Indian processed food export potential in the European Union and the World

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Abstract

This study has been undertaken to investigate the status of processed food export from India to the EU and the World. By creating GEO mappotential export valueis calculated. Potential export shows that value in 2026 based on projections of supply, demand, market access conditions and bilateral ease of trade, expressed in USD. Investigatedtopprocessed food and agro based product exporting countries in the world with their contribution in export by creating tree map. Study reviled the status of Indian processed food and agro based products export market region and country wise. India's processed food and animal feed export market with untapped potential USD 31 billion in USA followed by the EU countries. State wise status of export from India to the world found highest for Gujarat valued USD 5.96 billion and Rajasthan at 12th position with USD 1.61 billion in 2021-22. Status of the port wise export analysed and found that Maharashtra on the top with USD 3.11 billion. India's declining trend shows that India losing export market in great extent. The European Union is one of the most important markets for export of India's food processing industries. It accounts on an average 10.84 per cent of Indian exports of processed food and was valued at nearly three billion dollars, out of total exports of USD 29.52 billion in 2021. The region behind declining trend is India facing high tariff rate up to 29 per cent for dairy products and other products facing high tariff like sugar, meat & meat preparation, cereals, preparation of vegetables etc. in the EU market as well as non-tariff measures of processed food products. The EU is one of the most integrated regions of the world, with intra-regional trade accounting for nearly three-fifth of the total trade. Therefore, penetrating this market may continue to be a challenge for Indian exporters in future. The EU continues to maintain its position as one of most quality conscious regions of the world, with very strict adherence to quality control measures.

Key words: Processed food, export, potential, status, tariff, quality

I. INTRODUCTION

The food processing sector that is going through turbulent times as a result of increasing global demand for food security, growing food insecurity and consumer demand for superior quality and sustainability. There is a major economic impact when it comes to food security if modern food supply chains are poorly evaluated and risk mitigation is non-existent. Even a weak supply chain impact can have a significant economic impact. Processed food industries are valued at more than $2 trillion worldwide and comprise more than 4,000 processing companies.

Food processing is also strongly affected by multiple external factors, including economic trends, climate and demographic changes, emerging energy markets, new commercial partnerships and projections for global population growth. Nowadays, the food supply chain is more globalized, longer and much more complex than ever before. Given the growth in imports and exports, processed foods depend on longer supply chains, which represent a major challenge to ensuring food security.

The European food industry estimates that there are three major production regions in the world. The EU - 44 per cent of turnover, the US - 20 per cent of turnover and China - 19 per cent of turnover. The turnover of the EU food and beverage manufacturing industry alone is twice as high as in the US and China. However, this is going to change in a significant way over the next few decades. To feed the world's growing population, which is projected to reach 9.3 billion by 2050, agricultural production must grow by 70 per cent and nearly 100 per cent in fast-growing economies.

By 2030, India will have the largest population in the world, accounting for 1/3 of the Asian population and 17 per cent of the global population. By 2050, over 50 per cent of the world's population will be in India, China, Indonesia, the Philippines and Pakistan. By 2050, two-thirds of the world's population will live in cities, raising the demand for processed foods and meat protein - Asia will see a 128% increase in protein consumption.

II. LITERATURE REVIEW

In the paper "An analysis of India's bilateral intra-industry trade in agricultural products" Poornima Varma has analysed the agricultural trade between India and its two major trading partners, the USA and European Union, was mainly inter-industry in nature. However, there was a mild tendency for IIT to increase during the period of 2000–2008. The marginal intra-industry trade calculated for trade between both the partners indicated that the export was expanding at the cost of imports. [1]

The author of the paper "Export Performance of Processed Food in India" had studied Indian food processing industry is primarily export oriented. With the export growth rate of around 15%, its share in the international market is only 1.7%. Again, only 2% of the total food produced in India is processed for further consumption. This is a matter of concern that despite massive potential, this sector remains grossly underutilized. [2]

In the paper "The India-EU FTA and its Implications on India's Food and Farm Sector" Shalini Bhutani identified the sources of our food are farmers, fisher folk and livestock keepers. In fact, what we eat and drink comes from these small food producers from different parts of the country and across the world. Eating local has been made to go out of fashion by the world trading system. Trade in food has brought with it many social injustices and ecological concerns. It has today become less about feeding mouths and nourishing people and more about expanding businesses and increasing profits for the select few. The 'free trade' agenda in agriculture has been set by and for corporate agribusiness. Europe's food and agriculture businesses play an important role in their domestic economies. For that reason and to bring down its dependence on agricultural imports from 'developing' countries the 27-member European Union (EU) its trade strategies and economic policies are getting more aggressive in this sector [3]

The author Kouru Uma Devi of "Trade Performance of Indian Processed Foods in the International Market" studied Food processing industry in India is a sunrise sector and has gained prominence over the recent years. It is one of the largest industries and ranks fifth in terms of production, consumption, export and expected growth. With the huge production base, India can easily become leading food supplier to the world. Availability of raw materials, changing life styles and appropriate fiscal policies has given a considerable push to industry's growth. It has tremendous export potential, enabling the farmers to add value to his produce both in terms of quantity and quality so that he can meet the requirements and standards of market at all stages of value chain. [4]

In the paper "The Trade Impact of European Union Agricultural Preferences" Maria Cipollina and Luca Salvatici assess the impact on agricultural trade of European Union (EU) trade policies, using a gravity model based on disaggregated trade flows from 161 developing countries (DCs) to 15 EU member countries. We use a sample selection framework to account for potential selection bias of positive trade flows and provide an explicit measure for relative preference margins. From a policy perspective, our results debunk some of the most widespread criticisms of preferential policies: EU preferences matter and have a positive impact on DCs agricultural exports at both the extensive and intensive margins, although with significant differences across sectors. [5]

III. MATERIALS AND METHOD

3.1 Material

Secondary data on HS Code, Section 1 to 4 in which 2 to 23 chapters selected as Ministry of Processed food Industry categorise in product link incentive scheme. By excluding chapters 05th, 06th and 14th because they are not in the category of processed food products. Secondary data extracted from ITC trade map, APEDA and MPEDA etc. for analysis.

3.2 Methodology

Potential export value of product k supplied by country i to market j, in dollars, is calculated as supply × demand (corrected for market access) × bilateral ease of trade. Supply and demand are projected into the future based on GDP and population forecasts, demand elasticities and forward-looking tariffs. The estimated dollar value serves as a benchmark for comparison with actual exports and should not be interpreted as a ceiling value. In reality, the actual trade value may be below or above the potential value. Potential export shows that value in 2026 based on projections of supply, demand, market access conditions and bilateral ease of trade, expressed in USD.

Realized potential captures the extent to which the export potential has already been utilized for this product, market or supplier. At the most disaggregated level, by country, product and market, the realized potential corresponds to the potential to actual exports gap (in % terms) whenever potential > actual exports and to 100% whenever potential < actual exports. At the aggregate level (e.g. export potential in a regional market or by sector), the realized potential may be below 100% even though aggregated actual exports exceed potential exports. This occurs when individual exporter-product-market combinations still hold underutilized potential that should not be masked by the fact that others have exceeded their potential.

IV. RESULT AND DISCUSSION

4.1. Global processed food and agro based product export market

By creating GEO Map (location-based data which include names, addresses, sales numbers, demographic info, etc. and using it to create a map). It is found that by analysing data through GEO map Exporter with greatest potential to export processed food & animal feed to World are United States, Germany and Netherlands. United States shows the largest absolute difference between potential and actual exports in value terms, leaving room to realize additional exports worth \$31 billion It means 50.81 per cent export is untapped (Figure: 1) and export potential is 49.80 per cent. It is found that region wise export potential in figure 1 clearly visible that The EU countries have greatest potential of export then North America and South & Central America. South Asia found at 8th position in which export potential of India has only USD 8.2 billion.
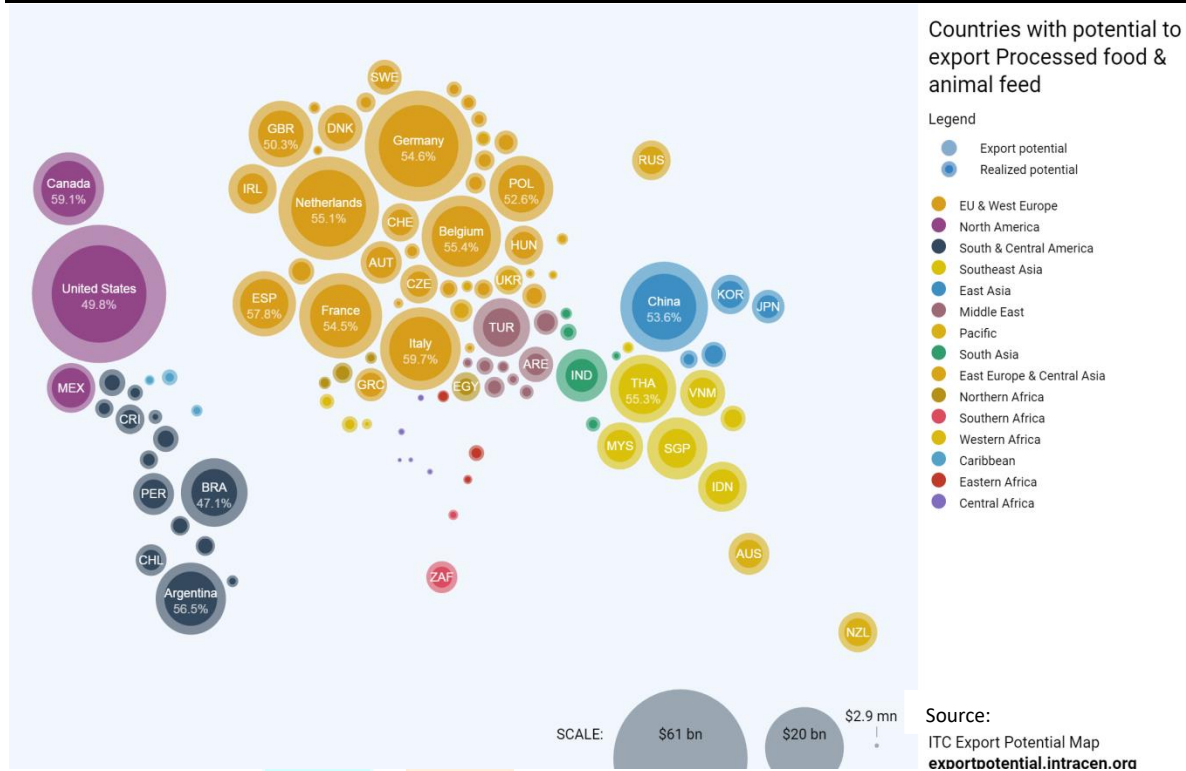
Figure: 1 Region wise potential to export processed food & animal feed

The global processed food and agro based products export grew by 21 per cent in real terms between 2017 and 2021, reaching USD 1028.43 billion in 2021(Table 1). This represents an increase of USD 178.58 billion compared with 2017. In Indonesia, the processed food and agro based products exportgrowth is about 44.59 per cent over the period, increasing from USD 32.74 billion to USD 47.34 billion. Canada and India have 2nd and 3rd position in export growth of processed food and agro based products. Germany is the main contributor to global processed food and agro based products export with 6.5 per cent share of the world total in 2021.

Table: 1 Top 10 Processed food and agro based product exporting countries in the world.
USD Billion

Rank	Exporters	2017	2018	2019	2020	2021
1	Germany	58.42	60.93	59.34	60.22	67.28
2	USA	56.15	58.56	57.90	57.31	65.57
3	Netherlands	50.71	53.22	52.31	53.72	61.70
4	France	47.14	49.76	48.31	46.94	57.05
5	Italy	34.93	38.15	39.33	41.51	47.96
6	Indonesia	32.74	30.69	27.91	31.95	47.34
7	China	41.37	45.05	42.36	40.17	42.67
8	Belgium	30.11	31.84	31.23	31.55	37.44
9	Spain	26.03	27.32	26.25	27.37	32.89
10	Canada	21.58	22.83	23.78	24.29	30.71
11	India	20.81	21.54	22.29	23.17	29.52
	Others	429.86	449.47	444.54	450.13	508.30
	World Total Export	849.85	889.36	875.55	888.33	1028.43

Source: ITC Trade Map, 2021(Researcher's own compilation)

The European Union region alone have 42.01 per cent share in global export. Among top 10 Exporting countries 6 countries from the EU are Germany, Netherlands, France, Italy, Belgium and Spain secured 1st, 3rd, 4th, 5th, 8th and 9th position. India secured 11th position valued USD 29.52 billion and share 2.9 per cent of global processed food and agro based products (Figure 2).

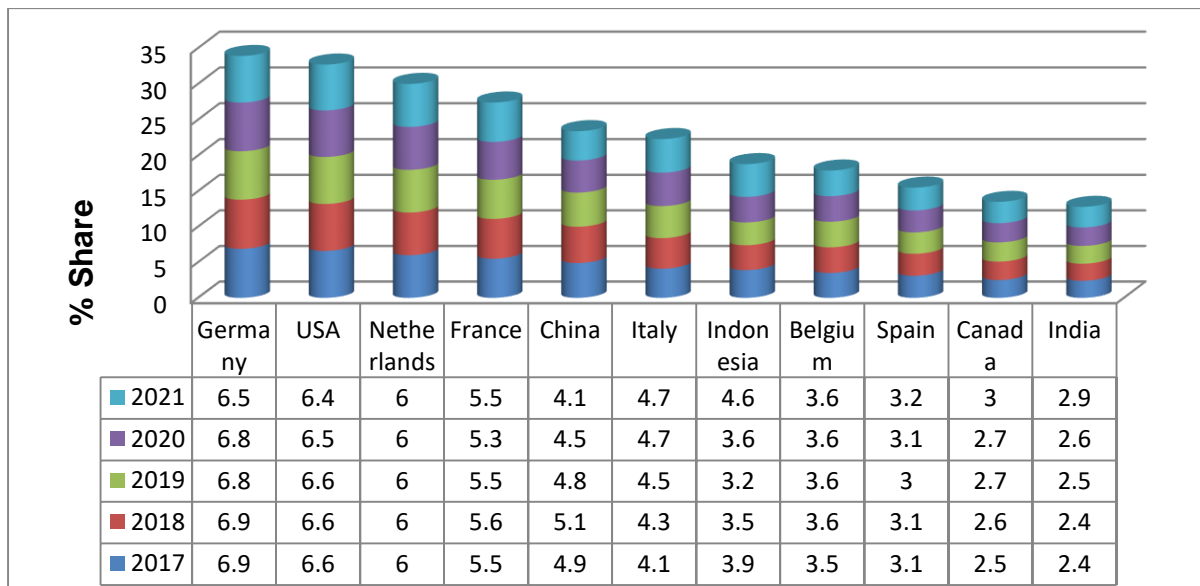| % Share	Germany	USA	Nethe rlands	France	China	Italy	Indon esia	Belgiu m	Spain	Canad a	India
2021	6.5	6.4	6	5.5	4.1	4.7	4.6	3.6	3.2	3	2.9
2020	6.8	6.5	6	5.3	4.5	4.7	3.6	3.6	3.1	2.7	2.6
2019	6.8	6.6	6	5.5	4.8	4.5	3.2	3.6	3	2.7	2.5
2018	6.9	6.6	6	5.6	5.1	4.3	3.5	3.6	3.1	2.6	2.4
2017	6.9	6.6	6	5.5	4.9	4.1	3.9	3.5	3.1	2.5	2.4

Figure: 2 Top 10 Processed food and agro based products export share in per cent
Source: ITC Trade Map, 2021

4.2 Indian processed food and agro based product export market

GEO map(Figure 3) it is clearly visible that India has greatest export potentialin the EU region market whereas Southeast Asia and North America hold 2nd and 3rd position in export of processed food and agro based products (ITC export potential map). Realized potential is highest for the Nepal which is 74.9 per cent .USA and Korea has 2nd and 3rd position in realized potential and value is 62.9 per cent and 62.5 per cent. In the EU region Germany has highest realized potential.
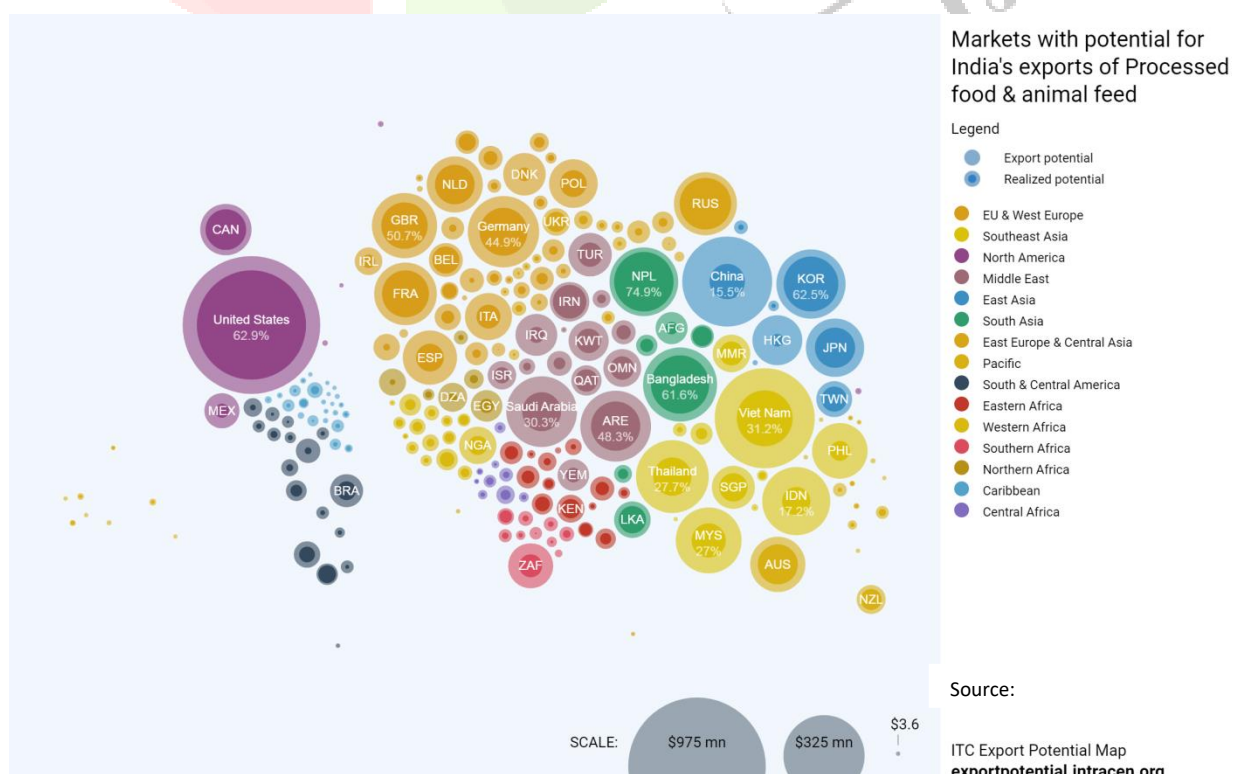

Figure: 3 Markets with potential for India's export of processed food & animal feed

4.3 Countries with potential to processed food and animal food

The value of actual exports is calculated as an arithmetic average of direct and mirror data of reliable reporters over the past five years (Decreux and Spies (2016). Actual exports to a region, including to the world as a whole, only include exports to markets where the country has export potential. At an aggregate level, actual exports can therefore be equivalent to or lower than export values recorded in other trade databases, such as the ITC Trade Map.

Potential to actual exports gapis the extent to which potential exports deviate from actual exports. Actual exports may be higher or lower than the expected potential value. When actual exports exceed potential exports, this can be driven by an exporter's exceptional export performance in some markets while neglecting others. Conversely, the untapped potential value signals room for export growth if frictions, for example in the form of regulations or buyer-seller mismatches, can be overcome.
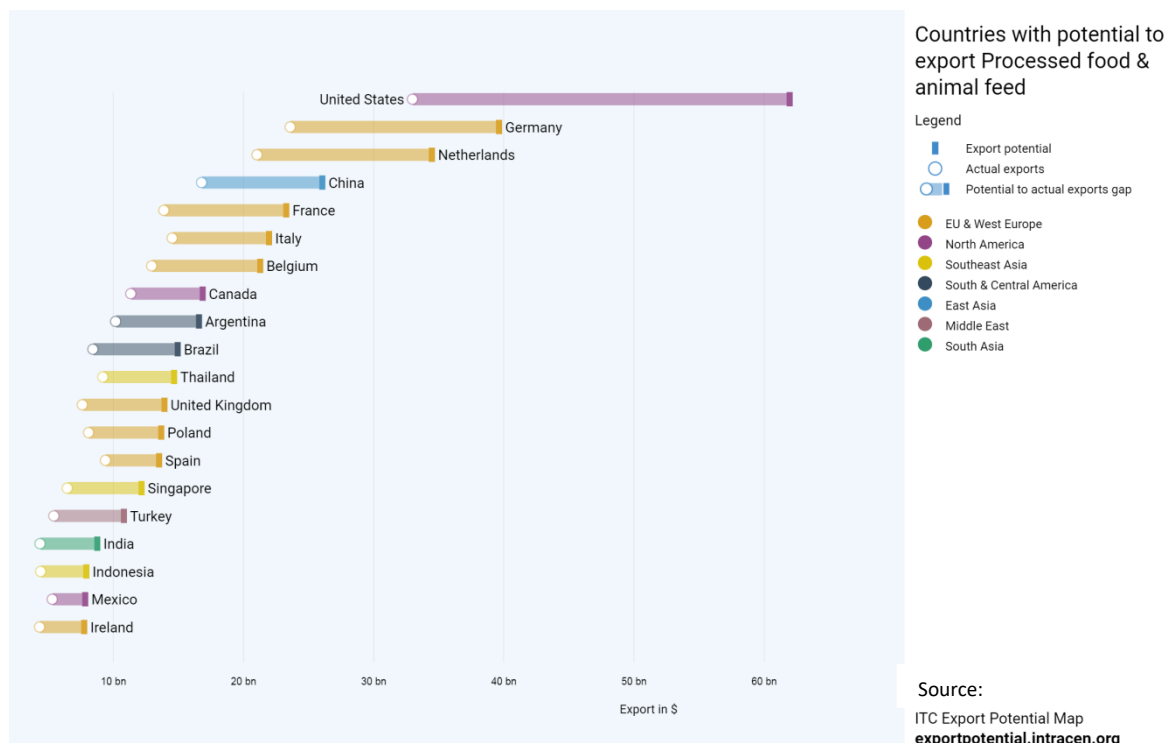

Figure: 4 Countries with potential to export processed food & animal feed

GAP Chart captured the extent to which the export potential has already been utilized for this product, market or supplier. India with greatest potential to export processed food & animal feed to the World are United States, Germany and Netherlands. United States shows the largest absolute difference between potential and actual exports in value terms, leaving room to realize additional exports worth $31 billion in table2.

Table: 2 Top 10 Export market for India's processed food and animal feed

Value in USD Billion

Sr. No.	Country	Export potential	Actual exports	Untapped potential
1	United States	61	33	31
2	Germany	39	24	18
3	Netherlands	34	21	15
4	China	26	17	12
5	France	23	14	10
6	Italy	21	15	8.6
7	Belgium	21	13	9.3
8	Canada	16	11	6.7
9	Argentina	16	10	7
10	Brazil	14	8.5	7.6
17	India	8.2	4.4	5

Source: ITC Export Potential Map, 2021

On the basis of GAP chart, export values are analysed which is shown in table 2 in the fields of export potential, actual export and untapped potential. Untapped potential is the potential where India can capture the market by increasing processing capacity of the food products. USA has USD 31 billion untapped market followed by Germany and Netherland. India itself has USD 5 billion untapped processed food market and at 17th position in export market.

4.4 State wise processed food and agro based product export market

In processed food and agro based product export Gujarat is leading state consistently in last five years followed by Maharashtra, Uttar Pradesh. Rajasthan state has 12th position in last five years total export status and export value in 2021-22 is USD 361.95 million.

Table: 3 Last five year state wise export status for India's processed food and agro based products to the world.
Value in USD Million

Rank	State	2017-18	2018-19	2019-20	2020-21	2021-22	Total
1	Gujarat	4659.58	5361.84	4932.12	5329.47	5956.65	30056.94
2	Maharashtra	3989.28	3896.3	3345.16	3807.06	3786.94	22897.44
3	Uttar Pradesh	2893.76	2526.08	2227.45	2393.58	2206.13	14594.93
4	Andhra Pradesh	1284.07	1281.89	763.54	1864.96	2426.39	8671.89
5	West Bengal	1175.52	985.43	689.93	1759.4	2609.01	8041.49
6	Haryana	1323.82	1366.9	1177.41	1605.52	1311.94	7899.2
7	Tamil Nadu	1280.25	1243.23	1133.09	1258.59	1362.08	7532.83
8	Kerala	683.56	527.53	509.46	464.16	430.16	3240.04
9	Punjab	516.12	521.03	448.46	476.79	344.77	2770.65
10	Karnataka	431.65	403.36	373.44	450.78	373.35	2387.81
11	Bihar	277.96	294.48	286.63	387.98	407.57	1907
12	Rajasthan	278.92	319.87	233.8	218.04	361.95	1611.83
13	Delhi	284.1	272.7	203.97	160.22	158.58	1344.12
14	Telangana	198.98	196.22	173.44	202.78	214.14	1155.85
15	Madhya Pradesh	141.36	134.52	123.62	174	155.68	822.24
16	Odisha	37.03	31.23	31.81	60.02	68.07	263.55

17	Chhattisgarh	20.77	4.07	9.84	14.47	6.44	101.91
18	Goa	22.35	17.63	14.73	13.36	10.67	99.98
19	Uttarakhand	14.75	9.89	10.91	12.97	10.63	63.41
20	Assam	5.33	4.83	5.56	10.2	15.5	43.94
21	Tripura	0.02	0.37	0	0.02	24.61	25.02
22	Sikkim	1.26	2.72	0.7	3.77	6.02	19.92
23	Meghalaya	0.01	0.02		0	0.01	0.4
24	Himachal Pradesh	0	0	0.01	0.31	0	0.36
25	Jammu & Kashmir		0	0	0	0.01	0.01
	Grand Total	**19520.45**	**19402.14**	**16695.08**	**20668.45**	**22247.3**	**115552.8**

Source: APEDA-India export statistics (Researcher's own compilation)

Gujarat, Maharashtra and UP together share more than 50 per cent export in 2021-22. WhereasRajasthan share only 2 per cent of the total export of USD 22247.3 million in year 2021-22. Meghalaya, Himachal Pradesh and Jammu & Kashmir has negligible share in last five year consistently.

4.5 India's declining share in EU's imports

European Union is one of the most important markets for export of India's food processing industries. It accounts on an average 10.84per cent of Indian exports of processed food and was valued at nearly three billion dollars, out of total exports of USD 29.52 billion in 2021.

Top ten export items from India to EU in agri-food products are – (1) Fish and other aquatic invertebrates (2) Coffee, tea, mate and spices (3) Edible fruit and nuts (4) Animal or vegetable fats and oils (5) Oil seeds and Oleaginous fruits (6) Residues and waste from the food industries (7) Cereals (8) Vegetable saps and extracts (9) Preparations of vegetables, fruit, nuts or other parts of plants, and (10) Edible vegetables and certain roots and tubers(Table 5).

Table: 5 Top 10 processed food and Agro based product exported to the EU

Rank	Product label	HS Code	2016	2017	2018	2019	2020	Total
1	Fish and other aquatic invertebrates	03	841572	943487	779527	734538	641150	7931723
2	Coffee, tea, mate and spices	09	598849	623778	532593	519149	478850	5848761
3	Edible fruit and nuts	08	314874	418081	387572	387820	301515	3338575
4	Animal or vegetable fats and oils	15	225649	321761	276373	319707	279474	2777506
5	Oil seeds and Oleaginous fruits	12	200903	256844	254514	276299	248883	2308104
6	Residues and waste from the food industries	23	83806	288257	232329	113943	167404	2031801
7	Cereals	10	186890	261086	156184	130726	185830	1997417
8	Vegetable saps and extracts	13	115610	115144	144520	139866	123112	1740277
9	Preparations of vegetables, fruit, nuts or other parts of plants	20	108877	118620	140416	142670	133823	1132691
10	Edible vegetables and certain roots and tubers	07	120546	115436	131608	111421	129201	1112970

Source: ITC product wise export status, 2021(Researcher's own compilation)

Tree map (Tree maps are ideal for displaying large amounts of hierarchically structured or tree-structured data. The space in the visualization is split up into rectangles that are sized and ordered by a quantitative variable) for Indian products have potential in the EU shows that India export fish and shellfish products in large quantity. Especially Shrimps & prawns in frozen form shares 23 per cent of total export of processed food in the category of marine processed food products followed by coffee extracts 61 per cent of food products n.e.s. (not elsewhere specified), 30 per cent Semi-milled or wholly milled rice in Rice category, then Spices, Fruits, Oilseeds etc. (created in ITC export potential maps).
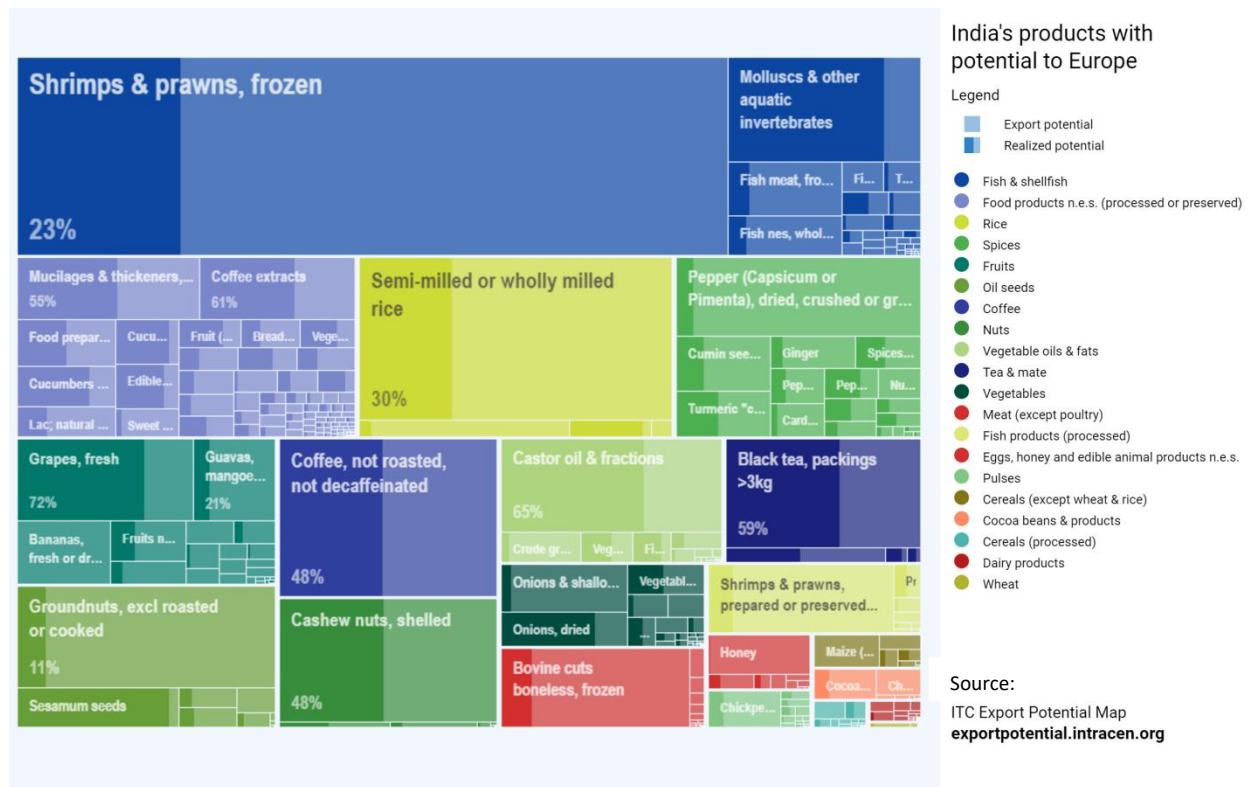

Figure 6: Tree map for Indian products exported to the EU

However, India's share in the EU's import is mere 0.66percent of its global imports. Further, it is observed that India's export of processed foods to the EU market has been declining over the last five-year periods (2017-2021), coincide increase in its exports to the world market (Figure 7). Trend line analysis for the India's export to the world explain the variation in data, the R^2 value is 0.5824 it means data is significant and explaining 58 per cent of the variables and rest of the part explained by other variables. In case of India's export to the EU R^2 value is very less 0.2424 it means the data is not explaining the variables significantly, only 24 per cent . It shows that in last 10 year India's export to the EU is not significant due to many factors that's why export going to decline.
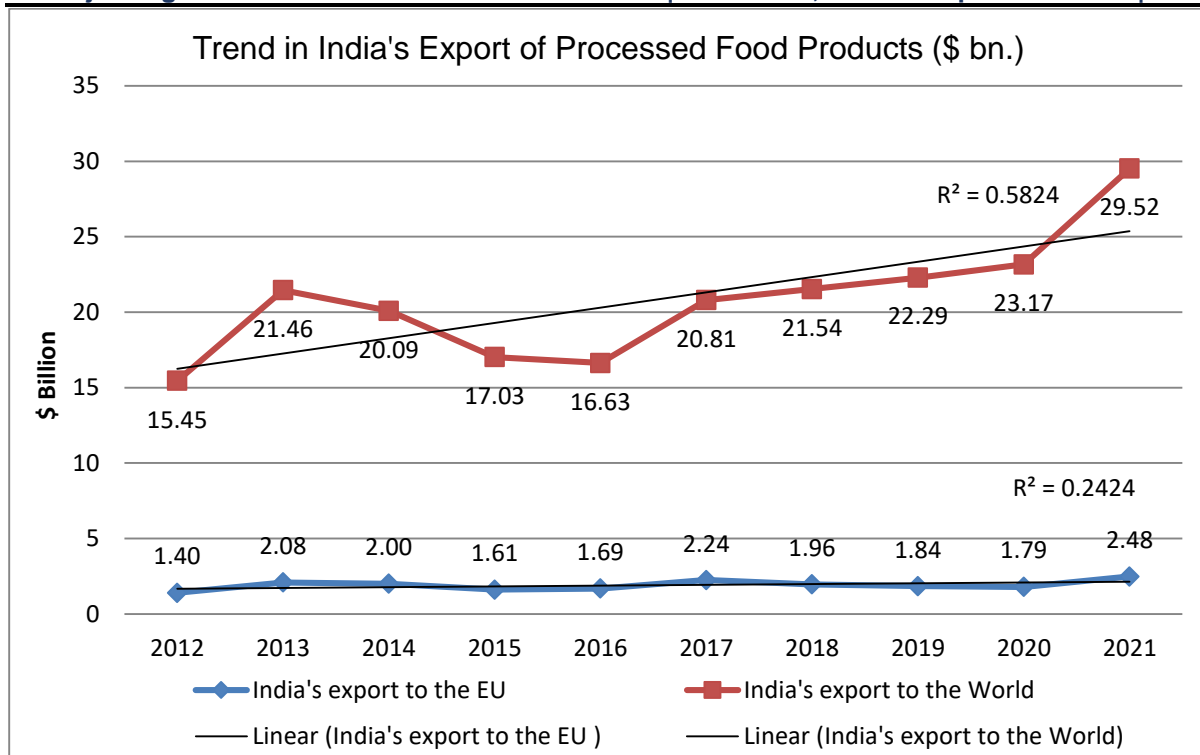
Figure 7: Trend in India's export of processed food products to the EU and the World ($ bn.)

Table 6 clearly shows that India's share in EU's total import has been continuously declining since 2017, and it has not been able to breach even one per cent mark over the last five years. In line with this, EU's share in India's total exports also reflect a declining trend, with 2017 being the peak.

Table 6: India's Share of Processed Food Export in per cent

	2017	2018	2019	2020	2021
India's share in EU (27) imports	0.79	0.65	0.63	0.60	0.71
EU (27) share in India's exports	10.78	9.08	8.27	7.73	8.40

Source: ITC Trade Map, 2021

India's declining trend in export of processed food into the EU's market could be because of Indian products facing high tariff rates in the EU's market, making these products uncompetitive. Data reveal that there are few processed food products, which attract more than hundred percent tariffs in the EU. These include Whey and modified whey, whether or not concentrated or containing added sugar or other sweetening (164.4 percent), and Mushrooms, prepared or preserved, not in vinegar (145 percent). In addition, the EU also imposes high equivalent ad valorem tariffs on Indian processed food products. Such EU's equivalent ad valorem tax tariffs imposed on Indian products are as high as 29 per cent (Table 7).

Table 7: List of Indian Processed Food Products Facing Highest Tariff in EU Market

HS Code	Products Details	Equivalent ad valorem tariff faced by India in EU (%)
04	Dairy produce, birds' eggs, natural honey, edible products of animal origin, not elsewhere ...	29
17	Sugars and sugar confectionery	29
02	Meat and edible meat offal	28
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	24
11	Products of the milling industry, malt, starches, inulin, wheat gluten	19
20	Preparations of vegetables, fruit, nuts or other parts of plants	19
07	Edible vegetables and certain roots and tubers	12
10	Cereals	12

Source: ITC Trade Map, 2021(Researchers own compilation)

Other possible reason for India's declining exports to EU could be signing of free trade agreements by the EU with India's competing partners in these products' segment, and resulting concessions granted to them. In 2019, the EU applied 44 trade agreements with 76 partners; trade with these partners amounted to 33 per cent of EU external trade (34 per cent of total exports and 33 per cent of total imports). Lately in August 2020, the EU–Vietnam Free Trade Agreement (EVFTA) has also come into force. These trade agreements may also have adverse impact on potential of Indian processed food market in the EU. Other issues such as non-tariff measures, including as food additive, pesticides maximum residue limit (MRL), labelling and packaging, and regulatory standards raised may also be affecting exports from India.

V. CONCLUSION

Global export of processed food product is growing by 21 per cent in last 5 years from 2017 to 2021 and reached USD 1028.43 billion. Highest growth is seen in Indonesia followed by Canada and India. In top exporting and Importing countries the EU countries are dominating out of top 10 countries 6 countries from the EU and India found at 11th rank in Export of processed food products with 2.4 to 2.9 percent share of total export. Greatest potential to export processed food & animal feed to the World are United States, Germany and Netherlands. Untapped potential is the potential where India can capture the market by increasing processing capacity of the food products. USA has USD 31 billion untapped market followed by Germany and Netherland. India itself has USD 5 billion untapped processed food market and at 17th position in export market. In India, Gujarat is leading state consistently in last five years followed by Maharashtra, Uttar Pradesh. The European Union is one of the most important markets for export of India's food processing industries. It accounts on an average 10.84per cent of Indian exports of processed food and was valued at nearly three billion dollars, out of total exports of USD 29.52 billion in 2021. India's share in EU's total import has been continuously declining since 2017, and it has not been able to breach even one per cent mark over the last five years. The EU–Vietnam Free Trade Agreement

(EVFTA) has also come into force. These trade agreements may also have adverse impact on potential of Indian processed food market in the EU. Other issues such as high tariff rates and non-tariff measures, including as food additive, pesticides maximum residue limit (MRL), labelling and packaging, and regulatory standards raised may also be affecting exports from India. There are huge opportunities for Indian exporters in processed food sector in the EU market. Out of the total import demand of $493 billion in 2020, while nearly two-third is internally traded (over $329 billion), the import demand of the EU's member states, beyond intra-regional trade, is estimated to be more than $160 billion per annum, as reflected by the last three-year from 2017 to 2021.

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