemptions on Customs Duties and easing of procedures and compliance as well as the Turant Customs initiative were touted as welcome initiatives for value-added export transactions. We also argued against reduction of custom duty on gold and silver for having bleak potential for boosting value added exports and contributing a lion’s share to the import bill.

The United States is still the largest importer of merchandise in the world. She remains the most important destination of India’s exports, too. But her imports have not been increasing by leaps and bounds in the recent past. Between 2011 and 2020, the USD value of US merchandise imports grew by a CAGR of only 0.68%. If 2020 is dropped for being an abnormal (pandemic-ridden) year, the CAGR (from 2011 to 2019) improves only to 1.59%. Hence, if India is to increase her absolute exports to the USA, she has to improve her market share. Against this backdrop, our recent analysis on competitiveness of Indian exports to its major export destination, USA, found that though Indian exports of HS-29 (Organic Chemicals), HS-71(Pearls, precious stones etc.) and HS-73 (Articles of Iron & Steel) look promising, HS-28 (Inorganic chemicals) and HS-72(Iron and Steel) export trends warrant a definitive product promotion policy with market-research for more effective bilateral trade between India and USA.

III. Sectoral Push for Increasing Competitiveness and Capacities

The following table summarizes the sector/industry-wise announcements in the realm of Custom Duty in Hon’ble Finance Minister’s Budget speech:

Table 1: Budget 2022 Announcements on Legislation, Incentives, Custom Duty Changes, Sector/Industry Wise

Industry	Intervention	Rationale for International Trade/ Value Addition of India	Anticipated Direction of Trade
Oilseeds	<ul style="list-style-type: none">To reduce import dependence of oilseeds, a comprehensive and rationalised scheme to boost domestic production of oilseeds will be implemented.	<ul style="list-style-type: none">Shortage of production and domestic availability of oilseeds with respect to domestic demand for edible oil leads to large imports of edible oil each year. International Commodity price changes (for oilseeds) can affect domestic Indian price of edible oil which is used as staple cooking medium.The major edible oils consumed in the country are mustard, soyabean,	Imports ↓

		groundnut, sunflower sesame oil, niger seed, safflower seed, castor, and linseed (primary source) and coconut, palm oil, cottonseed, rice bran, solvent extracted oil, tree and forest origin oil.	
Fruits and Vegetables	<ul style="list-style-type: none"> For farmers to cultivate appropriate fruits and vegetable varieties with suitable production and harvesting techniques, government intends to provide a comprehensive package with participation from state governments. 	<ul style="list-style-type: none"> Greater domestic value addition, reduction in imports. Higher exports of diverse fruit and vegetable varieties. 	<p>Imports ↓</p> <p>Exports ↑</p>
MSME Products and Services	<ul style="list-style-type: none"> The Emergency Credit Line Guarantee Scheme (ECLGS) will be extended up to March 2023 and its guarantee cover will be expanded by INR 50,000 crore to total cover of INR 5 lakh crore, with the additional amount being earmarked exclusively for the hospitality and related enterprises. Previous budget announced some custom duty measures to benefit MSMEs and encourage “Make in India” by them Duty on umbrellas is being raised to 20 per cent. Exemption is being rationalised on implements and tools for agri-sector which are manufactured in India. Customs duty exemption to steel scrap is being extended by a year to provide relief to MSME secondary steel producers. Certain Anti-dumping and CVD on stainless steel and coated steel flat products, bars of alloy steel and high-speed steel are being revoked in larger public interest considering prevailing high prices of metals. 	<ul style="list-style-type: none"> The pandemic has severely affected contact-intensive services like construction and manufacturing. Severely affected have been the tourism and hospitality and related services, especially those by MSMEs. Their activity has to be brought back to the pre-pandemic level. Boost MSME production 	<p>↓ or ↑ for hospitality goods/services imports but decline would most probably dominate increase.</p> <p>Imports ↑ for certain items of steel scrap where exemptions continue and other steel-based products with revoking of ADD/CVD</p>

<p>Defence Equipment</p>	<ul style="list-style-type: none"> • 68 per cent of the capital procurement budget shall be reserved for the domestic industry in 2022-23, up by 10 percent, from 58 per cent in 2021-22. • Defence R&D will be opened up to private players: industry, startups and academia. 	<ul style="list-style-type: none"> • To reduce imports and inculcate <i>AtmaNirbharta</i> in equipment for the Armed Forces 	<p>Imports ↓</p>
<p>Sunrise Sector</p>	<ul style="list-style-type: none"> • Artificial Intelligence (AI), Geospatial Systems and Drones, Semiconductors, Space Economy, Genomics & Pharmaceuticals, Green Energy, and Clean Mobility Systems have huge employment potential to leverage the demographic dividend and knowledge industry, and make Indian industry more efficient and competitive. 	<ul style="list-style-type: none"> • Policy support to enhance domestic capacities and R&D will guide sunrise opportunities along with collaborative research among academia, industry and public institutions. 	<p>Imports ↓ or ↑ <i>(increase if required to boost exports and domestic manufacturing)</i></p> <p>Exports ↑</p>
<p>Solar Product (Renewable Energy)</p>	<ul style="list-style-type: none"> • To facilitate domestic manufacturing for the ambitious target of 280 GW of installed solar capacity by 2030, enhanced allocation for PLI for manufacture of high efficiency modules, with priority to fully integrated manufacturing units from polysilicon to solar PV modules, will be made. 	<ul style="list-style-type: none"> • With huge potential for solar energy in India, to step up domestic capacity, a phased manufacturing plan for solar cells and solar panels shall be notified. • Encouragement of “Make in India” for NRE sector 	<p>Imports ↓</p>
<p>Waste (Circular Economy)</p>	<ul style="list-style-type: none"> • With ready action plans for sectors such as e-waste, end-of-life vehicles, used oil waste, and toxic & hazardous industrial waste, the focus shall be integration with infrastructure, reverse logistics, technology upgradation and informal sector. 	<ul style="list-style-type: none"> • The Circular Economy transition can aid productivity enhancement as well as creating huge opportunities for new businesses and jobs. 	<p>Imports ↓</p> <p>Exports ↑</p>
<p>Project Imports & Capital Goods</p>	<ul style="list-style-type: none"> • National Capital Goods Policy, 2016 seeks to double the production of capital goods by 2025. Several duty exemptions, over three decades old in few 	<ul style="list-style-type: none"> • Accordingly, it is proposed to phase out the concessional rates in capital goods and project imports gradually and apply a moderate tariff of 7.5 	<p>Imports ↓</p> <p>Exports ↑</p>

	<p>cases, have been granted to capital goods for sectors like power, fertilizers, textiles, leather, footwear & food processing.</p> <ul style="list-style-type: none"> In similar vein, project import duty concessions have left local producers hamstrung to develop indigenous capacities. 	per cent, with certain exceptions.	
Electronic Goods	<ul style="list-style-type: none"> To aid domestic electronic manufacturing, customs duty rates are being calibrated to provide a graded rate structure for wearable devices, hearable devices and electronic smart meters. Duty concessions are also being given to parts of transformer of mobile phone chargers and camera lens of mobile camera module and certain other items. 	<ul style="list-style-type: none"> Greater domestic value addition, reduction in imports. Higher exports of items such as mobiles, finished electronic goods. 	<p>Imports ↓</p> <p>Exports ↑</p>
Gems and Jewellery	<ul style="list-style-type: none"> Customs duty on cut and polished diamonds and gemstones is being reduced to 5 per cent. To disincentivise import of undervalued imitation jewellery, the customs duty on imitation jewellery is being prescribed in a manner that a duty of at least INR 400 per Kg is paid on its import. 	<ul style="list-style-type: none"> To give a boost to the import of diamonds and gemstones To reduce imports of misinvoiced imitation jewellery and collect adequate import duty by fixing a threshold duty rate per kg of imports. 	<p>Misinvoiced Imitation Jewellery Imports ↓</p> <p>Diamond Imports ↑</p>
Chemicals	<p>Customs duty on critical chemicals: methanol, acetic acid and heavy feed stocks for petroleum refining are being reduced, while duty is being raised on sodium cyanide for which adequate domestic capacity exists.</p>	<ul style="list-style-type: none"> Enhancing domestic value addition Reducing unessential imports. 	<p>Imports ↓</p>

Source: Union Budget 2022 Speech

IV. Sectoral Analysis of Budgetary Measures with Trade Indicators

The Union Budget 2022-23 announced a slew of measures to boost domestic production competency and exports across sectors like Oilseeds, Fruits and Vegetables, Defence Equipment, Chemicals, Gems and Jewellery, Solar Products, Semiconductors, Capital Equipment, MSME products, waste products and project goods. In the subsequent section, we do some detailed analysis on the international trade patterns of some of these commodity

groups, whether India is a net importer or exporter of these commodities, whether the import appetite of India with respect to the world is better for these product categories and try to understand the rationale behind the budgetary interventions on duties and incentives. The following commodity groups in Table 2 are the categories of merchandise whose imports and exports from India are analyzed in tables 3, 4, 5 and 6.

Table 2: Budget 2022-23 Interventions on Merchandise Sectors (with ITC-HS Code and Description)

Commodity Code	Commodity Description
HS-12	Oil seed, oleagic fruits, grain, seed, fruit, etc, nes
HS-20	Vegetable, fruit, nut, etc food preparations
HS-28	Inorganic chemicals, precious metal compound, isotopes
HS-29	Organic Chemicals
HS-38	Miscellaneous chemical products
HS-71	Pearls, precious stones, metals, coins, etc
HS-72	Iron and steel
HS-73	Iron or steel articles
HS-84	Nuclear reactors, boilers, machinery & mechanical appliance; parts
HS-85	Electrical, electronic equipment
HS-93	Arms and ammunition, parts and accessories thereof

Source: UN Comtrade Database

Tables 3 and 4 show the export trend (value in billion USD), both absolute vales and the percentage shares, of the targeted product categories in the Budget (see table 2 above). These eleven product categories constitute an average share of 36% in the export value of India from 2016 to 2020.

In value terms, for exports from 2016-2020, HS-71 (Gems and Jewellery) seems to be the largest, followed by HS-84(Nuclear Reactors, Boilers, Machinery) and HS-29(Organic chemicals) respectively.

Table 3: India's Export Value (in billion US\$) of Product Categories from 2016-2020 with Intervention in Budget 2022

Commodity Code	2016	2017	2018	2019	2020
HS-12	1.69	1.77	1.62	1.70	1.82
HS-20	0.48	0.55	0.59	0.61	0.68
HS-28	1.24	1.62	2.03	1.82	1.61
HS-29	11.25	13.56	17.78	18.25	17.43
HS-38	3.15	3.71	4.42	5.14	4.89
HS-71	42.29	41.17	39.23	36.73	24.46
HS-72	6.44	11.71	9.95	9.77	10.63
HS-73	5.82	6.65	7.09	7.25	6.25
HS-84	13.56	16.63	20.43	21.26	17.97
HS-85	8.22	8.79	11.84	14.94	13.46
HS-93	0.09	0.09	0.12	0.13	0.22
Total Export Value of India to World	260.33	294.36	322.49	323.25	275.49

Source: UN Comtrade Database

Table 4: India's Export Share (in percent) of Product Categories from 2016-2020 with Intervention in Budget 2022

Commodity Code	2016	2017	2018	2019	2020	Commodity's Average share in Exports
HS-12	0.65%	0.60%	0.50%	0.53%	0.66%	0.58%
HS-20	0.18%	0.19%	0.18%	0.19%	0.25%	0.20%
HS-28	0.48%	0.55%	0.63%	0.56%	0.59%	0.56%
HS-29	4.32%	4.61%	5.51%	5.64%	6.33%	5.30%
HS-38	1.21%	1.26%	1.37%	1.59%	1.77%	1.44%
HS-71	16.25%	13.98%	12.17%	11.36%	8.88%	12.46%
HS-72	2.47%	3.98%	3.09%	3.02%	3.86%	3.29%
HS-73	2.24%	2.26%	2.20%	2.24%	2.27%	2.24%
HS-84	5.21%	5.65%	6.33%	6.58%	6.52%	6.09%
HS-85	3.16%	2.99%	3.67%	4.62%	4.89%	3.88%
HS-93	0.03%	0.03%	0.04%	0.04%	0.08%	0.04%

Source: UN Comtrade Database

Tables 5 and 6 show the import value trend (in billion USD) of the same eleven product categories that contribute about 43% to the import value of India from 2016 to 2020. Over the same period, from 2016-2020, HS-71 (Gems and Jewellery), HS-85(Electrical, electronic equipment) and HS-84(Nuclear Reactors, Boilers, Machinery) contributed nearly 13%, 11% and 9% of the total import value respectively.

Table 5: India's Import Value (in billion US\$) of Product Categories from 2016-2020 with Intervention in Budget 2022

Commodity Code	2016	2017	2018	2019	2020
HS-12	0.36	0.33	0.53	0.67	0.84
HS-20	0.08	0.10	0.12	0.12	0.08
HS-28	4.82	5.59	7.27	6.81	6.19
HS-29	14.77	17.97	22.59	20.53	18.15
HS-38	4.41	5.23	5.94	5.77	5.66
HS-71	48.13	74.31	64.86	58.91	41.05
HS-72	8.71	9.96	12.00	11.80	7.55
HS-73	3.52	3.74	4.99	5.02	3.54
HS-84	32.52	36.01	43.21	44.48	35.20
HS-85	37.01	46.85	52.45	50.85	42.94
HS-93	0.03	0.03	0.06	0.07	0.05
Total Import Value of India from the World	356.70	444.05	507.62	478.88	367.98

Source: UN Comtrade Database

Table 6: India's Import Share (in percent) of Product Categories from 2016-2020 With Intervention in Budget 2022

Commodity Code	2016	2017	2018	2019	2020	Commodity's Average share in Imports
HS-12	0.10%	0.08%	0.10%	0.14%	0.23%	0.13%

HS-20	0.02%	0.02%	0.02%	0.02%	0.02%	0.02%
HS-28	1.35%	1.26%	1.43%	1.42%	1.68%	1.42%
HS-29	4.14%	4.05%	4.45%	4.29%	4.93%	4.36%
HS-38	1.24%	1.18%	1.17%	1.21%	1.54%	1.25%
HS-71	13.49%	16.73%	12.78%	12.30%	11.16%	13.33%
HS-72	2.44%	2.24%	2.36%	2.46%	2.05%	2.32%
HS-73	0.99%	0.84%	0.98%	1.05%	0.96%	0.97%
HS-84	9.12%	8.11%	8.51%	9.29%	9.57%	8.88%
HS-85	10.37%	10.55%	10.33%	10.62%	11.67%	10.68%
HS-93	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%

Source: UN Comtrade Database

With India being a net importer of several of these categories of merchandise (see table 7) , it would be prudent to analyze if these products/sectors, have a relative importance, in terms of value, in India's imports (relative to the importance in world imports), and which enjoy a similar relative importance in India's exports. The first is known as Revealed Comparative Import Inclination (RCII) and the latter Revealed Comparative Advantage (RCA). RCA index for a commodity (or commodity group) exported from India is higher than 1 if its importance is more in India's exports than in world exports, and vice versa. Similarly, RCII index for India's imports for a commodity (or commodity group) imported to India is higher than 1 if its importance is more in India's imports than in world imports, and vice versa. **Annexure-A** gives the detailed formulae of the trade indicators used in this analysis.

Table 7: India's Total Export and Import Value of Commodities to the World from 2016 to 2020

Commodity Code	Commodity Description	Total Export Value (Bn US \$),2016-2020	Total Import Value (Bn US \$),2016-2020	Category
HS-12	Oil seed, oleagic fruits, grain, seed, fruit, etc, nes	8.60	2.73	Net Exporter
HS-20	Vegetable, fruit, nut, etc food preparations	2.92	0.50	Net Exporter
HS-28	Inorganic chemicals, precious metal compound, isotopes	8.32	30.68	Net Importer
HS-29	Organic Chemicals	78.26	94.01	Net Importer
HS-38	Miscellaneous chemical products	21.31	27.01	Net Importer
HS-71	Pearls, precious stones, metals, coins, etc	183.88	287.26	Net Importer
HS-72	Iron and steel	48.50	50.02	Net Importer
HS-73	Iron or steel articles	33.06	20.81	Net Exporter
HS-84	Nuclear reactors, boilers, machinery & mechanical appliance; parts	89.85	191.41	Net Importer
HS-85	Electrical, electronic equipment	57.26	230.09	Net Importer
HS-93	Arms and ammunition, parts and accessories thereof	0.65	0.24	Net Exporter

Source: UN Comtrade Database

Hence, for those sectors where customs intervention have been announced – an analysis at ITC-HS two-digit code level is attempted. If both RCA and RCII for India > 1 for such sectors, then it means India’s exports and imports of that sector are to an extent more than overall world trends warrant. Hence these are the sectors which are expected to see substantial imports as well as exports for India. Tables 8 and 9 shows values of RCA and RCII for these relevant commodity codes for Indian exports and imports respectively for 2016 to 2020.

Table 8: RCA of Products for India with Intervention in Budget 2022

Commodity Code (ITC-HS Chapter)	2016	2017	2018	2019	2020
HS-12	1.2011	1.1003	1.1023	1.0831	1.1686
HS-20	0.5146	0.5516	0.5982	0.5644	0.6752
HS-28	0.8036	0.8751	1.0607	0.9165	0.9212
HS-29	2.0232	2.1130	2.6431	2.6259	2.8555
HS-38	1.1301	1.0877	1.2955	1.4275	1.3621
HS-71	3.5445	3.5689	3.6644	3.1741	2.3441
HS-72	1.3754	1.9762	1.6029	1.6190	2.2333
HS-73	1.3849	1.3943	1.3992	1.3735	1.3997
HS-84	0.4250	0.4312	0.5242	0.5462	0.5195
HS-85	0.2009	0.1993	0.2729	0.3126	0.3183
HS-93	0.3580	0.3062	0.4311	0.4334	0.8110

Source: UN Comtrade Database

Table 9: RCII for Products for India with Intervention in Budget 2022

Commodity Code (ITC-HS Chapter)	2016	2017	2018	2019	2020
HS-12	0.1720	0.1267	0.1984	0.2535	0.3442
HS-20	0.0625	0.0650	0.0724	0.0754	0.0639
HS-28	1.9961	1.8764	2.1252	2.0344	2.4430
HS-29	1.7263	1.6511	1.9347	1.7577	1.9601
HS-38	1.1163	1.1115	1.1441	1.0466	1.1297
HS-71	3.2464	4.6986	4.1786	3.4455	2.7129
HS-72	1.3066	1.1244	1.1682	1.2030	1.0959
HS-73	0.6045	0.5551	0.6542	0.6471	0.6203
HS-84	0.7493	0.6739	0.7444	0.7519	0.7608
HS-85	0.6688	0.6837	0.6979	0.6699	0.6817
HS-93	0.1057	0.1408	0.2307	0.1972	0.2067

Source: UN Comtrade Database

RCII is exceeding 1 for ITC-HS chapters 28,29, 38, 71 and 72 (refer table 9).

From table 8, it is seen that RCA >1 for ITC HS Codes 12, 29, 38 ,71, 72 and 73, implying these

sectors indicate greater export promise for India vis-à-vis the world. These ITC-HS chapters are

12: Oil seed, oleagic fruits, grain, seed, fruit, etc, nes

29: Organic Chemicals

38: Miscellaneous chemical products

71: Pearls, precious stones, metals, coins, etc

72: Iron and steel

73: Articles of iron or steel

Of the above 6 categories, ITC HS chapters 29, 38, 71 and 72 also have higher import intensity for India. Thus to boost the sectoral exports of the above 6 ITC-HS chapters, it may require reducing customs duties on imports of these products or raw materials that add into the manufacture of these products with higher export potential. This is under the assumption that these commodities once imported, with substantial value addition are then exported back with higher price (perhaps with higher degree of inter-sectoral Intra-Industry Trade). The Budget 2022 seems to have echoed the above logic by

- Rationalising the duty structure on oilseeds so that dependence on imports can be reduced and domestic production stepped up to meet the consumption shortage. This is despite that fact though India's oilseeds import share on an average is lower than the world (RCII<1) and India is a net exporter of oilseeds, still there is a substantial need to step up domestic production with appropriate technology to make good the diminishing marginal returns to land.
- Reducing customs duty on critical chemicals which may boost imports of chemicals (used as raw materials in domestic manufacturing) and subsequently exports of finished products. There exists a fair degree of intra- industry trade (refer table 11: Grubel-Lloyd Index above 0.5) for ITC-HS Chapter 29 ("Organic Chemicals) for India and the largest trading countries of the world. Thus, India, may be both importing and exporting organic chemicals and if this is so, there is greater interdependence and trade interrelationship between imports and exports of organic chemicals.
- Reducing customs duty on Iron and Steel (ITC-HS Chapters 72 and 73) thus boosting their imports by MSMEs in the wake of sharp rise in iron and steel prices.
This policy decision would help align the iron and steel industry with the Hon'ble Prime Minister's clarion call for self-reliant or "Atmanirbhar" Bharat and give a fillip to MSMEs. MSMEs contribute about 30% or one-third to India's GDP, about 48% of exports and has high employment potential.

However, India's has a yawning gap between imports and exports under ITC-HS Chapter 71 with India being a net importer under this category with disproportionately higher imports. Reduction of custom duty on diamond may increase domestic purchase of these precious stones but has lackluster promise for boosting value added exports as can be made out from

the last five years' trend (refer to the export and import values in Billion US \$ from years 2016 to 2020, for HS-71, in Tables 3 and 5 respectively).

Table 10 gives the Trade Complementarity values between India and its major trading partners. In the year 2020, the TCI between India and the world was 0.417 and TCI with other trading partners was less than 1. India can definitely improve on its trade complementarity by suitably maneuvering the production and trade incentive structure on categories having higher export potential and cost advantages.

Table 10: Trade Complementarity Index between India and Other Major Trading Countries in 2020

	TCI between Countries (2020)	TCI between India and the World(2020)	Relative Trade Complementarity Index(2020)
India-USA	0.342	0.417	0.820
India-China	0.228	0.417	0.547
India-UAE	0.337	0.417	0.808
India-Germany	0.358	0.417	0.859
India-UK	0.340	0.417	0.815

Source: UN Comtrade Database

Intra-industry trade usually takes place in the countries that have similar social and economic structure. 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. Instead, they help to broaden the concept. Trade in intermediate goods reinforces the interdependence between countries' resources and factors to make the best possible utilization of inputs to enhance production and supply value chains.

Table 11 below shows that for fairly high values of IIT (values greater than/equal to 0.7 are shaded in Table 11), there is potential for more efficient allocation of resources in the supply chain. Thus, it would be interesting to study how tinkering the quantum of imports by India through customs duties' changes in these industries, may lead to interactions with value-added in exports. In fact with China, for none of the ITC HS codes namely 29, 38, 71 and 72, India has very high IIT. This implies that Chinese imports in these sectors are not necessarily ploughed back for value additions in exports and thus have to be scrutinised in case they are dumped imports, predatory in nature and harming the domestic producers in these industries, without aiding high-value exports.

Table 11: Intra-Industry Trade (IIT) between India and Top Importers in 2019

Countries	ITC HS Chapters			
	29	38	71	72
USA	0.96	0.97	0.83	0.53
China	0.55	0.21	0.66	0.62
Germany	0.75	0.57	0.86	0.70

Source: UN Comtrade Database

The low values of Hirschman Index or Export Concentration Indices from 2015 to 2020 as shown in Table 12 for India shows that India’s export basket is not concentrated in a few commodities. The index value is used to determine export market competitiveness. Thus, India, albeit, exposed to lower levels of world trade and global industry concentration risk, does not have a much specialized export basket with “accumulation” in few product types and the Indian export market is fairly competitive. The closer the export market is to a monopoly with dominance in one or few products, the higher the market's concentration (and the lower its competition). If there were several entities or firms/exporters competing, each would have low market share, and the HHI would be close to zero, indicating near perfect competition.

Table 12: Hirshman-Herfindahl Index (HHI) between India and the World from 2015 to 2020

Year	Hirschman Index (HI)
2015	0.1324
2016	0.1344
2017	0.1339
2018	0.1489
2019	0.1445
2020	0.1217

Source: UN Comtrade Database

IV. The Way Forward

The above analysis has been attempted to examine the Budget 2022 proposals by examining the values of a few trade indices. With The Trade Complimentary Index (TCI) between Indian and the World in 2020 being 0.42, there is a lot of potential to improve bilateral trade performance between countries through trade agreements and treaties. In fact, the TCI has improved in 2020 to 0.42 from 0.39 in 2019. This is interesting since 2020 was a pandemic-ridden year and was able to re-orient quickly its production structure to the manufacture and export of items more in alignment with the world’s needs. Only if the exports of one country match well with the imports of the other, and vice versa, and the trade complementarity is high between two countries, it is beneficial to enter into a trade agreement. Thus, TCI assumes more significance in the light of the ongoing and impending trade negotiations of India with the United Kingdom and Australia respectively. The Budget 2022 does a prudent job in rationalizing the Customs Duties structures, keeping the sectoral needs in cognizance, balancing the objectives of giving boost to the critical MSME sector and boosting export value addition with a thrust on “Atmanirbhar” and “Make in India”. The ITC HS Chapters 12, 29, 38, 71, 72 and 73 with greater export promise for India vis-à-vis the world encompassing Oilseeds, Chemicals, Pearls, precious stones, metals, coins and Iron and steel sector have been suitably reviewed in the Budget through changes in duty structure. Incentives like PLI in aiding much-needed value-added export trades as well as facilitating domestic manufacturing and judicious import- substitution herald a new approach to the vision of a “Self-Reliant India”.

Trade Indicators

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 nor 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

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:

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

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, are 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).

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

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 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.

$$HI = \sqrt{[\sum Sq(x_i/X_t)]}$$

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 equalling imports) to 0 (no interindustry trade at all).

