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INDIA'S TRADE IN PROCESSED FOOD PRODUCTS - EMERGING TRENDS AND CHALLENGES

Sibin Jerry Thomas[1], Malini L Tantri[2]

Abstract

This paper critically examines the dynamics of India's trade participation in processed foods. The analysis, based on descriptive statistics using the UN COMTRADE database for 2000-2020, indicates that trade in FPI is largely concentrated in developing markets. India seems to be losing its competitiveness in processed food exports. Besides this, the exports from the sector are mainly of products whose global demand is declining questioning the sustainability of exports. Thereby, the study highlights the need for a very product-specific approach to boost processed food exports from India in the pursuit of doubling farmers' income.

Keywords: Trade participation, Trade in processed food, *Processed food exports, Sustainability of export, India*

Introduction

The food processing industry in India is identified as a key sector in the Agriculture Export Policy- 2018 (AEP) for the doubling of farmers' income through increased export of high-value-added products from the industry. The food processing industry contributed 10.54 per cent of gross value-added in the manufacturing sector in 2020-21 (Government of India, 2022) and the industry has been on a growth path with 9.58 percent annual average growth in the period 2015-2020 (National Account Statistics, CSO). The strong raw material base, geographical proximity to several food-importing countries and increased global demand for processed food mean that the potential for the Indian processed food industry to gain from exports is high. This increased export from the sector is expected to result in higher income and create more employment opportunities in the country as envisioned in the AEP 2018.

The industry witnessed rapid export growth in the early 1990s following trade liberalisation (Mehta and George, 2003) compared to the 1980s. In terms of the overall export performance of the food processing industry, Majumdar (2013) found that the food processing industry exports had been growing faster than agricultural exports in the period 2001 to 2010 indicating a shift from traditional agricultural exports to high value-added exports or processed food exports.

However, following the WTO agreements exports from the industry could not reach their potential primarily due to the incidence of Sanitary and Phytosanitary (SPS) regulations impacting Indian processed food exports (particularly highly-processed food products) by constraining market access in developed countries (Mehta and George, 2003). Sectoral and bilateral studies on the effect of trade liberalisation and the subsequent application of non-tariff barriers (NTBs) in the form of SPS

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regulations, certificate requirements, etc. on Indian food exports conclude that the NTBs have largely made trade restrictive or unstable for Indian exporters of food products due to the stringent standard requirements (Mehta, 2005; Jayasekhar & Kumar, 2010; Deepika, 2017; Geetha *et al*, 2020; Renjini *et al*, 2021).

India also lost comparative advantage in several commodities in the post-reform period, particularly to Southeast Asian countries (Shinoj and Mathur, 2008). Several other studies have also looked at the trade performance of Indian agricultural products in terms of comparative advantage and have found that India's comparative advantage is only in a select few products (Jain and Kannan, 2021; Ansari and Khan, 2015; Ashish and Kannan; 2015; Majumdar, 2013).

The food trade in India has also been largely affected by the trade policies adopted by the country. The import of certain products is subject to license requirements and in some cases such as meat imports SPS permits are to be obtained. India's trade policy has also witnessed export prohibitions, export quotas, export restrictions and minimum export prices in recent decades (OECD, 2018). The unpredictable and changing rules for import and export of food products create hindrances to the growth of the food trade in India. The nature of trade policy has been driven by short-term objectives and domestic supply considerations without a medium and long-term plan (OECD, 2018).The EXIM Report (2017) and the KPMG Report (2021) highlight the challenges faced by the food processing industry in terms of its trade participation and also lack adequate infrastructure, including cold chain facilities, packaging centres, modernised abattoirs, and value-added centres. The government has however, taken corrective measures to overcome these deficiencies in recent years and also to boost investment into the sector (GOI, 2020-21; 2019-20; 2010-11; 2008-09) with the implementation of the Pradhan Mantri Kisan Sampada Yojana (PMKSY), production-linked incentive scheme and various fiscal measures.

The existing literature on the FPI has largely focused on the industry's trade participation in terms of its comparative advantage and challenges faced by the industry. These studies, however, are mostly limited to certain sectors and recent literature on the trade performance from competitiveness and sustainability perspective are lacking. In this context, the study intends to analyse the trends in the processed food trade of the country as well as the changing global scenario in the processed food trade to understand the dynamics of the trade. This will provide insights into the potential for the Indian food processing industry as well as the shortfalls of the sector in gaining dominance in the food trade, the identification of which will help in the formulation of appropriate actions and policies by the stakeholders.

The novelty of the present study is as follows: (a) analysing trade in terms of destination markets, the bilateral comparative advantage of sub-sectors in export markets and sustainability of trade in terms of export market addressing the gaps in the literature; (b) The analysis differs in the definition adopted by the processed food industry, with the study considering the definition used by Kohpaiboon (2006) and Jongwanich (2009) and extending it to include the manufacture of beverages and tobacco sub-sectors to match the Ministry of Food Processing Industry's (MoFPI) sector classification; (c) The study explored whether there has been a shift in the export destinations for Indian food exports as seen for other developing countries post the WTO agreements. It is important to

understand if a shift has occurred towards developing markets as this is an indication of the inadequacies of the Indian industry which makes developed markets difficult to access; (d) The study investigates the issue of export sustainability to understand if India's export of processed food is reaching markets with a growing demand for these products. The result will help understand the long-term sustainability of trade from the sector.

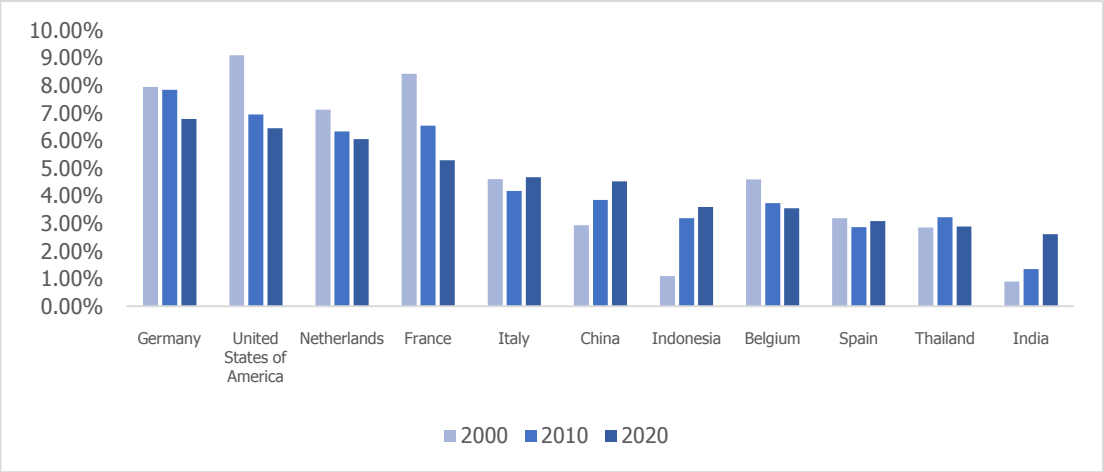
Methodology

The study uses the UN COMTRADE Database (based on the definition of the food processing industry in Kohpaiboon (2006), Jongwanich (2009) and MoFPI) for product category-wise trade data, MoFPI Databank provides data for domestic performance, World Integrated Trade Solutions (WITS) database and ITC Trademap is used for obtaining aggregate trade values. The study covers the period since Indian agriculture was opened up for trade ie.2000 to 2020. We rely mostly on descriptive statistics to understand the changing dynamics of trade from the sector. The study also employs versions of revealed comparative advantage indices to understand changing trends in comparative advantage at the product level in export destinations. The paper is organised as follows: The section following this provides empirical evidence on the position, growth, composition, and direction of processed food trade from India. This is followed by examining the changing competitiveness of the industry and the last section summarises the paper.

India in Global Processed Food Trade

Global exports of processed food and agro-based products were estimated at US$892.39 billion in 2020 (ITC Trademap). The exports from the sector have been growing at an annual average growth rate (AAGR) of 3.75 per cent during the last decade (2011- 2020) while the total exports of all products worldwide grew at an AAGR of 1.88 per cent, indicating that trade in food products have been on the rise. Germany was the leading exporter in the product group with US$60.21 billion in export value accounting for 6.75 per cent of global exports in 2020 (Figure 1). The USA is the second largest exporter with an export value of US$57.30 billion (6.42 per cent in global exports). India held the thirteenth position with US$23.17 export value which accounts for 2.59 per cent of global exports of processed food an increase from 21st rank and 1.36 per cent share in global food exports in 2010 (Figure 1).

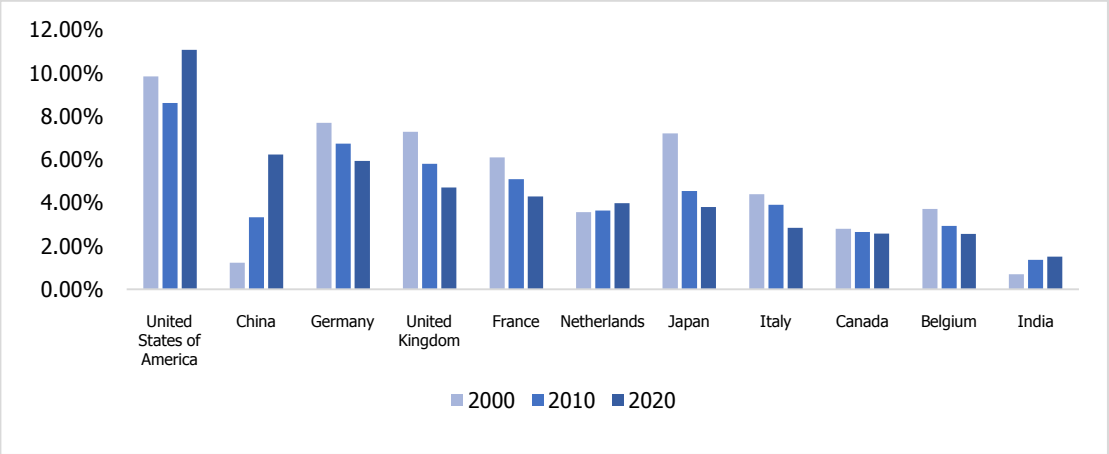
Figure 1: Major Exporters of Processed Food and Agro-Based Products (% share)



Source: ITC Trademap

Regarding imports, the USA is the top importing country in the world accounting for 9.55 per cent of global food imports in 2020 (Figure 2). The USA is followed by China and Germany as the other top food-importing countries. India ranks 14th in global food imports in 2020 with a share of 1.30 per cent. In 2010, India ranked 17th in global food imports with a 1.35 per cent share in global import of food products (ITC Trademap). Concerning import of food products, India's share remained stable in the period.

Figure 2: Top Importing Countries of Food and Agro-Based Products (% share)

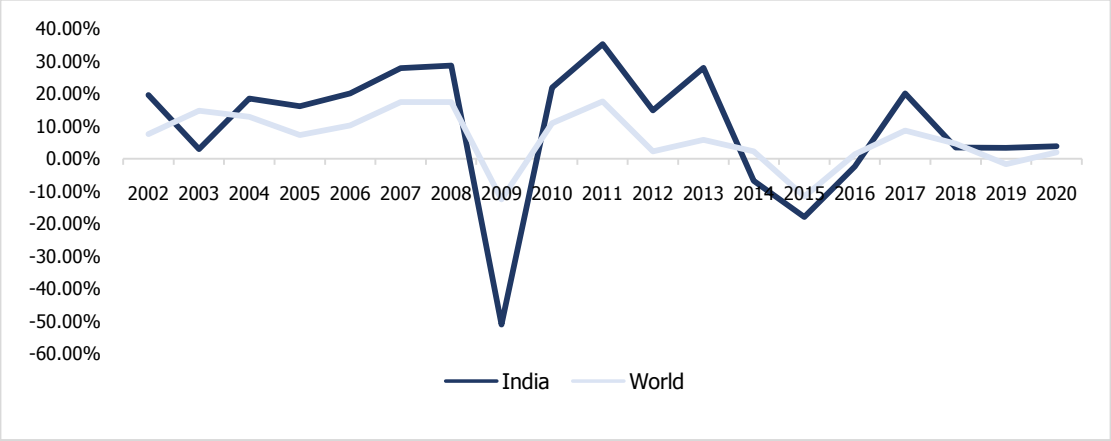


Source: ITC Trademap

The Indian food sector was a net food importer until it became self-sufficient in most food items by the 1980s (Jain and Kannan, 2021), which opened up the scope for the export of food products from India. The policy framework at the time, however, was largely restrictive for trade in food products. Following the liberalisation policy of the 1990s and the subsequent removal or dilution of export controls, quantitative restrictions, and export duties along with the signing of WTO agreements in 1995, the Indian economy was opened up for external trade. However, the agriculture sector largely

remained outside the purview of this policy change. It was only since 2000 that agriculture was also opened up for external trade, and the sector witnessed a rapid transformation in the period following which India's share in global agriculture exports rose from 1 per cent in the 2000s to 2.15 percent in 2019 (WTO, 2019; FAIDA Report, 2013). According to Ali *et al* (2007) and FAIDA Report (2013), agriculture in India saw shifts in production patterns with a shift from basic food grains to high value-added products. There was also a rise in productivity in the sector with an increase in area under cultivation and the movement of labour from farm to non-farm activities. The report also indicates that the rising population, urbanisation, increased income and changing consumption patterns led to increased demand for processed food products in India. The increased production of food crops and the rising demand for high-value-added food provide a basis for the development of the Indian food processing industry by taking advantage of the scale of production.

Figure 3: Growth of processed food and agro-based products export- World and India (% share)



Source: ITC Trade map

In terms of food exports as well, India has increased its share in the world food products exports over the last decade, from a 1.70 per cent share of global exports in 2011 to a 2.60 per cent share in exports from the sector in 2020 (Figure 3) and the process moving up from being the world's nineteenth largest exporter of processed foods to being the thirteenth largest exporter in the world (ITC Trademap). The global recession of 2008 caused exports to fall across sectors and countries. This was reflected in the case of processed food as well with world exports of processed food growing negatively and in the case of India as well, exports from the sector grew negatively in 2009. Following the recession, trade rebounded strongly in 2010 and 2011, however, international trade experienced a slump post-2011 till 2014 (termed as anaemic growth) which was followed by a period of downturn in 2015 and 2016, followed by a rebound in 2017 but growth rates did not return to previous high rates (UNCTAD, 2019). This trend in international trade was mimicked by the Indian food processing export sector as well. In terms of growth of exports, the sector grew at a compound rate of 10.39 per cent from 2000 to 2020. The growth in exports can be viewed as a consequence of the opening up of trade for food products post-2000 and the various policies taken by the government to boost exports from the sector.

Composition and Direction of Trade in Food Products

Looking at the export composition from India, the export of agriculture products from India rose from USD5835.75 million in 2000 to USD36266.42 million in 2020 (Table 1). However, the share of agriculture exports to total exports slightly fell from 13.78 per cent in 2000 to 13.16 per cent in 2020. The fall in the share of agriculture exports may be partially attributed to the substantial growth of the manufacturing sector or non-agriculture exports. During the same period, processed food exports grew from USD2816.53 million to USD16918.46 million (2000- 2020) (Table 1). The share of processed food exports in total agricultural exports has remained high with a 48.26 per cent share in 2000 and a 46.33 per cent share in 2020. The slight decline in per cent share during the period may be attributed to the high export growth of food grains from the country, especially rice exports which are categorised under agriculture products and not under processed foods. However, the overall processed food exports continue to outperform other traditional agriculture exports such as rice and wheat whose respective share in agriculture exports from India in 2020 were 22 per cent and 3.05 per cent as against 46.33 per cent share for processed food exports (UN COMTRADE).

Table 1: India's Export Composition (2000-2020)

	2000	2010	2020
Value of exports (Million US Dollars)			
Total exports	42358.10	220408.50	275488.74
Non-agriculture	36522.34	201201.04	239222.33
Agriculture products	5835.75	19207.46	36266.42
Processed foods	2816.53	8694.45	16801.25
Comparative proportion (per cent)			
Share of non-agricultural sector in total exports	86.22%	91.29%	86.84%
Share of agricultural sector in total exports	13.78%	8.71%	13.16%
Share of processed food in agricultural exports	48.26%	45.27%	46.33%

Source: Author's calculation based on UN COMTRADE database

Composition of Trade

India's processed food exports in 2020was dominated by the export of fish, meat, and sugar products (Table 2). Fish products were the top exports from Indiabetween2000 and2020 with a share of 34.20 per cent of total processed food exports in 2020. The export value of fish products increased from US$ 1376.9 million in 2000 to US$ 5745.7 million in 2020 growing at a compound rate of 7.40 per cent. The product category witnessed a high growth rate of exports post-2000 (Figure 4) which may be attributed to the infrastructure development undertaken in the segment (Fayaz and Ahmed, 2020) and the increased capital invested in the product segment (Annual Survey of Industries, 2018).The fish products have however, lost their share in total exports from the sector over the last two decades which may be attributed to the high rate of rejections faced by products from this segment (Henson and Olale, 2010). However, these products have remained an important export item for India throughout the last three decades with a significant export share.

Table 2: Composition of Indian Processed Food Exports (in Million US Dollars)

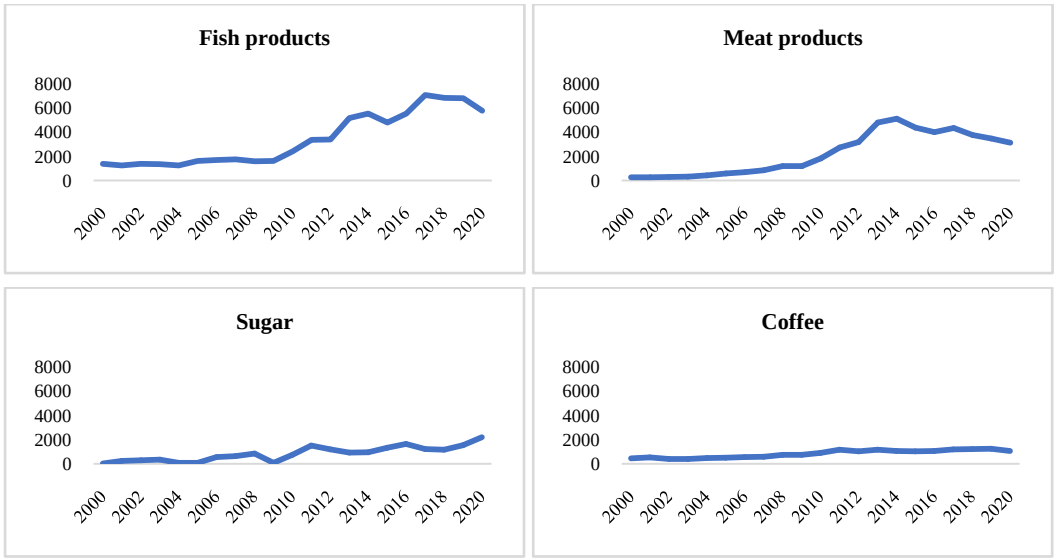
Products	2000	2010	2020
Fish products	1376.9 (48.89)	2404.84 (27.66)	5745.7 (34.20)
Meat products	269.7 (9.58)	1819.47 (20.93)	3108.6(18.50)
Sugar preparations and honey	29.2 (1.04)	748.71 (8.61)	2186.3 (13.01)
Coffee extracts, instant tea, cocoa-based products	450.8 (16.01)	909.32 (10.46)	1049.9 (6.25)
Tobacco products	177.3 (6.30)	878.69 (10.11)	847.7 (5.05)
Processed vegetable oils	193.8 (6.88)	578.42 (6.65)	805.2 (4.79)
Other edible products and preparations	52.9 (1.88)	193.67 (2.23)	708.1 (4.21)
Flours and cereals	26.6 (0.95)	195.02 (2.24)	607.6 (3.62)
Vegetables	57.9 (2.06)	263.62 (3.03)	519.1 (3.09)
Dairy products	52.7 (1.87)	361.10(4.15)	458.9 (2.73)
Fruits, Fresh or Dried	82.5 (2.93)	107.66 (1.24)	375.8 (2.24)
Beverages	29.4 (1.04)	167.27 (1.92)	332.1 (1.98)
Eggs and egg products	16.5 (0.58)	66.65 (0.77)	56.2 (0.33)

Note: Figures in parenthesis are per cent share of processed food exports.

Source: Calculated using UN COMTRADE database.

Meat products, the second largest export item for the latest year, have seen a rise in export value from US$ 269.7 million in 1990 to US$ 3108.6 million in 2020, with an increase in export share from 9.58 per cent to 18.50 per cent during the period and growing at a rate of 13 per cent. Meat exports have been increasing post-2000, however, in recent periods the exports have declined after reaching peak exports in 2014 (Figure 4). The fall in meat exports is due to the increased exports from other major meat exporting countries (USA, Brazil, EU, Canada, Thailand and New Zealand) coupled with the measures taken by the state to intervene in the meat market with restrictions on cattle sale for slaughter and also the stringent SPS regulations (Pozdniakova *et al*, 2019).

Figure 4: Trend in Export of Major Processed Food Products from India



Source: UN COMTRADE database

Likewise, the export of sugar preparations and honey has tremendously increased from an export share of 1.04 per cent to 8.61 per cent in 2000 and 13.01 per cent in the period 2000 to 2020 with export value rising from US$ 29.2 million in 2000 to US$ 2186.3 million in 2020 making it the third-largest processed food export sector in the country growing at a compound rate of 24.08 per cent making it the faster-growing product category in the industry. The exports from the product category, however, follow an uneven trend with a sharp rise and fall in exports over the years (Figure 4) due to the high volatility of sugar production in India because of policy-induced cycles and the high gestation period for production (Landes, 2010). In the case of coffee extracts and instant tea, it is observed that the share of the sector in processed food exports has declined in the last decades, particularly post-2010 with export values almost stagnating. This changing pattern can be viewed in light of the India-ASEAN free trade agreement which came into effect in 2010 and had negative effects on the plantation sector in India (Pal & Dasgupta, 2009). Other products such as dairy, flours, cereals, vegetables, fruits and vegetable oils have expanded their share in exports during the period, however, their shares have remained low compared to the top three ranked products (fish, meat, and sugar preparations) with an export share of less than 10 per cent of the total processed food exports from the country (Table 2).

India's import of food product is dominated by processed vegetable oil making up about half of (49.19 per cent) India's total processed food imports in 2020 (Table 3).Much of it is owing to the high domestic demand coupled with the low production of oilseeds due to policy measures which did not favour the production of oilseeds rather the policies supported the production of crops that competed with oilseeds (Dohlman *et al*, 2003).

The import of processed vegetable oil has grown at a compound rate of 12.12 per cent from 2000 to 2020 with import value rising from US$ 37.09 million in 2000 to US$ 548.19 million in 2020. Import of processed vegetable oil has significantly increased following the period of FDI liberalisation with imports increasing tremendously toward the latter period of the 2000s (Figure 5).

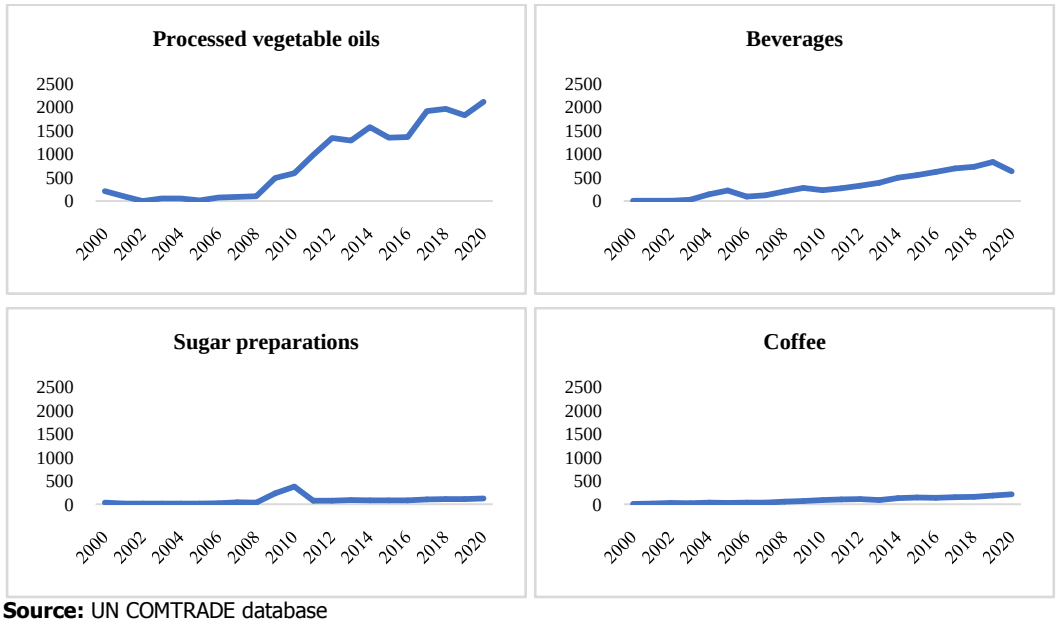
Table 3: Composition of Indian Processed Food Imports (in Million US Dollars)

	2000	**2010**	**2020**
Processed vegetable oils	214.53 (56.04)	597.44 (33.75)	2116.02 (49.19)
Beverages	9.85 (2.57)	232.27 (13.12)	638.03 (14.83)
Sugar preparations and honey	37.09 (9.69)	379.16 (21.42)	548.19 (12.74)
Coffee extracts, instant tea, cocoa-based products	11.69 (3.05)	90.08 (5.09)	214.52 (4.99)
Other edible products and preparations	53.26 (13.91)	97.68 (5.52)	210.76 (4.90)
Fish products	5.63 (1.47)	66.56 (3.76)	197.53 (4.59)
Dairy products	16.11 (4.21)	183.92 (10.39)	126.35 (2.94)
Flours and cereals	21.46 (5.61)	32.76 (1.85)	99.52 (2.31)
Fruits, Fresh or Dried	8.09 (2.11)	41.92 (2.37)	66.84 (1.55)
Tobacco products	4.25 (1.11)	26.11 (1.48)	45.99 (1.07)
Vegetables	0.65 (0.17)	17.64 (1.00)	31.86 (0.74)
Meat products	0.17 (0.05)	3.57 (0.20)	4.43 (0.10)
Eggs and egg products	0.049 (0.01)	1.07 (0.06)	1.23 (0.03)

Note: Figures in parenthesis are percentage share of processed food imports.

Source: Calculated using UN COMTRADE database

Figure 5: Trend in Import of Major Processed Food Products from India



Source: UN COMTRADE database

The second largest import item is manufactured beverages, which make up 14.83 per cent of total imports in the sector with imports growing at a compound rate of 23.19 per cent from 2000 to 2020. Sugar preparations and honey is the third-largest import product with a share of 12.74 percent of total processed food imports growing at a compound rate of 14.41 per cent in the period. From Figure 5, it can be observed that imports from this segment have been growing gradually over the years. However, the imports rose sharply in 2010-11 due to production shortages in the domestic market forcing the country to import to meet its requirements (Landes, 2010).The period 2000 to 2020 witnessed increased import of processed food items by India with all product categories registering a high compound growth rate of imports (all product categories except flours and cereals and other edible products and preparations growing at CAGR of above 10 per cent) and overall import of the industry grew at a rate of 12.86 per cent. This is in line with Santeramo (2019) explaining that developing countries have increased their trade participation in food trade post the ratification of WTO agreements with increased imports, also the shift in demand patterns to high-value agriculture products (Ali *et al*, 2007) and the rising GVC integration (OECD, 2020)

Direction of Trade

The top export destination for food products from India is the USA accounting for a significant share of 15.50 per cent of total exports in 2020 followed by United Arab Emirates (5.31 per cent) and Iran (4.99 per cent) (see Appendix2).Region-wise, East Asia and Pacific region and Middle East and North Africa have emerged as the top destinations for Indian processed food exports with 19.37 per cent and 19.14 per cent of exports going to the regions, respectively.

In terms of import markets for processed food, India imports the largest share from Brazil (see Appendix 3)which accounted for a 22.95 per cent share of imports, followed by the USA (14.68 per cent) and Indonesia (5.96 per cent).Concerning region-wise imports in 2020, we can see a shift in the

import market from North and South America and the Caribbean regions to East Asia and Pacific which have become key markets for India to import processed food accounting for 26.05 per cent of India's imports. Thus, over the period the trade from new markets has emerged as key destinations, particularly from the global South.

The export of processed food from India in 2020 has been to both developed and developing countries (top three markets for exports and imports of processed food for India at the disaggregate-product level is shown in Appendix A4 and A5).In 2020, India's top export product is fish, the top destination for Indian processed fish exports is the USA which accounts for 40.4 per cent of the total exports from the product category followed by China (15.5 per cent) and Japan (6.7 per cent) (Appendix A4). In 2010 also, these markets were the top-three destinations for the products from this segment. In 2000 however, Japan was the largest importer of fish products from India accounting for 37.6 per cent of fish exports from India followed by the USA and China. Another important export item from the industry is meat products and Indian meat exports majorly go to Hong Kong (25 per cent), Vietnam (14.2 per cent) and Malaysia (12.3 per cent). India's top meat export destinations have consistently been regional partners, with the top three destinations in 2000, 2010, and 2020 all being developing Asian countries. Another important export product category in the processed food industry is sugar preparations and honey and these products are being imported majorly by Sudan (16.5 per cent), Iran (9.3 per cent) and Sri Lanka (8.7 per cent). The major three export destinations, however, make up only 34.5 per cent of total sugar products exports from India meaning the exports from this sector are not dominantly going to a few countries. In 2000 and 2010 however, most of India's sugar exports had been to Pakistan. The other important export items for the Indian food processing industry, processed vegetables and processed fruit exports are largely being imported by developed economies with the USA being a major market for these products.

The top export destinations for most products are developing nations except for flours and cereals, vegetables, fruits, vegetable oils and fish products. In these export items, vegetables, fruits, flours are products which undergo a low level of processing in India (Ghosh, 2014) indicating that India's exports to developed economies are mostly products which undergo primary processing, and these products fetch lower margins as compared to highly processed value-added products. The dominance of Indian processed food exports to developing nations can be attributed to the restrictive non-tariff barriers enforced by developed nations as discussed in the previous section and also due to the poor quality of Indian food exports which may be attributed to systemic problems in the country (Henson and Ulale, 2010).

Regarding imports, India's top import item is processed vegetable oils as observed in previous section. India imports 74.2 per cent of its processed vegetable oil from Ukraine followed by 16.7 per cent from Russia and 6.1 per cent from Argentina (Appendix A5). In 2000 however, Argentina was the major import source for India in this product category making up 88 per cent of imports in the year followed by the USA (4.8 per cent) and Ukraine (1.9 per cent). Over the years, Ukraine, Argentina, and Russia have been the key markets for India's largest import processed food item. The second highest import item is manufactured beverages and India imports beverages majorly from the USA (48.1% of imports), followed by the UK (20%) and Nepal (4.4%). Another key import item, sugar preparations

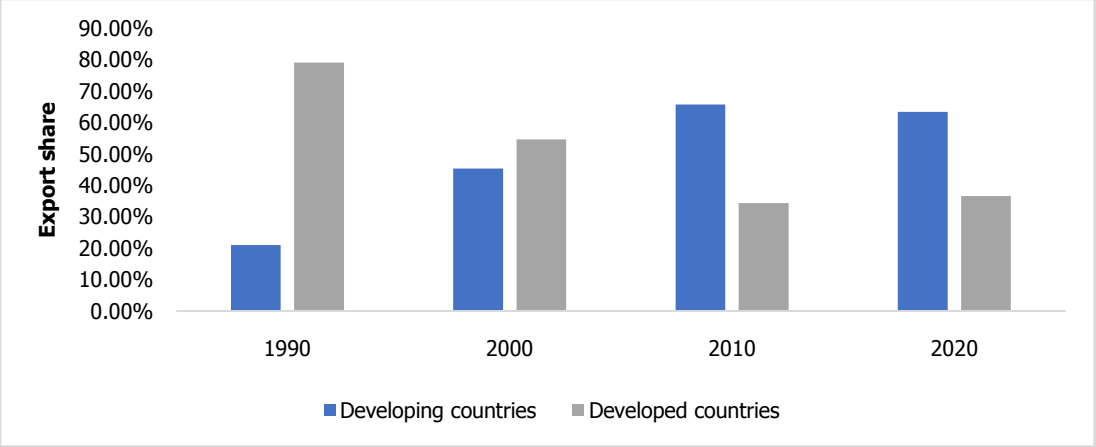
and honey, in 2000was majorly imported from Brazil which accounted for 65 per cent of imports. However, by2020 the import market got spread across numerous countries with Germany, Netherlands and the UK being the top-three import markets, together comprising only 13.3 per cent of total imports implying India's import in this segment is sourced from numerous destinations. Over the period India reduced its dependence on Brazil for imports in this segment. Overall, in terms of India's export destination, the USA has grown to be a key market for India in 2020 as against 2000 and looking at the import markets, we can observe the emergence of China as an important market for food product imports for India.

The previous section highlighted the changes in India's food product trade, with increased trade with Asian economies and China becoming a key import market. To understand whether such a change in trade post-2000 has followed a specific path for the Indian processed food trade, we examine export and import destinations by developed and developed countries. Figures 6 and 7 show that until 2000, India's processed food trade was dominated by developed economies. However, post-2000, trade shifted to developing economies, which now account for 63.43% of exports and 74.6% of imports, up from 20.95% and 8.9% in 1990.

UN Comtrade data reveals that exports of fruits, processed vegetable oils, coffee extracts, tobacco products, and other edibles shifted from developed to developing nations post-2000. Beverages, fish products, and sugar preparations also saw an increased share of exports to developing countries. Similarly, imports of fish products, flours and cereals, fruits, processed vegetable oils, and tobacco products shifted towards developing economies.

This shift can be attributed to stringent SPS regulations and non-tariff barriers in developed markets, which constrained access for Indian food products, leading exporters to target less stringent developing markets (Mehta and George, 2003; Ferrero *et al*, 2015; Santeramo, 2019). Consequently, Indian food trade has largely focused on developing economies, particularly regional partners (Figures 4 and 5).

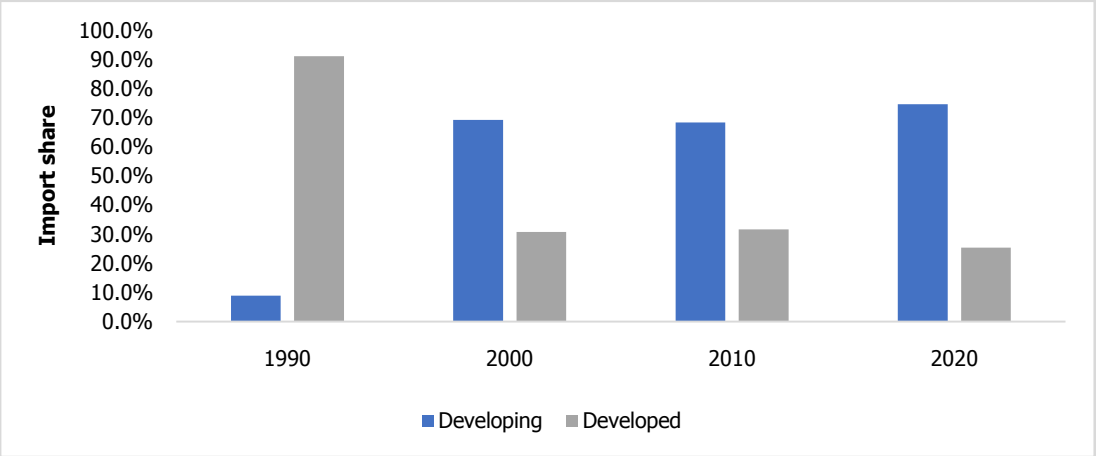
Figure 6: Export Destinations of Indian Processed Food Exports (Developed vs Developing Countries)



Note: Definition of developed and developing countries by United Nations is used.

Source: Calculated using UN COMTRADE database

Figure 7: Import Destinations of Indian Processed Food Exports (Developed vs Developing Countries)



Note: Definition of developed and developing countries by United Nations is used.

Source: Calculated using UN COMTRADE database

Comparative Advantage and Competitiveness of Indian Processed Food Exports

To understand the underlying reasons for India's trade performance in the industry, the change in competitiveness of the Indian processed food exports in the global market post-2000 (when the sector was opened up for trade) and the impact of various measures taken by the government to enhance trade and improve competitiveness of the industry, we need to look at the change in comparative advantage. This analysis is done at the product level and also at the country level (export markets).

To measure the comparative advantage of a product, the most common measure is the revealed comparative advantage (RCA) index (Balassa, 1965). It is the ratio of the product j's share in the country k's export to the share in world exports of the product j.

$$RCA = \frac{X_j^k / X^k}{X_j / X} \quad \text{..... (1)}$$

Where, X_j^k is the export of product *j*, by country *k* and X^k is the total value of exports of country *k*. X_j is the value of total world exports of product *j*, X is the total world exports of all commodities. A country is said to have a comparative advantage in the export of a product if the RCA value is above unity. RCA indices can be calculated for products or sectors at any level of disaggregation. The changes in RCA can be due to economic and structural factors, changes in world demand and trade specialisation. The index has the advantage that it considers the intrinsic advantages of a commodity and is also consistent with the changes in productivity and relative factor endowments. However, the index does not distinguish the improvements in factor endowments and the changes in trade policies by the country (Batra and Khan, 2005).

The RCA index of Balassa also suffers from an asymmetry problem as the index value ranges between zero and infinity. If the country is not specialised in a commodity, its value will lie between zero and one while if it has comparative advantage in the commodity the value ranges from one to infinity thereby creating an asymmetry. The index does not have an ordinal or cardinal property and

only conveys if a country has a comparative advantage in a sector. Despite the limitations, this index has been widely used to study changes in trading patterns (Shinoj and Mathur, 2008; Tanrrantanphong, 2020; Ashish and Kannan; 2015). To overcome the asymmetry problem of Balassa's RCA index, a new methodology was suggested by Dalum *et al* (1998) to modify the RCA index by the following formula to construct a new index 'revealed symmetric comparative advantage' (RSCA).

$$RSCA = (1-RCA)/(1+RCA) \quad (2)$$

The RSCA ranges between negative one and one thereby overcoming the skewness. A positive value implies a comparative advantage in the commodity and a negative value indicates a disadvantage in the export of a commodity. In the present study, we use the RSCA to look at the comparative advantage of Indian processed food exports. The results are given in Figure 8.

Meanwhile, to understand the comparative advantage a commodity or sector has in a particular country, we need to estimate the bilateral revealed comparative advantage (BRCA). Several authors have used different variations of BRCA (Pascha, 2002; Tandon, 2012; Phan and Jeong, 2012; Sharma and Bugalya 2013; Manzano, 2014; Colley; 2015). For the present study, we follow the BRCA index adopted by Pascha, 2002 and Tandon, 2012) which is:

$$BRCA^{k}_{ij} = [X^{k}_{ij}/X_{ik}]/[X^{w}_{ij}/X_{iw}] \quad (3)$$

where,

$BRCA^{k}_{ij}$ = The Bilateral revealed the comparative advantage of i^{th} country in the export of j^{th} industry to the k^{th} country.

X^{k}_{ij} = Exports of i^{th} country of j^{th}industry to the k^{th}country.

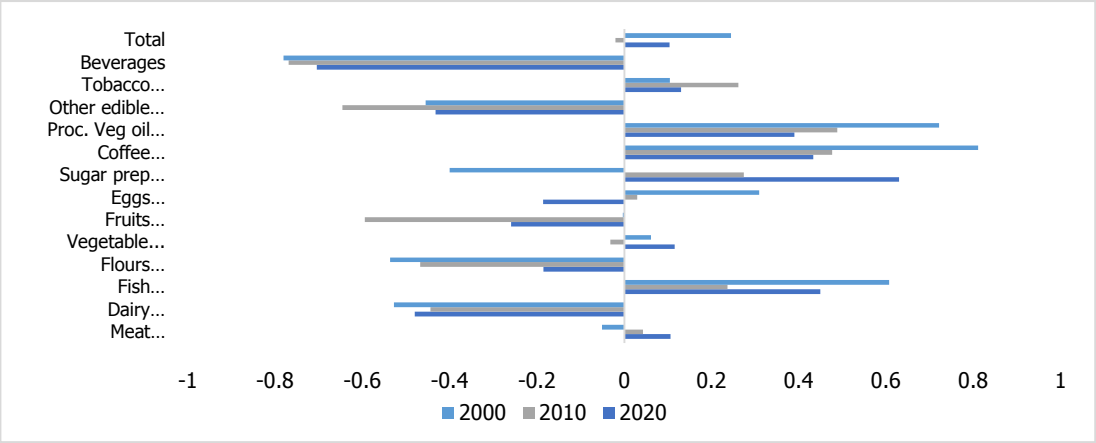
X_{ik} = Total exports of i^{th} country to the k^{th}country.

X^{w}_{ij} = Exports of i^{th} country of j^{th}industry to the world.

X_{iw} = Total exports of i^{th} country to the world.

It is to be noted that the existence of comparative advantage in the global market is not a sufficient condition for comparative advantage in the bilateral trade. Likewise, the existence of BRCA in a particular product does not imply comparative advantage globally as BRCA may be due to the existence of trade agreements or negotiations within the partner countries. Also, the BRCA index is independent of the size of the overall trade surplus or deficit situation (Pascha, 2002). The BRCA index calculated has been normalised to avoid extreme values following the procedure used to calculate the RSCA index. The BRCA estimated for India and its top export destinations is given in Figure 8.

Figure 8: India's RSCA in processed food exports



Source: Author's calculation using UNCOMTRADE Database

India has the highest comparative advantage in the export of sugar preparation and honey with the RSCA index of 0.63, improving from a position of comparative disadvantage in 2000 (-0.40).The top destinations for export from the sector are Sudan, Iran, and Sri Lanka. Looking at the bilateral comparative advantage, Indian sugar products have a significant comparative advantage in these countries. Sugar preparations and honey are also a major import item for India and the imports are largely to balance the supply and demand situation in the country (Jyothi, 2014). However, imports are much lower than exports from the product segment; India has a trade surplus in the sector at US$ 1638.11 million in 2020.

Another product category having a comparative advantage in the global food market for India is fish products (0.45 RSCA in 2020) which is also the major export product from India (34.2 per cent share in exports). India is the second-largest producer of fish in the world accounting for 7.56 per cent of global production in 2020 (Government of India, 2021). It is a major exporter of processed fish in the world with export earnings of US$ 5814.55 million in 2020. India's major export item from the sector is frozen shrimp and India is the leading exporter of the product globally (UNCOMTRADE, 2020). The major export destinations for India's fish products in 2020 are the USA (40.4 per cent share), China (15.5 per cent) and Japan (6.7 per cent) (Appendix A4). In all these top destinations, India has a bilateral advantage in trade (Table 4). The country has a substantial trade surplus in the sector with a surplus of US$ 5548.17 million in 2020. However, it can be observed from Figure 8 that India has lost the level of comparative advantage it had in 2000 in the export of processed fish (reducing from 0.61 to 0.45 RSCA), although it still has a competitive edge in the global market. This may beat tributed to the high number of export rejections faced by Indian exports from the segment, owing to the failure to meet certain quality requirements (Henson & Olale, 2010).

India also has a comparative advantage in the export of meat products, which is the second-highest export product category in the processed food industry. Indian meat exports have gained in terms of RSCA from 2000 to 2020 from improving -0.05 to 0.10 RSCA). In 2000, India did not enjoy a comparative advantage in meat exports, but it bettered its competitiveness in 2010. The better performance of meat exports can be attributed to the production of meat that follows the quality requirements of the World Organisation for Animal Health by enhancing the production standards of the

sector (Government of India, 2021). Indian meat export consists mainly of bovine meat which made up 89.92 per cent of meat exports in 2020 (UNCOMTRADE, 2020). India enjoys a bilateral comparative advantage in meat trade with all its top destinations, Hong Kong, Vietnam and Malaysia in 2020 (Table 4).

Table 4: India's BRCA with top-three destinations for all product groups in 2020

Products with improved comparative advantage									
Meat products	**BRCA**	**Flour and cereals**	**BRCA**	**Vegetables**	**BRCA**	**Sugar preparations..**	**BRCA**	**Tobacco products**	**BRCA**
Hong Kong	0.76	US	0.15	USA	0.17	Sudan	0.96	Belgium	0.83
Vietnam	0.80	UAE	0.12	Canada	0.91	Iran	0.84	UAE	0.34
Malaysia	0.69	UK	0.40	UK	0.54	Sri Lanka	0.76	Singapore	0.16
Products with weakened comparative advantage									
Fish products	**BRCA**	**Coffee extracts, instant tea…**	**BRCA**	**Fruits…**	**BRCA**	**Processed veg oils**	**BRCA**	**Egg and egg products**	**BRCA**
USA	0.39	Iran	0.88	USA	-0.10	Netherlands	0.69	Oman	0.94
China	0.39	USA	-0.19	Netherlands	0.72	France	0.74	Maldives	0.99
Japan	0.64	Russia	0.85	Saudi Arabia	0.61	USA	-0.27	Indonesia	0.77

Products with weakened comparative advantage		**Products with stable comparative advantage**			
Dairy products	**BRCA**	**Other edible products..**	**BRCA**	**Beverages**	**BRCA**
UAE	0.11	US	0.07	UAE	0.57
USA	-0.55	UAE	0.29	Singapore	0.49
Bhutan	0.91	Nepal	0.55	Ghana	0.94

Source: Author's calculation using UNCOMTRADE Databas

Coffee, tea and cocoa products are other key export segments for the Indian processed food industry. This sector had a relatively high comparative advantage in 2000, however, the sector has become worse off in terms of RSCA in the recent past with RSCA falling from 0.81 in 2000 to 0.43 in 2020 (Figure 8). The poor performance of this segment is largely attributed to the rising standard requirements, traceability, organic production, and other barriers (Deepika, 2015). The top destination for export from this sector is Iran, USA, and Russia. India has a bilateral comparative advantage over Iran and Russia in 2020, however, India has access to the USA despite having a comparative disadvantage.

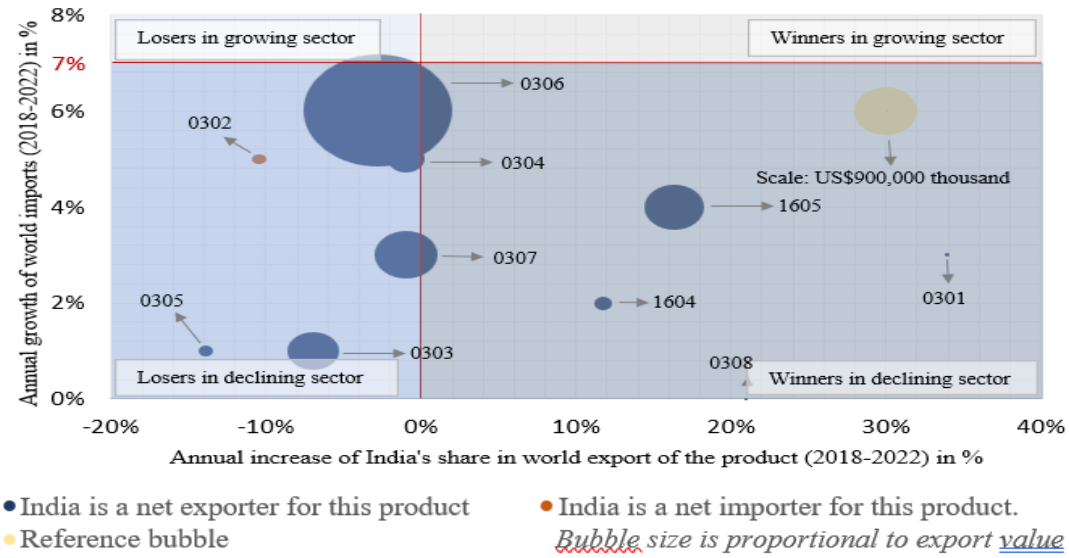
Also, the bilateral comparative advantage with the top export destinations, India enjoys a comparative advantage in all product segments with the top-three export destinations except with the USA in dairy products, fruits, coffee, instant tea…, and processed vegetable oils (Table 8). The purpose of this section is to bring debate and prelude to comparative advantage as a basis for international trade in food products.

The comparative advantage indices (RSCA) indicate that India's top export product categories consist of products in which the country enjoys a comparative advantage. However, in line with the new

trade theory of Paul Krugman, we can also observe that even in products where India is at a relative disadvantage in global trade, the country still has sizeable exports which implies intra-industry trade.

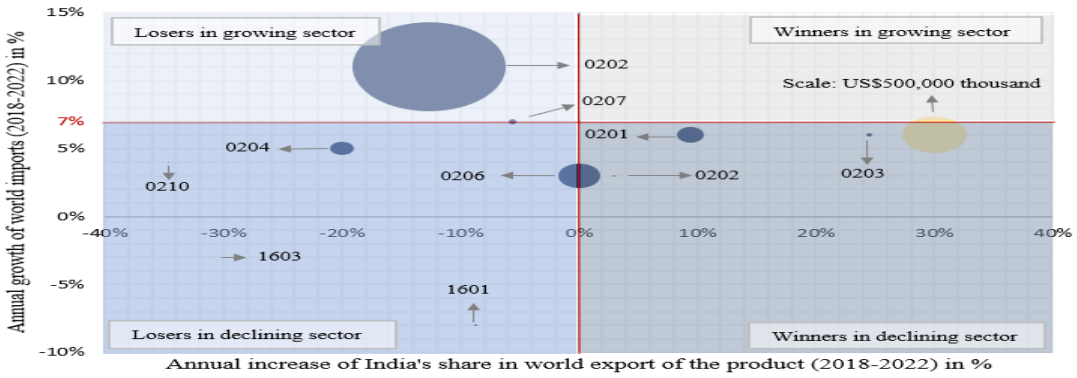
India is exporting processed food to a large number of countries. However, the nature of these export destinations has not been explored. We have tried to examine the competitiveness and sustainability of our exports to these markets by analysing whether the exports of these products are to growing markets or stagnated or declining markets. For this, we have looked at the export of four major products from the industry. The analysis looks at the growth in import demand for the product globally vis-à-vis the growth rate of India's export of the product. The products are classified as growing sectors and declining sectors. A product/sector falls under a growing sector if the global import of the product is growing at higher than 7 per cent over the period 2018-2022 and it falls under a declining sector otherwise. We further look at India's export growth rate in the product to identify if India is winning (positive export growth) or losing the market (negative export growth) of the product. This will give us information if India's export growth is in products whose global demand is increasing or whether India's export consists of goods whose global demand is decreasing. This provides an understanding of the sustainability of export growth in the long run. Also, we see if India is losing market in terms of exports of certain products.

Figure 9: World demand and Indian export growth: Fish products



Source: Compiled from ITC Trademap

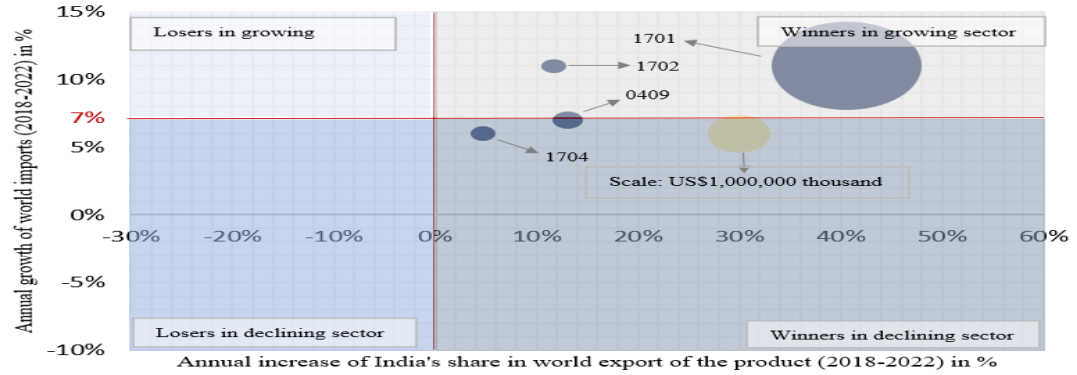
Figure 10: World Demand and Indian Export Growth: Meat Products



- India is a net exporter for this product
- Reference bubble
- India is a net importer for this product.
- *Bubble size is proportional to export value*

Source: Compiled from ITC Trademap

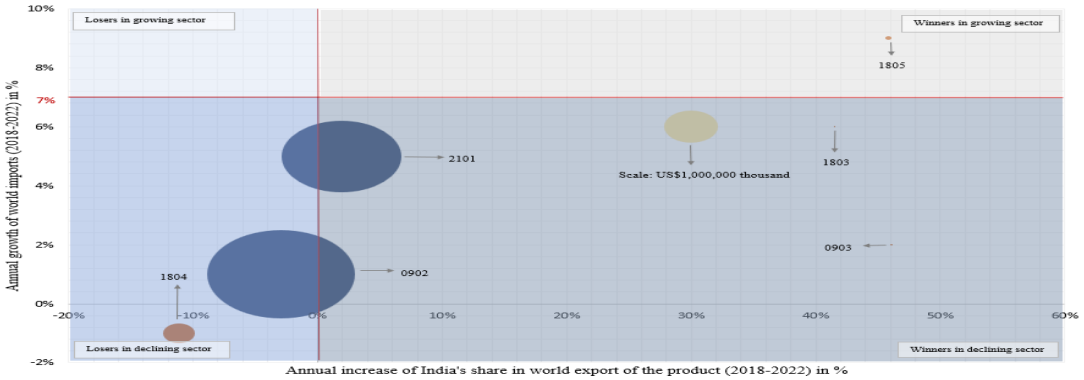
Figure 11: World Demand and Indian Export Growth: Sugar Preparations and Honey



- India is a net exporter for this product
- Reference bubble
- India is a net importer for this product.
- *Bubble size is proportional to export value*

Source: Compiled from ITC Trademap

Figure12: World Demand and Indian Export Growth: COFFEE, Instant Tea, Cocoa Products



- India is a net exporter for this product
- Reference bubble
- India is a net importer for this product.
- *Bubble size is proportional to export value*

Source: Compiled from ITC Trademap

The analysis shows(Figures 9, 10, 11 & 12) that in products: *crustaceans, molluscs…(1605), live fish (0301), prepared or preserved fish (1604), aquatic invertebrates (0308),meat of bovine animals (0201), meat of swine (0203), other prepared or preserved meat (1602), cane or beet sugar…(1701), other sugars…(1702), sugar confectionery (1704),natural honey (0409), cocoa paste (1803), cocoa powder…(1805), tea (0903) and extracts, essences and concentrates, of coffee, tea or mate (2101)*, India is gaining market in terms of increased exports. However, while looking at these product's growth of global demand (world imports), we observe that only *cane or beet sugar…(1701), other sugars…(1702), natural honey (0409) and cocoa powder…(1805)* have a growing demand globally. Thus, India is exporting products primarily in segments where the global demand is declining. This raises questions about the sustainability of the exports from India. Overall, in terms of top export product sectors, India has lost market share in majority of products and has performed better off only in the sugar preparations and honey sector in terms of improving market share in a growing sector.

Summary

Given the emphasis on the food processing industry in boosting farmer's income and in improving India's overall trade participation, the paper discusses at length the participation of the Indian food processing industry in trade by looking at the magnitude, composition, and direction of trade. The findings of the paper indicate that processed food trade in India post-WTO reforms and ratification of the Agreement on Agriculture have undergone structural changes and food products have responded differently to the changes in terms of comparative advantages and export performance with processed food trade largely organised with developing economies and regional partners (Figure 6 and 7, Table 4 and 5). The pattern of regionalisation of trade in food products and increased trade with the Global South has been observed globally following the WTO reforms in 1995. The increased non-tariff barriers in the developed world for food products post-WTO agreements in the form of SPS measures, certification requirements, and technical barriers have constrained access to these markets for the developing economies with low technology levels and lower product quality standards. Thus, Indian trade in processed food has also been largely directed at the developing world. The trade in processed food for India has however, been stagnant in recent times not able to capitalize on its resource endowments and the increased global demand for processed food products and this has been established by the lowering of comparative advantage in products in which the country enjoyed a comparative advantage in the year 2000 with trade in all product segments in the food processing industry except for the meat products, vegetables and sugar preparations and honey product segments weakening its competitive position in the market. It is also observed that India's exports in the sector are mostly in products whose global demand is on the decline questioning the sustainability of the exports.

The study has also tried to look at the export of processed food from the theoretical standpoint of the theory of comparative advantage and found that India's export of processed food ismostly in products in which the country has a relative comparative advantage. However, we can also note that the trade shows a pattern explained by the new trade theory with the export of products in which the country has a disadvantage in the global market signifying the intra-industry trade in the sector.

The Agriculture Export Policy 2018 aims to increase the global presence of the Indian food processing sector, by increasing its share in global trade. In this respect, from the findings of the study, it is suitable for policymakers to adopt measures to raise the competitiveness of the products in the sector to possess comparative advantage. It is also important to note that product-specific policies must be implemented rather than one-size-fits-all policies. Concerning the destination of exports, more focus needs to be placed on products whose global demand is on the rise. Also, identifying countries where demand for processed food products is increasing and facilitating access to these countries' markets through trade agreements or treaties would help increase exports from the sector.

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Appendix

A1: List of Processed Food Products

List of Products	HS Codes
Meat Products	02, 1601, 1602, 1603
Dairy Products	0401, 0402, 0403, 0404, 0405, 0406
Fish Products	03, 1604, 1605
Flour and Cereals	1101, 1102, 1103, 1104, 1107, 190410, 190420, 190430, 1905
Vegetables	0712, 1105, 1106, 2001, 2002, 2003, 2005
Fruits, Fresh or Dried	0811, 0812, 0814, 190300, 2006, 2007, 2008, 2009
Eggs and Egg Products	0407, 0408
Sugar Preparations and Honey	170191, 170199, 1702, 1704, 0409
Coffee Extracts, Instant Tea, Cocoa-based Products	0902, 0903, 1803, 1804, 1805, 2101
Processed Vegetable Oils	1509, 1510, 151211, 151219, 151521, 151529, 151530, 1522
Other Edible Products and Preparations	0410, 1901, 1902, 2102, 2103, 2104, 2105, 2106, 2209
Tobacco products	24
Beverages	2201,2202,2203,2204,2205,2206,2207,2208

A2: Top Export Markets for Indian Food Products (2000, 2010 and 2020)

Top ten export destinations in 2000			
Partner	**Export share (%)**	**Region**	**Export share (%)**
Russian Federation	10.35%	East Asia & Pacific	41.73%
Singapore	8.16%	Europe & Central Asia	25.08%
Indonesia	7.61%	South Asia	14.40%
Pakistan	6.43%	Middle East & North Africa	10.97%
Korea, Rep.	6.23%	North America	4.74%
Japan	5.55%	Sub-Saharan Africa	1.77%
Bangladesh	4.35%	Latin America & Caribbean	0.26%
United Arab Emirates	4.33%	ROW	1.05%
United States	4.15%		
Thailand	3.82%		
Top ten export destinations in 2010			
Partner	**Export share (%)**	**Region**	**Export share (%)**
Pakistan	13.01%	East Asia & Pacific	35.37%
Vietnam	8.72%	Europe & Central Asia	16.87%
Japan	6.89%	Latin America & Caribbean	1.05%
Bangladesh	4.93%	Middle East & North Africa	10.91%
United Arab Emirates	4.41%	North America	4.71%
Korea, Rep.	4.38%	South Asia	22.55%
United States	3.99%	Sub-Saharan Africa	6.84%
China	3.77%	ROW	1.71%
Belgium	3.27%		
Indonesia	2.95%		
Top ten export destinations in 2020			
Partner	**Export share (%)**	**Region**	**Export share (%)**
United States	15.50%	East Asia & Pacific	19.37%
United Arab Emirates	5.31%	Middle East & North Africa	19.14%
Iran, Islamic Rep.	4.99%	North America	17.49%
Bangladesh	4.53%	South Asia	14.42%
Sudan	4.49%	Europe & Central Asia	14.18%
Nepal	3.56%	Sub-Saharan Africa	9.04%
Indonesia	3.36%	Latin America & Caribbean	1.33%
Sri Lanka	2.90%	ROW	5.02%
South Korea	2.86%		
Afghanistan	2.52%		

Source: WITS Database.

A3: Top Import Markets of Processed Food for India (2000 and 2020)

Top ten import markets in 2000			
Partner	**Import share (%)**	**Region**	**Import share (%)**
United States	29.81%	North America	30.09%
Brazil	19.88%	Latin America & Caribbean	20.89%
Nepal	7.88%	Europe & Central Asia	18.44%
United Kingdom	5.20%	East Asia & Pacific	16.66%
China	3.80%	South Asia	9.49%
Indonesia	3.60%	Sub-Saharan Africa	2.06%
France	2.84%	Middle East & North Africa	1.48%
Singapore	2.55%	ROW	0.89%
Netherlands	2.50%		
Malaysia	2.15%		
Top ten import markets in 2010			
Partner	**Import share (%)**	**Region**	**Import share (%)**
Brazil	43.96%	East Asia & Pacific	19.15%
Thailand	7.77%	Europe & Central Asia	16.17%
United States	5.70%	Latin America & Caribbean	47.24%
United Kingdom	5.23%	Middle East & North Africa	2.80%
Sri Lanka	4.15%	North America	6.14%
China	3.49%	South Asia	6.90%
Malaysia	2.46%	Sub-Saharan Africa	1.31%
United Arab Emirates	2.35%	ROW	0.29%
Nepal	2.10%		
Singapore	2.03%		
Top ten import markets in 2020			
Partner	**Import share (%)**	**Region**	**Import share (%)**
Brazil	22.95%	East Asia & Pacific	26.05%
United States	14.68%	Latin America & Caribbean	24.29%
Indonesia	5.96%	Europe & Central Asia	20.11%
United Kingdom	5.28%	North America	14.98%
China	4.58%	South Asia	7.50%
Thailand	3.94%	Sub-Saharan Africa	4.10%
Sri Lanka	3.55%	Middle East & North Africa	2.83%
Singapore	3.46%	ROW	0.14%
Vietnam	2.94%		
Netherlands	2.92%		

Source: WITS Database

A4: Major Export Markets for Indian Processed Food by Product Group (2000, 2010 and 2020)

Meat products						Dairy products					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Malaysia	26.7%	Vietnam	13.6%	Hong Kong	25.0%	Bangladesh	35.4%	Bangladesh	14.6%	UAE	20.6%
UAE	19.0%	Egypt	11.6%	Vietnam	14.2%	UAE	23.0%	UAE	18.5%	USA	13.2%
Philippines	15.3%	Malaysia	11.4%	Malaysia	12.3%	Belgium	9.3%	Nepal	8.1%	Bhutan	12.4%
Fish products						**Flours and cereals**					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Japan	37.6%	USA	15.3%	USA	40.4%	Bangladesh	29.1%	UK	14.8%	US	24.5%
USA	17.6%	Japan	13.4%	China	15.5%	Yemen	11.9%	USA	14.3%	UAE	8.2%
China	8.1%	China	10.7%	Japan	6.7%	USA	9.0%	Nepal	7.8%	UK	6.5%
Vegetables						**Fruits...**					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
USA	34.8%	USA	23.7%	USA	25.0%	Saudi Arabia	20.9%	Netherlands	19.3%	USA	14.8%
Germany	11.0%	UK	10.0%	Canada	20.9%	UAE	10.9%	Iran	10.4%	Netherlands	14.0%
UK	9.0%	Germany	6.1%	UK	9.4%	Netherland	10.3%	Saudi Arabia	13.8%	Saudi Arabia	9.1%
Egg and egg products						**Sugar preparations and honey**					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
UAE	26.2%	Oman	10.9%	Oman	29.5%	Pakistan	25.1%	Pakistan	62.9%	Sudan	16.5%
Oman	14.4%	Angola	9.7%	Maldives	14.8%	Bangladesh	19.3%	USA	5.4%	Iran	9.3%
Saudi Arabia	9.0%	Afghanistan	9.0%	Indonesia	12.2%	Sri Lanka	12.3%	Sri Lanka	5.1%	Sri lanka	8.7%

Coffee extracts, instant tea...					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Russia	37.0%	Russian	17.8%	Iran	12.7%
UAE	12.1%	UAE	9.3%	USA	12.1%
UK	9.7%	UK	9.1%	Russia	11.8%

Processed vegetable oils					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
France	28.0%	China	37.8%	Netherlands	12.5%
Netherlands	18.1%	Netherlands	17.1%	France	10.4%
USA	15.3%	France	16.5%	USA	10.3%

Other edible products..					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
UK	20.0%	USA	23.1%	US	20.5%
USA	17.3%	Bangladesh	10.4%	UAE	11.8%
UAE	16.2%	UAE	8.0%	Nepal	7.4%

Tobacco products					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Russian	18.2%	Belgium	13.9%	Belgium	17.7%
Germany	8.9%	UAE	6.4%	UAE	13.3%
UK	8.7%	Germany	6.1%	Singapore	4.2%

Beverages					
2000				2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
UAE	31.6%	UAE	25.7%	UAE	23.7%
Netherlands	11.5%	Angola	17.9%	Singapore	8.9%
S. Korea	8.5%	Netherlands	6.6%	Ghana	8.5%

Source: Calculated using UN COMTRADE database

A5: Major Import Markets for Indian Processed Food by Product Group (2000, 2010 and 2020)

Meat products						Dairy products					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Germany	17.4%	Sri Lanka	39.7%	Sri Lanka	26.9%	Australia	13.7%	New Zealand	67.5%	France	13.0%
Nepal	20.4%	Netherlands	23.8%	Belgium	20.8%	Belgium	9.5%	Australia	22.4%	New Zealand	2.7%
Netherlands	25.4%	Spain	9.4%	USA	14.0%	New Zealand	56.4%	Denmark	2.3%	Turkey	2.0%
Fish products						**Flours and cereals**					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Bangladesh	63.2%	Bangladesh	58.1%	Bangladesh	16.6%	USA	95.0%	USA	66.8%	Bangladesh	17.7%
USA	8.9%	Thailand	5.3%	USA	15.5%	UK	23.2%	Australia	26.8%	Indonesia	16.1%
Myanmar	6.3%	Vietnam	5.1%	Myanmar	8.7%	Nepal	6.4%	Poland	11.2%	Malaysia	10.9%
Vegetables						**Fruits...**					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
USA	32.7%	China	48.1%	China	29.2%	Nepal	55.8%	Thailand	27.6%	China	27.0%
China	27.3%	Spain	24.4%	USA	14.5%	Brazil	6.9%	France	11.7%	USA	12.2%
Sri Lanka	6.3%	Thailand	13.2%	Sri Lanka	9.2%	Australia	5.7%	USA	11.2%	Thailand	11.5%
Egg and egg products						**Sugar preparations and honey**					
2000		2010		2020		2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Netherlands	100.0%	USA	36.4%	Germany	27.1%	Brazil	65.0%	Brazil	31.2%	Germany	4.6%
		Germany	18.7%	Kenya	9.0%	Nepal	6.1%	Thailand	28.5%	Netherlands	4.5%
		S. Korea	10.8%	Vietnam	7.8%	Netherlands	5.1%	UAE	7.8%	USA	4.2%

Coffee extracts, instant tea...					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Indonesia	21.9%	Sri Lanka	19.4%	Indonesia	48.2%
Sri Lanka	16.3%	Nepal	18.7%	Nepal	14.4%
Bangladesh	13.9%	Kenya	15.0%	Kenya	9.4%

Processed vegetable oils					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
Argentina	88.0%	Ukraine	86.2%	Ukraine	74.2%
USA	4.8%	Argentina	4.5%	Russia	16.7%
Ukraine	1.9%	Russia	3.7%	Argentina	6.1%

Other edible products...					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
USA	82.9%	USA	27.2%	USA	17.0%
Nepal	3.0%	Netherlands	9.1%	Thailand	10.8%
Belgium	1.7%	Thailand	8.6%	Ireland	10.6%

Tobacco products					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
UK	23.4%	Malaysia	36.1%	Philippines	20.6%
Turkey	17.0%	Brazil	8.1%	China	15.0%
Greece	13.9%	Singapore	6.4%	South Africa	11.1%

Beverages					
2000		2010		2020	
Partner	Share (%)	Partner	Share (%)	Partner	Share (%)
UK	51.0%	UK	34.2%	USA	48.1%
France	15.3%	USA	16.6%	UK	20.0%
Nepal	9.7%	Brazil	13.5%	Nepal	4.4%

Source: Calculated using UN COMTRADE database

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