Agricultural Trade between India and ASEAN: Intensity and Composition

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ABSTRACT:

ASEAN is the third largest region exporting to India after Northeast (NE) Asia and West Asia-GCC whereas it is the fifth largest region importing from India after North America, EU, NE Asia, and West Asia-GCC in 2021-22. This reflects that the trade relation between India and ASEAN is significant. Hence, the present study has been conducted with the objective to analyse the intensity and composition in agricultural trade between India and ASEAN for the period 2001-2019. International Trade Centre (ITC) data has been used to accomplish the study. This study incorporates HS-2-digit codes from chapters 01 to 24 which are categorized as agricultural products. HS classification is used to calculate Revealed Symmetric Comparative Advantage (RSCA) index and Trade Intensity index. The findings concluded that Indian agricultural exports are diversified in the ASEAN region contrarily to Indian agricultural imports. Vietnam and Thailand are the top agricultural export destinations whereas Indonesia, Malaysia and Myanmar rule the Indian Agri-market with their imports. The results suggest that India should take advantage of ASEAN- India Free Trade Agreement (AIFTA) and start exporting the ASEAN countries with positive RSCA to gain a foothold.

INTRODUCTION:

India has entered into several Regional Trade Agreements such as Free Trade Agreements (FTAs), Preferential Trade Agreements, Comprehensive Economic Partnership Agreements (CEPA), and Comprehensive Economic Cooperation Agreements (CECA) mainly after 2000 and two agreements before 2000. These have helped in the facilitation of trade between India and the World. India's merchandise exports to the world in 2001 stood at US $43878.49 million and then increased to US $ 323250.73 million in 2019. Analogously, India's merchandise imports from the world attained US $50671.11 million in 2001 and then rose to US $478883.72 million in 2019 (World Integrated Trade database). India's merchandise imports from the world have always exceeded merchandise exports to the world for the period 2001 to 2019 leading to a trade deficit. On the other hand, the agricultural sector in India has been a net exporter to the world since the inception of economic policies in 1991. According to World Trade Organization's Trade Statistics, the share of India's agricultural exports and imports in the world agricultural trade was 2.27% and 1.90%, respectively in the year 2017. Though the share of developed countries' overall trade has reduced, still they have remained an important destination for Indian exports. On the other side, Asian countries have become major sources of India's imports.

One of the important Trade Agreement developments that evolved in recent decades within Asia is ASEAN-India Free Trade Agreement (AIFTA). India and ASEAN ties and trade date back hundreds of years. In the Cold War Era, complexity arose which forced India to distance itself from ASEAN. Indonesia's foreign minister Adam Malik visited India in 1973. During Adam Malik's visit, India appreciated ASEAN's effort of establishing peace in South East Asia. India became a sectoral dialogue partner at ASEAN meet in 1992 and a full dialogue partner at the Fifth ASEAN summit in Bangkok in 1995 (Kundu,2021). The Asian Financial Crisis in 1997 affected the exchange of dialogues between these two parties. However, India and ASEAN summit diplomacy started in November 2002 and then India became a founding member of the East Asia regional framework under the leadership of ASEAN in December 2005. This led to the signing of Free Trade Agreement (FTA) among these 11 countries in 2008 namely India, Singapore, Malaysia, Indonesia, Vietnam, Myanmar, Thailand, Laos, Philippines, Cambodia, and Brunei Darussalam. The transition from Look East to

Act East Policy is regarded as a milestone development in Asia. With the signing of AIFTA, India has made commitments to reduce or eliminate tariffs for over 89% of all of its agriculture, marine and manufactured goods by 2016 (Francis, 2015). The trade between ASEAN and India has ameliorated after AIFTA came into effect. Now, ASEAN is the third largest region exporting to India after Northeast (NE) Asia and West Asia-GCC whereas ASEAN is the fifth largest region importing from India after North America, EU, NE Asia, and West Asia-GCC in the year, 2021-22 (Ministry of Commerce and Industry, GoI).

Agricultural Trade is an imperative arena to research because India's major population is highly dependent on this sector. Agriculture provides livelihood to approximately 54.6% of the Indian population in 2021-22 (IBEF). Agriculture is a source of necessities (food, medicines, housing, saving, etc) for farmers and their families. In social terms, agriculture can also be a source of freedom, knowledge, social network and relationships (Prachason,2009). The growth rate of the agricultural sector is 3.9% in 2021-22 and has risen from 3.6% in 2020-21 (Economic survey, GoI,2021-22). Due to increased Government efforts in the agricultural sector like the PLI scheme for the food processing sector, Krishi UDAN 2.0 and other growth-promoting schemes have helped this sector to uplift its growth from stagnancy. The share of the agricultural sector out of the total GVA in the economy stood at 20.2% in 2020-21 (Economic Survey,2021-22). Agricultural trade is one of the major pillars of external trade with Southeast Asian countries as majorly ASEAN countries are agrarian along with India.

Hence, it is important to understand India's comparative advantage in different agricultural products in the domain of the India-ASEAN framework. The present study pertains to the last 19 years (2001-2019) of India's agricultural trade with ASEAN members analysing the competitiveness of India's agricultural products. Since most of the studies undertaken are commodity-specific (Shinoj,2009 and Chandra,2010) and sectoral trade (Francis,2011) and few are done in the limelight of HS-code specific. So, an extension to the previous studies (Pranesh and Choubey,2019 and Jagdambe,2016) has been attempted. This paper examines the last two decades to find out whether the agricultural sector has evolved to be competitive or not with ASEAN as well as its nations. Hence, a study is demanded in this regard.

LITERATURE REVIEW:

In the theory of international trade literature, David Ricardo came up with a famous theory for analysing the specialization pattern of countries in goods using comparative advantage as a tool (1817). The theory says a country which has a comparative advantage can produce particular goods or services at a lower opportunity cost compared to the other countries (or the relative autarky price is less than the relative world price). However, relative autarky prices are unobservable variables and this affects the true or shadow comparative advantages (Benedictis and Tamberi,2001). Thus, Balassa (1965) introduced a methodology to calculate comparative advantage known as the Revealed Comparative Advantage (RCA) index. RCA has been used in several studies to analyse the trading pattern.

Jain (2020) assessed the Revealed Comparative Advantage Index (RCA) of RCEP countries and India for the period 2000 to 2018. She took 13 product categories as described by WITS (World Integrated Trade Solutions). She found out India has an export advantage in product categories like textiles and clothing, animals, and food products. The findings highlight that there are comparative advantages in the case of consumer goods & intermediate goods, but India has not been able to encase those benefits.

Another study is done by Renjini et al (2017) on the comparative advantage of agricultural commodities between India and ASEAN members for the period 1995-2014. Data was obtained mainly from the UN COMTRADE database and ITC trade map. India has a comparative advantage in cotton, rice, oilcake meals, and tea compared to ASEAN nations. An important result is given by the gravity model that the shared boundaries do not have much role to play as in the case of Myanmar.

Batra and Khan (2005) discussed the RCA index at the 2 as well as the 6-digit level of HS classification to compare India's comparative advantage with that of China. The study mainly focussed on the changes in the structure of comparative advantage in the period (2002-2003). The authors also examined the comparative advantage of the two countries according to factor intensity using the SITC.

A similar study was done by Shinoj and Mathur (2008). They analysed the change in the comparative advantage of major agricultural exports during the post-reform period (1991 to 2004) between India and Asian countries using Revealed Symmetric Comparative Advantage. The data gleaned from various issues of the Food and Agriculture Organization (FAO) Trade Yearbook. They found that major Asian countries like China, Indonesia, Sri Lanka, Vietnam posed threat to India's agricultural exports.

Andhale and Kannan (2015) studied the role of agro-based products in Indian exports with the rest of the world. This paper aggregated its data from the UN COMTRADE database at the HS four-digit level of classification for the period 2003 to 2013. 7 products out of 32 processed animal products,12 out of 40 processed vegetable products, and 7 out of 44 processed food products have revealed comparative advantage. Further, they used the consistency test for four indices of RCA. It was reported that cardinal measures are less consistent while ordinal measures are more consistent.

Chandran (2010) used the Trade intensity index and RCA to view trade complementarity and similarity between India and ASEAN. Data was collected for the period 1990 to 2007 from World Integrated Trade Solutions (WITS). Inferences from the trade indices reveal that there are complementary sectors and products available for enhancing trade cooperation between India and ASEAN. The study further concludes that India can enjoy exporting agricultural commodities and food items to small and developing countries of ASEAN. India enjoys an advantage in minerals whereas it can import crude oil from ASEAN.

Jagdambe (2016) examined export and import data as per the Harmonized System (HS 2007) classification. The entire data was sourced from International Trade Centre (ITC) and covers the period from 2001 to 2013. The study used Trade Intensity (TI) Index and modified the Revealed Comparative Advantage (RCA) Index to see the competitiveness of agricultural products between India and ASEAN countries. India has enjoyed a comparative advantage in the export of live animals and vegetable products with ASEAN countries rather than the rest of the world. In the case of animal or vegetable fats and prepared foodstuff products, India is at a comparative disadvantage for the years under study. This suggested that India needs to seek a new market to export these products other than ASEAN.

Renjini and Kar (2016) estimated the current status, composition, intensity, and competitiveness of agricultural trade between India and the ASEAN for the period 1995-2014. The data was obtained from the United Nations COMTRADE database and the International Trade Centre Trade Map website. Meat and edible meat offal was the major export item to ASEAN in 2014. Animal and vegetable oil was the dominant item among all agricultural imports from ASEAN in 2014. India enjoyed a monopoly in marine products as there is a wide demand for Indian fish products in ASEAN countries.

Pandey and Choubey (2019) evaluated the agricultural trade diversity of India with ASEAN for the period 2001-2015. The study incorporated HS 2-digit codes and retrieved the data from the ITC database. Meat and edible meat offal dominated the exports followed by Fish and crustaceans, molluscs, and other aquatic invertebrates. India's imports from ASEAN were dominated by Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes. India's exports of agricultural products were fairly diversified with ASEAN while import specialization of agriculture took place.

Shinoj (2009) researched the agricultural trade between India and ASEAN countries from 1995-96 to 2005-06. Data was sourced from UNCTAD and DGCI&S. The study used Export Intensity Indices and Import Intensity Indices to show the bilateral trade linkages between India and ASEAN nations. ASEAN's demand was higher for value-added food products than primary agricultural products for the year 2005-06. Trade in

the agricultural sector has lagged behind other sectors. Therefore, it is important to establish this sector as it is the main driver of rural prosperity and economic well-being.

Kumar (2021) analysed the trends and performance of agricultural trade during 1990-91 to 2020-21. Despite the Covid situation, India's agricultural exports have increased from 2019-20 to 2020-21. The largest markets for India's agricultural products are USA, China, Bangladesh, UAE, Vietnam, Saudi Arabia, Indonesia, Nepal, Iran and Malaysia. The study has revealed India's decreased dependency on imports of agricultural products in India. Emphasis needs to be given for diversification of agricultural exports for more products and more destinations with improved infrastructure. The producers and exporters need to be educated and trained to maintain the quality of the products as per global standards.

Bala and Sudhakar (2017) analysed the agricultural export scenario of India from 2003 to 2013. They used RCA and gathered data from the Ministry of Commerce, Government of India. A significant increase in the share of total exports was found in the case of cereals, guar gum, cotton, spices, and sugar. The share declined in some commodities like fish and marine products, fruits and nuts, coffee, and tea. More incentives should be given in the specialization of handloom goods and in the improvement of market access information. There is an urgent need of promoting the diversification of agriculture.

Sathe and Despandhe (2006) attempted to review changes in the trends and composition of agri-trade from 1990-2004. Data was gathered from Food and Agricultural Organization, Ministry of Agriculture, GoI, and International Statistics Handbook, IMF. They found that sum of the share of agricultural exports and imports in agricultural GDP has increased to around 10 per cent, i e, doubled over the period. This is not a very marginal share. However, Agri-trade is having a greater impact on domestic agriculture as the share of "import affected" and "export-oriented" are both rising.

Francis (2011) provided a sectoral analysis between India and ASEAN after AIFTA came into effect. In the case of agriculture, several crops can face increased demand and price uncertainties because many semi-processed or processed versions of these crops are not included in the exclusion list. Tariff reduction and elimination under AIFTA will increase the supply of agricultural and related semi-processed (and processed) products in India from ASEAN. This will reduce the bargaining power and lead to a fall in the domestic prices of many of these agricultural products.

Jha and Bathla (2021) examined the degree of protection of India's primary and processed agriculture products exported to ASEAN. Their findings indicate that since the mid-2000s, tariff rates have reduced on agriculture trade but the incidence of non-tariff measures on several agricultural products has been rising, even in those commodities in which India has revealed competitiveness. This may be an important factor behind a low share of agricultural exports in total merchandise exports to ASEAN.

METHODOLOGY:

Time series data over the period 2001-2019 covering 19 years, both export and import of India with ASEAN as well as individual ASEAN countries. Data has been sourced from International Trade Centre (ITC). Data for 2000 was not available on ITC website.

Harmonized System 2-digit codes (HS-2digit codes) is an international nomenclature provided by World Customs Organization. For the analysis of the agricultural sector, it is defined on the basis of the Uruguay Round of Agreement on Agriculture. The HS classification has been retrieved from the site of the World Trade Organization. This study considers only chapters 01-24 which comprise most of the agricultural products is presented in Table 1. Revealed Symmetric Comparative Advantage (RSCA) index has been used to calculate the export competitiveness in agricultural products between India and ASEAN nations. Trade Intensity Index is used in this study. It has two components, that is, Export Intensity Index and Import

Intensity Index. These are the imperative tools in international trade to study the competitiveness of a considered country. This reveals the possibility of increased trade cooperation among countries.

Table 1: Classification of Agricultural Products

HS- 2-digit codes	Agricultural products
SECTION 1: Live animals; animal products	
01	Live animals
02	Meat and edible meat offal
03	Fish and crustaceans, molluscs and other aquatic invertebrates
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included
05	Products of animal origin, not elsewhere specified or included
SECTION 2: Vegetable Products	
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage
07	Edible vegetables and certain roots and tubers
08	Edible fruit and nuts; peel of citrus fruit or melons
09	Coffee, tea, mate and spices
10	Cereals
11	Products of the milling industry; malt; starches; inulin; wheat gluten
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder
13	Lac; gums, resins and other vegetable saps and extracts
14	Vegetable plaiting mate
SECTION 3: Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
SECTION 4: Prepared foodstuffs; beverages, spirits and vinegar; tobacco and manufactured tobacco substitutes	
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Preparations of cereals, flour, starch or milk; pastry cooks' products
20	Preparations of vegetables, fruit, nuts or other parts of plants
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues and waste from the food industries; prepared animal fodder
24	Tobacco and manufactured tobacco substitutes

Source: World Trade Organization, Uruguay Round of Agreement on Agriculture

Revealed Symmetric Comparative Advantage

Balassa (1965) constructed the Revealed Comparative Advantage. It shows how a product is competitive in countries' exports compared to the products share in another country or group of countries. A product with high RCA is competitive and can be exported to countries with low RCA (Jagdambe,2016). When a country has a revealed comparative advantage for a given product (RCA >1), it is inferred to be a competitive producer and exporter of that product relative to a country producing and exporting that good at or below the world average. The higher the value of a country's RCA for a product, the higher its export strength in that product (UNCTAD Stat). The original RCA talks about merchandise exports but here agricultural exports have been used in place of that.

RCA = (Xij / XiAg) / (Xnj /XnAg)

where, Xij = 'i' (India's) exports of agricultural product (Ag) j.

XiAg = 'i ' (India's) exports of total agricultural products (Ag).

Xnj = 'nth' (ASEAN) exports of agricultural product j.

XnAg = 'nth' (ASEAN) exports of total agricultural products (Ag).

The RCA index value ranges between zero and infinity. RCA suffers from the problem of asymmetry. RCA ranges from 0 to 1 if a country is not specializing in a given sector, and ranges from 1 to infinity if a country is specializing. This implies that using the non-adjusted RCA in regression analysis (or other statistical analysis) gives much more weight to values above 1 compared to observations below 1. Since the changes in RCA above 1 are numerically much larger than the values below 1, the conclusion based on the (unadjusted) Balassa indices can be that the country has de-specialized when in reality it has remained neutral (Laursen,2015). Vollarth (1991) suggested logarithm of RCA. Though the problem of asymmetry evaporated, it did not define zero exports from a sector. RCA is made symmetric as well as zero exports from a sector problem eroded using the methodology suggested by Dalum et al. (1998). This index is known as 'Revealed Symmetric Comparative Advantage' (RSCA). Mathematically, it is expressed as,

RSCA= (RCA- 1) / (RCA+1)

RSCA ranges between [-1] and [+1]. If a country has a comparative advantage, then RSCA is positive otherwise if the country has a comparative disadvantage, then RSCA is negative. Hence, RSCA has been used to look into the competitiveness between India and ASEAN nations for agricultural products.

TRADE INTENSITY INDEX:

Export Intensity Index (EII) and Import Intensity Index (III) are two parts of Trade Intensity Index.

The share of exports and imports or the absolute values of exports and imports do not provide any information about which two countries want to trade with each other relative to the rest of the world. For this reason, bilateral trade intensity indices are often considered a more useful tool for analysing bilateral trade linkages (Asher and Sen, 2005).

Export Intensity Index

The bilateral export intensity index between countries i and j is stated below-

EII =[Xij/Xi]/[(Mj- Mji)/(Mw – Mi)]

Xij = Agricultural Exports of country i to j.

Xi =Total agricultural exports of country i

Mj= Total agricultural imports of country j

Mji=Agricultural Imports of country j from country i.

Mi= Total agricultural imports of country i

Mw = Total world agricultural imports

A value of this index above unity implies that country i's relative share of exports to country j exceeds country j's share of imports from the Rest of the World. From country's i point of view, it implies country i has relatively more intense preference in exporing to country j in comparison to country j's imports from the Rest of the World.

Import Intensity Index

This index between countries i and j is stated as-
III =[Mij/Mi]/[(Xj- Xji)/(Xw- Xi)]
Mij =Agricultural Imports of country i from j
Xj = Total agricultural exports of country j
Xji = Agricultural Exports of country j to country i
Xw = Total world agricultural exports
Other notations are explained in EII above.
A value of this index above unity implies that country i's relative share of imports from country j exceeds country j's share of exports to the rest of the world. From country i's point of view implies that it has relatively more intense preference to import from country j compared to country j's export to the rest of the world.

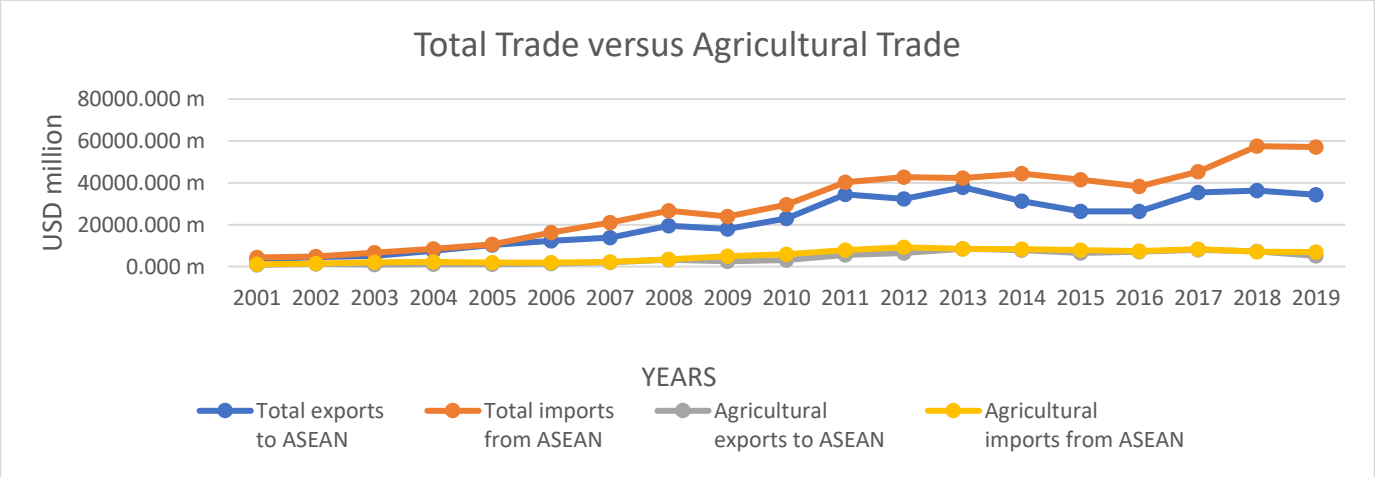
RESULTS AND DISCUSSIONS:

India-ASEAN trade: Agricultural Trade

Since the initiation of the Look East Policy in 1991, India's relations with South-East Asian countries have strengthened especially during the last two decades. Free Trade Agreement between ASEAN and India has embarked on a new trajectory of bilateral trade in Asia. Successive Indian Governments have tried to form closer ties with ASEAN. With the landfall of the BJP in 2014, India's "Act East Policy" became the successor of "Look East Policy". ASEAN's exports of merchandise goods to India have increased from US $ 37083.70 million (in 2010) to US $53749.77 million (in 2021) whereas the imports from India have risen from US $19642.14 million (in 2010) to US $37742,05 million (in 2021), according to ASEAN Stats Data Portal.

Figure 1 shows that India exported $ 323250.73 million to ASEAN which accounted for a share of above ten per cent in total merchandise exports to the world in 2019. In 2019, the top ten goods at HS-02-digit codes exported to ASEAN had a share of 71.7% which has increased by 3.6% from the preceding year. All are non-agricultural products except one, that is, HS-02[1]. Of the total merchandise imports from the world, India imported $ 57039.98 million from ASEAN in 2019. A similar story weaves for the top ten imported goods

Figure 1- India's Total Merchandise trade as well as Agricultural Trade with ASEAN:2001 to 2019



Source: International Trade Centre

[1] HS 02: Meat and edible meat offal

from ASEAN where only the agricultural good with HS-15[2] is along with the other nine non-agricultural goods (ASEAN Statistical Yearbook,2020). This highlights the utmost need of diversifying the trade basket between ASEAN and India with respect to agricultural goods. Since countries like India, Myanmar, Laos, Cambodia, Indonesia, Vietnam, Philippines, and Brunei are agrarian nations this calls for trade in agricultural goods. This calls for reform policies in the trade of agricultural products in India. China is one of the biggest exporters to ASEAN. China's investments in ASEAN infrastructure under the initiative 'One Belt One Road' has transformed the grievance of the ASEAN group towards China and its products. This is one of the reasons for the lower trade volume between India and ASEAN. China has been one of the biggest exporters to ASEAN in the majority of products. India's engagement in ASEAN has been hindered by the enhanced competitiveness of Chinese products (Khaitan,2018). From figure 1, it is lucid that agricultural share in the trade basket was losing its importance slowly and steadily in subsequent years after 2001.

From Figure 2, it is visible that bilateral agricultural trade has grown between India and ASEAN from 2001 to 2019. In 2019, India's agricultural exports stood at US $5166.62 million and US $ 34829.84 million with ASEAN and World respectively whereas the agricultural imports were pegged at US $ 6992.29 million and US $ 19367.67 million from ASEAN and World respectively. India's agricultural export to the World has overshot the imports starting from 2001 to 2019. On the other side, India's agricultural imports from ASEAN have surged more than agricultural exports to ASEAN for the time frame under this study apart from the years, 2013 and 2017. India stood eighth among the top ten ASEAN exporters as well as importers in 2019 trailing some major economies like ASEAN, China, the European Union (EU), Japan, the USA, the Republic of Korea. India constituted only 1 agricultural product out of the top ten exporting goods to ASEAN. New Zealand and Australia ranks fell behind India still they have more than two agricultural products among the top ten exported products to ASEAN. This shows India needs to diversify agricultural trade with ASEAN. However, large economies like China, Japan, the EU, Republic of Korea have indulged more in non-agricultural trade. Cereals were no longer on the list of the top ten exported products to ASEAN from India in 2019 which used to be in 2001 and 2011. In 2019, Canada (13.6%), Australia (5.3%) and Russia (3.7%) took major shares of exporting cereals to ASEAN while India could manage around 1% only. Australia is a tough competitor of India for exporting HS-02 to ASEAN. India (9.2 %) imports mainly HS-15 from ASEAN along with economies like China (2.6%), the EU (2.7%) and Russia (7.7%) in 2019 (ASEAN Statistical Yearbook,2020).

Figure 2: India's agricultural exports/imports with ASEAN as well as the World from 2001 to 2019

Source: International Trade Centre

India's agricultural Trade with ASEAN vis-à-vis world:

[2] HS 15: Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes

India's performance as a share of ASEAN agricultural export in comparison to the world highlights a trend of vicissitudes over the period 2001-2019. The share of agricultural imports with respect to the world shows irregularities too presented in Table 2. It is noteworthy that ASEAN agricultural imports as a share of the world have always remained above 30% with the lowest being 32.35% in 2007. One of the reasons was the Financial Crisis of 2008 which hurt ASEAN countries. India had tried to reduce its dependency on ASEAN imports which was once around 51% in 2011 and waned to 36% in 2019. The agricultural trade between ASEAN and India is in jeopardy because of the Non-Tariff Measures (NTMs), mainly Technical Barriers to Trade (TBT) and Sanitary and phytosanitary (SPS) measures imposed by ASEAN. The reduction of NTMs by ASEAN has made a tad of progress. The number of NTMs imposed by ASEAN in agricultural imports (HS chapters 1 to 24) from India were 158 in 2011 and came down to only 124 in 2019 (TRAINS). In the post-FTA period, it seems India has imported more agricultural products than it has exported. However, the absolute value of agricultural exports to ASEAN has been revamped which highlights the benefit of FTA due to phased manner tariff reduction. Hence, with a bit reduction of ASEAN's imposition of NTMs and implementation of AIFTA in 2010 has exacerbated the post-FTA share of agricultural exports to ASEAN than pre-FTA.

Due to the high number of NTMs by ASEAN, India's agricultural exports mostly remained below its agricultural imports. The imposition of NTMs are deeply rooted in ASEAN nations. This impedes not only the agricultural trade with ASEAN but also overall trade in that region (Jha and Bathla,2021).

Table 2: India's Agricultural Trade with ASEAN vis-à-vis world represented as a share of ASEAN with respect to the World

PRE-FTA			POST-FTA		
YEARS	**EXPORTS (%)**	**IMPORTS (%)**	YEARS	**EXPORTS (%)**	**IMPORTS (%)**
2001	13.6	41.4	2010	16.4	47.0
2002	18.6	46.8	2011	18.9	50.9
2003	13.8	52.9	2012	17.2	51.6
2004	13.5	49.6	2013	19.9	48.9
2005	11.7	37.8	2014	20.3	43.0
2006	13.3	38.2	2015	20.6	37.4
2007	15.0	32.4	2016	23.2	33.5
2008	17.5	46.5	2017	22.6	33.1
2009	16.9	47.6	2018	20.5	36.2
			2019	14.8	36.1

Source: Calculations are computed by the author from ITC Trade Map

Top export and import commodities with ASEAN (COMPOSITION):

The top exported and imported goods from 2001 to 2019, are presented in Table 3. HS-23 had the largest share in the agricultural export basket of India in pre-FTA period but its share dropped drastically in the post-FTA period. In 2019, Vietnam alone imported 52.4% share out of all ASEAN nations. However, the share of exporting HS-23 to ASEAN had climbed a bit in 2019 when compared with the years 2015 and 2017. One of the causes behind this is the imposition of a plethora of NTMs on HS-23 in 2015 and 2017. Vietnam imported 43% even after pressing 70 NTMs and 52.4% after enacting 43 NTMs in the years 2015 and 2017 respectively. HS-02[3] replaced HS-23[4] and became the top exporter for the subsequent years after 2009. HS-02 exporting share has steadily risen except in 2017.

[3] HS 02: Meat and edible meat Offal
[4] HS-23: Residues and wastes from food industries; prepared animal fodder

Table 3.a: Share of top exported goods in the total export agricultural basket (in %) for particular years with ASEAN

Top 5 exporting agricultural goods					
YEARS	1	2	3	4	5
2001	23(28.0)	17(14.2)	02 (14.1)	10 (9.7)	12 (7.4)
2003	23(20.9)	10 (18.4)	02 (13.4)	17 (11.7)	12 (8.2)
2005	23 (35.4)	02 (16.5)	12 (10.0)	07(4.4)	09 (4.2)
2007	23 (36.6)	02 (11.5)	12(11.0)	10(10.9)	09 (7.8)
2009	23 (31.2)	02(20.3)	10 (11.9)	12 (9.0)	09(6.1)
2011	02 (21.6)	12 (16.5)	23(15.2)	10(14.7)	09(5.3)
2013	02 (33.5)	10 (15.6)	23 (11.1)	12 (8.3)	09(5.2)
2015	02 (42.3)	12 (10.0)	09 (7.6)	23 (4.3)	10(3.4)
2017	02 (37.5)	09 (9.1)	12 (8.0)	23 (4.4)	17(3.1)
2019	02 (42.9)	12 (11.3)	09 (7.3)	23 (5.5)	10(2.9)

Source: Author's calculation based on data generated by International Trade Centre

This can closely be related to the initiative of reducing NTMs by ASEAN. NTMs dropped from 37 in 2011 to 30 in 2019. HS-10[5] has lost its significance in the post-FTA period as other economies like China, Russia started exporting HS-10 to ASEAN.

Table 3.b: Share of top imported goods in the total import agricultural basket (in %) for particular years with ASEAN

Top 5 importing agricultural goods					
YEARS	1	2	3	4	5
2001	15 (73.2)	07 (20.4)	09 (2.3)	23 (0.9)	08 (0.7)
2003	15 (83.4)	07 (10.3)	08 (2.0)	09 (1.7)	23 (0.9)
2005	15(74.8)	07 (11.2)	08(4.9)	09 (4.5)	23 (1.6)
2007	15(69.3)	07 (21.4)	09 (3.0)	08 (2.4)	23 (1.1)
2009	15 (74.2)	07 (17.4)	09 (2.3)	17 (2.1)	08 (1.1)
2011	15 (85.6)	07 (7.7)	09 (2.2)	08 (1.1)	18 (0.7)
2013	15 (85.8)	07 (7.3)	09 (2.3)	23 (0.9)	08 (0.8)
2015	15 (78.6)	07 (11.1)	09 (3.6)	23 (1.6)	08 (1.4)
2017	15 (82.6)	07 (6.4)	09 (3.9)	23 (2)	08(1.1)
2019	15 (76.4)	07 (5.1)	09 (4.8)	23 (3.5)	08 (2.3)

Source: Author's calculation based on data generated by International Trade Centre

Table 3.b shows HS-15[6] remained the top importer among agricultural products from 2001 to 2019. ASEAN nations are mainly home to dairy farming, pisciculture, and meat farms as well as consumers of the same. This is proven by the share of HS-23 in top exporting as well as importing agricultural goods. ASEAN exported HS-15 of the value US $31 billion to the world of which India alone accounted for US $4.5 billion in 2019. India has been highly dependent on ASEAN for the import of this commodity. India's NTMs are minimal for this commodity accentuating the importance of HS-15 in Indian markets. The demand is high because of HS-15 versatile properties. HS-07[7] has remained the second importer among agricultural goods for the period under study.

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[5] HS-10: Cereals
[6] HS-15: Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
[7] HS-07: Edible vegetables and certain roots and tubers

Table 4 represents the Revealed Symmetric Comparative Advantage (RCA) between ASEAN and India for the period 2001,2011 and 2019. India has comparative advantage in 13 agricultural products out of 24 for the year 2001 as well as in 2011. However, RSCA has decreased to 10 agricultural products out of 24 in 2019. India should use AIFTA as a tool to convert comparative disadvantage to comparative advantage as well as increase the exports of those goods which have a comparative advantage but are not exported to ASEAN.

Table 4-RSCA index of India with respect to ASEAN: Agricultural product Analysis

HS 2 digit codes	2001	2011	2019	HS 2 digit codes	2001	2011	2019
'01	-0.9	-0.8	-0.9	13	0.8	0.9	0.8
'02	0.3	0.9	0.8	'14	0.1	0.2	-0.2
'03	0	0.1	0.3	'15	-0.7	-0.8	-0.7
'04	-0.4	-0.3	0	'16	-1	-0.9	-0.7
'05	0.4	0.7	0.3	'17	0.2	0.3	0.3
'06	0.1	-0.1	-0.1	'18	-1	-0.9	-0.7
'07	0.3	0.2	0.2	'19	-0.6	-0.4	-0.5
'08	0.3	0.2	-0.4	'20	-0.6	-0.4	-0.2
'09	0.5	0.3	0.4	'21	-0.1	-0.4	-0.6
'10	0.3	0.4	0.5	'22	-0.6	-0.6	-0.7
'11	-0.2	-0.5	-0.4	'23	0.6	0.6	0.2
'12	0.7	0.8	0.7	'24	-0.2	0.2	0

Source: International Trade Centre (ITC)

Clearly, India has a comparative advantage in HS-02. HS-10 has a comparative advantage too but its exports to ASEAN have dwindled over time as ASEAN started importing it from other economies like Canada, China. India has to face many NTMs from ASEAN with respect to cereals. If India wants to regain its foothold in ASEAN regarding cereals, then India needs to work on the root cause of NTMs imposed by ASEAN. Thailand and Vietnam are top producers of rice in ASEAN this explains why India faces a backlash of NTMs mainly from these two countries for exporting cereals to ASEAN. HS-13 faced 78 NTMs in 2019 and accounted for an export share of only 0.5% out of total exported agricultural products even after having a comparative advantage. HS-17 comprises a share of 0.1 % and faces NTMs mostly from Vietnam. This shows India's potential to capture the ASEAN markets for the above-mentioned goods from the rest of the world. India needs to walk a long way in addressing the problems on NTMs from ASEAN if it wants to take benefit of comparative advantage.

Trade Indices:

According to the natural trading partner theory, countries trade more with neighbours and close proximate countries than with distant countries. Transportation cost is less, and spillage of goods is less when trade manifests with a neighbouring country. The indices in table 5 support this theory. The ASEAN nations are natural trade partners of India.

The export intensity index of India is above one with countries such as Indonesia, Malaysia, Myanmar, Vietnam, and Thailand. Laos is one country whose EII has remained below one. It is apparent that after the signing of AIFTA the EII of India with less developed countries has increased. It is evident from table 5 all countries except Brunei, EII has waned in 2019. The reason was the global economic slowdown which was staged due to reasons like the US-China trade war, low productivity growth in emerging market economies, aging demographics in developed nations, and so on (IMF Blog). These have affected trade worldwide and the deteriorating indices (EII and III) highlight this phenomenon.

Table 5- India's agricultural export intensity and import intensity indices with respect to ASEAN countries:2001, 2011 and 2019

	2001		2011		2019	
COUNTRIES	Export Intensity Indices (EII)	Import Intensity Indices (III)	Export Intensity Indices (EII)	Import Intensity Indices (III)	Export Intensity Indices (EII)	Import Intensity Indices (III)
Brunei	0.2	0	1.1	0	1.5	0
Cambodia	0.1	0	1.8	2.9	0.4	0.4
Indonesia	5.8	14.7	3.2	18	1.9	8.3
Malaysia	4.2	15.6	3.4	4.9	2.7	10.4
Myanmar	NA	NA	5	30	4.8	7.9
Philippines	3.3	0.3	2	0.2	0.8	0.6
Laos	NA	NA	0	0.1	0.2	0
Singapore	2.5	1.3	1.1	0.7	1	3.1
Vietnam	4.3	0.3	12.9	0.7	5.2	1.1
Thailand	2.7	0.4	2.4	0.4	2	0.6
ASEAN	3.6	6.59	3.8	5.8	2.4	4.3

Source: Author's calculation from International Trade Centre

Data is not available for Myanmar and Laos for the year 2001 marked as NA

COUNTRIES	Total Trade Intensity	Export Intensity Indices (EII)	Import Intensity Indices (III)
Brunei	1.86	1.49	0
Cambodia	0.9	0.35	0.38
Indonesia	14.95	1.92	8.3
Malaysia	15.07	2.69	10.39
Myanmar	21.52	4.79	7.89
Phillipines	1.27	0.83	0.62
Laos	0.24	0.17	0.04
Singapore	3.76	0.95	3.13
Vietnam	8.39	5.16	1.13
Thailand	3.67	2.05	0.59
ASEAN	7.75	2.43	4.28

On the other hand, India is importing little from less developed countries like Brunei and Laos which is reflected in the low import intensity index. Indonesia and Myanmar got a very high import intensity index with India in 2011. The implementation of AIFTA has made countries like Indonesia, Myanmar and Malaysia as best import destinations compared to other ASEAN nations. Vietnam and Thailand will be considered India's export destinations as their EII has increased from 2001 to 2011.

In the three years under study, India's import intensity index with ASEAN is higher than export intensity index. This means imports of agricultural goods from ASEAN are more intense than exports of agricultural goods to ASEAN. This highlights the agricultural trade deficit that India is facing with ASEAN.

CONCLUSION:

In this study, we found that India's agricultural export to the world has always been higher than agricultural imports from the world. On the other hand, ASEAN exports to India have always remained higher than ASEAN imports from India in the period under study. This clearly shows that Free Trade

Agreement has benefitted ASEAN more than India. India is highly dependent on ASEAN for agricultural imports, especially for animal or vegetable fats and oils and their cleavage products; prepared animal fats; vegetable or animal waxes. With tariffs dropping to zero in most agricultural products barring some, this has become somewhat meaningless for India. Therefore, India's commitments under AIFTA have caused a significant negative impact on livelihoods and food security across several segments of the rural population. The study has shown how the Non-Tariff Measures by ASEAN have obstructed the exports of agricultural products. Even though India has a comparative advantage in 13 out of 2gricultural products (on an average), it has a foothold on a few products only. India's exports of agricultural products were fairly diversified with ASEAN while imports specialization of agriculture prevailed. India's Import Intensity is always higher than its Export intensity with ASEAN for the years considered in this study. The global economic slowdown has hit the world badly which is reflected in the decreasing trend of indices. The EII index of India with ASEAN is greater than one which tells India exports are comparatively higher to ASEAN than the rest of the world. Directing policies to promote agricultural products which have a comparative advantage with respect to ASEAN countries will be helpful to the exporters and producers to diversify their products and benefit from them.

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COUNTRIES	Total Trade Intensity	Export Intensity Indices (EII)	Import Intensity Indices (III)
Brunei	1.86	1.49	0
Cambodia	0.9	0.35	0.38
Indonesia	14.95	1.92	8.3
Malaysia	15.07	2.69	10.39
Myanmar	21.52	4.79	7.89
Phillipines	1.27	0.83	0.62
Laos	0.24	0.17	0.04
Singapore	3.76	0.95	3.13
Vietnam	8.39	5.16	1.13
Thailand	3.67	2.05	0.59

Appendix:

Table A1: Mean RSCA of India with 10 ASEAN nations

Product code	Brunei	Cambodia	Indonesia	Malaysia	Myanmar	Philippines	Lao	Singapore	Thailand	Vietnam
'01	-0.89	-0.6	-0.57	-0.89	-0.94	-0.38	-0.96	-0.18	-0.79	-0.26
'02	**0.58**	**0.99**	**0.98**	**0.97**	**0.96**	**0.93**	**0.96**	**0.86**	**0.71**	**0.93**
'03	-0.39	**0.83**	**0.17**	**0.64**	-0.09	**0.23**	**1**	**0.58**	**0.22**	-0.32
'04	-0.6	**0.57**	**0.16**	-0.2	**0.86**	-0.2	**0.84**	-0.53	**0.2**	**0.21**
'05	**0.99**	**0.89**	**0.74**	**0.8**	**0.23**	**0.56**	**1**	**0.2**	**0.41**	**0.43**
'06	**0.23**	**0.96**	**0.62**	-0.29	**0.8**	**0.53**	**0.53**	-0.15	-0.16	**0.22**
'07	-0.07	**0.08**	**0.81**	**0.62**	-0.79	**0.72**	-0.47	**0.81**	-0.08	**0.18**
'08	**0.42**	**0.34**	**0.46**	**0.77**	-0.14	-0.65	-0.59	**0.53**	**0.07**	-0.47
'09	**0.84**	**0.76**	**0.2**	**0.88**	**0.74**	**0.99**	-0.14	**0.49**	**0.94**	-0.35
'10	**0.69**	-0.47	**0.99**	**0.99**	-0.04	**0.96**	**0.24**	**0.96**	**0.1**	**0.19**
'11	-0.54	-0.68	**0.5**	**0.27**	**0.81**	**0.39**	-0.71	**0.15**	-0.68	-0.65
'12	**0.63**	**0.75**	**0.72**	**0.93**	-0.24	**0.71**	**0.29**	**0.68**	**0.82**	**0.82**
'13	**0.97**	**0.99**	**0.9**	**0.99**	**1**	**0.29**	**0.83**	**0.87**	**0.96**	**0.96**
'14	**0.52**	**0.82**	-0.23	-0.06	**0.05**	**0.65**	**0.21**	**0.1**	**0.76**	**0.39**
'15	**0.23**	-0.21	-0.9	-0.92	**0.95**	-0.77	**0.98**	-0.23	**0.28**	**0.53**
'16	-0.27	**0.98**	-0.52	-0.06	**0.92**	-0.79	**1**	-0.05	-0.92	-0.77
'17	**0.7**	-0.34	**0.72**	**0.62**	-0.33	**0.12**	-0.27	**0.49**	-0.33	**0.72**
'18	-0.77	**0.51**	-0.87	-0.89	**0.99**	**0.07**	**0.99**	-0.92	**0.1**	**0.65**
'19	-0.79	**0.31**	-0.23	-0.56	**0.84**	-0.46	**0.92**	-0.82	-0.44	-0.26
'20	-0.64	**0.35**	**0.23**	**0.36**	**0.93**	-0.75	**0.47**	-0.04	-0.67	-0.12
'21	-0.42	**0.94**	-0.12	-0.44	**0.93**	-0.19	**0.47**	-0.82	-0.54	**0.01**
'22	-0.89	-0.59	**0.33**	-0.54	**0.8**	-0.28	-0.9	-0.92	-0.61	-0.1
'23	**0.41**	**0.37**	**0.57**	**0.57**	**0.98**	**0.58**	**0.98**	**0.49**	**0.24**	**0.61**
'24	**0.98**	-0.36	**0.01**	**0.31**	**0.61**	-0.32	-0.48	-0.53	**0.75**	**0.39**

Table A2:

ASEAN agricultural imports among top 10 importing goods			
Countries	Value in 2001	Value in 2011	Value in 2019
India	140.1(02)	440.9(02)	944.5(02)
	101.8(10)	680.1(10)	
		411.9(23)	
Australia	429.5(04)	709.19(04)	1066(01)
	384.3(10)	2180.3(10)	1035.1(02)
	216(17)	645.4(02)	1460.9(10)
USA	636.8(10)	1738.4(12)	2278.5(12)
	631.2(23)		
New Zealand	663.3(04)*	1786.4(04)	2108.3(4)
	63.5(02)*	268.9(02)	169.4(02)
		69.4(08)	232.6(08)
			126.6(19)
			135.9(21)
Canada	263.9(10)*	585.2(10)	974.4(10)
	52.1(12)*	90.4(12)	214.7(12)
Russia	NO	NO	445.3(10)
Source: ASEAN Statistical Yearbooks of 2003,2013,2020 (ASY) Some data(*) were not available in ASY compiled from ITC			

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