


## India's bilateral trade agreements and export competitiveness of agricultural commodities



 **Krishnakumar Nanu Bandolkar<sup>1+</sup>**

<sup>1</sup>Government College of Arts, Science & Commerce, Quepem, Goa, India.

Email: [bandolkarkk@gmail.com](mailto:bandolkarkk@gmail.com)

 **Sudarsan P. K.<sup>2</sup>**

<sup>2</sup>Goa Business School, Goa University, Goa, India.

Email: [sudha@unigoa.ac.in](mailto:sudha@unigoa.ac.in)



(+ Corresponding author)

### ABSTRACT

#### Article History

Received: 30 January 2023

Revised: 6 March 2023

Accepted: 17 April 2023

Published: 8 May 2023

#### Keywords

Agricultural commodities

Bilateral

Export competitiveness

India

PC

Regional trade agreements

Revealed comparative advantage.

#### JEL Classification:

F13; F14; F15; Q17.

Regional Trade Agreements (RTAs) are important as they can create an economic impact on international businesses and influence global economic policies. The key objective of this study is to understand whether India's agricultural export competitiveness with its partners has improved after the creation of these Regional Trade Agreements. The study applies the Revealed Comparative Advantage (RCA) index to gauge the export competitiveness of India with its RTA partners. The data has been analyzed for products in the agriculture category – Animals (product codes (PCs) 01 to 05), Vegetables (PCs 06 to 15), and Food Products (PCs 16 to 24) – based on the Harmonized System (HS<sup>2</sup>) classification. Out of 164 cases of agricultural export competitiveness, 84 cases have shown statistically significant changes after the formation of the studied RTAs. Among these 84 cases, 31 have shown improvement in the RCA, and 53 have shown a deterioration of the RCA. Considering India's agricultural export competitiveness, the India–Thailand Free Trade Agreement (FTA) is the most beneficial, while the India–Singapore Comprehensive Economic Cooperation Agreement (CECA) and the India–Sri Lanka FTA can be treated as highly disadvantageous bilateral agreements. The results have trade policy implications for India and other developing nations that are in the process of negotiating for more RTAs.

**Contribution/Originality:** This is one of the pioneering studies on the effects of Regional Trade Agreements (RTAs) on the export competitiveness of agricultural commodities and the impact of RTAs on agriculture trade policies, comparing the pre-and post-RTA periods by applying the Revealed Comparative Advantage (RCA) method.

## 1. INTRODUCTION

A Regional Trade Agreement (RTA) is a pact between two or more nations that specifies the trade directives for all the group members. Such agreements facilitate the free flow of goods and services across the borders of its members' nations. Broadly, there are two types of RTA – bilateral and multilateral. The economics of regionalism and the effects of RTAs have been studied by Bhagwati and Panagariya (1996); Fernandez and Portes (1998); Mansfield and Milner (1999); Kang (2016); and Urata (2002). Many recent studies have found that RTAs have encouraged more trade within the regional trading bloc (Dianzah, 2022; Ejones, Agbola, & Mahmood, 2021; Zhou, 2022). RTAs are important as they can create an economic impact on international businesses and influence global economic policies. Well-known American economist Krugman (1991) concluded that world welfare would reach a

minimum when there are a few large blocs, and would be higher if there were more blocs, each with less market power. Historically, studies by [Abrams \(1980\)](#); [Aitken \(1973\)](#), and [Brada and Mendez \(1983\)](#) revealed that Regional Trade Agreements (RTAs) have a strong effect on trade movements among members, whereas studies by [Bergstrand \(1985\)](#) and [Frankel, Stein, and Wei \(1995\)](#) found that the effect is comparatively not so significant.

India has strongly supported the multilateral trade liberalization efforts of the General Agreement on Tariffs and Trade (GATT) and the World Trade Organization (WTO). However, India has recently actively participated in numerous Free Trade Agreements (FTAs) ([Singh, 2015](#)). The impact of India's participation in the WTO regarding its agricultural exports is mixed. Although India's position in global agricultural exports has improved, it did not help it to specialize in the commodity of its comparative advantage ([Anjum & Khan, 2017](#)). On the other hand, ([Singh, Anoop, & Singh, 2020](#)) opines that after the agreement under the WTO, agricultural commodities are moving to different countries and realizing the benefits of comparative advantage in the international economy. The WTO's Agriculture Agreements established a framework for the sustained improvement in agricultural trade. The Agreements cover market access, domestic support, and export competition, and they are expected to provide fairer competition and fewer agricultural trade distortions. However, the WTO was not very successful in its outcomes, and the member countries started forming RTAs. Over the years, RTAs have increased in number, depth, and characteristics, as per the changing dynamics of international trade. As a member of the WTO, India is a follower of several major agreements, such as the Agreement on Subsidies & Countervailing measures, the General Agreement on Trade in Services (GATS), Sanitary and Phytosanitary Measures (SPM), Trade-Related Aspects of Intellectual Property Rights (TRAIIPR), Trade-Related Investment Measures (TRIMS), and the Agreement on Agriculture.

India signed its first multilateral RTA, the Asia Pacific Trade Agreement (APTA), in 1976. However, in December 1998, India signed its first bilateral trade agreement with Sri Lanka, which came into effect in 2000. India is currently engaged in 17 bilateral and multilateral RTAs, and studies have been conducted to assess the critical impact of RTAs on international trade ([Hayakawa, Kimura, & Nabeshima, 2014](#); [Huang, Gou, Cai, Li, & Chen, 2020](#); [Kohl, Brakman, & Garretsen, 2016](#); [Nguyen, 2019](#)). A study by [Gaurav and Bharti \(2019\)](#) suggests that bilateral trade agreements lead to multilateral trade liberalization in the long run. [Ghoshal \(2015\)](#) studied the causal link between trade and economic growth in India, with particular emphasis on the effect of the introduction of various trade agreements on the relationship between trade and growth. The results reinforce the fact that the commencement of trade agreements has influenced the pattern of the relationship between exports and gross domestic product (GDP) in India. [Kaushal \(2022\)](#) identified that India's export performance was better with its trading partner countries under FTAs such as the Association of Southeast Asian Nations (ASEAN) & South Asian Free Trade Area (SAFTA) and bilateral trade agreements compared to PTAs such as the Southern Common Market (MERCOSUR) & APTA. However, India has not fully exploited its export potential. The study by [Bhatia, Mehta, Bhardwaj, and Nimbrayan \(2021\)](#) observed that Indian agricultural exports expanded between 2000 and 2019. However, the share of agricultural exports to the country's overall exports reduced during the same period.

Agriculture is the most contentious sector in all RTA negotiations. The agricultural sector has always been treated differently in almost all of India's RTAs. India's agricultural, horticultural, and processed food products are exported to more than 100 countries. Although the percentage share of agriculture in India's GDP has declined in recent years, the significance of the agriculture sector in India's socioeconomic scenario has not reduced. Hence, there is a need for a comprehensive study across India's bilateral RTAs on how it performed in agricultural exports after the formation of these RTAs.

## 2. LITERATURE REVIEW

Recent years have witnessed many studies to understand the effectiveness of RTAs in promoting trade in agricultural commodities. These studies help in understanding the importance of RTAs for designing agricultural policies. The studies revealed that RTAs play an essential role in promoting trade in agriculture ([Balogh & Leitão,](#)

2019; Bureau & Jean, 2013; Cantin & Duchesne, 2019; Elbushra, Karim, & Suleiman, 2011; Sunge & Ngepah, 2020). Their findings revealed that RTAs have an important role in stimulating agricultural trade liberalization. Careful examination of the Revealed Comparative Advantage (RCA) index showed that India's RCA in processed animal products and processed vegetable products has somewhat weakened during the period studied, from 2003 to 2013 (Ashish & Kannan, 2015). The study by Ratna, Sharma, and Dobhal (2021) dealt with India's FTAs with special reference to agriculture. The study provided a broad view of FTA commitments and assessed the trade performance of Indian agriculture. The study suggests the need for a level playing field for Indian farmers at the multilateral and regional levels.

India exports more than 10% of its agricultural products to the ASEAN region, while 30%–40 % of India's agricultural imports come from the ASEAN region in comparison to the rest of the world. India maintained competitiveness over China, Australia, and the USA concerning marine products, spices, rice, and oilcake meals, who are the major agricultural exporters to the ASEAN (Renjini & Kar, 2016). Pandey and Choubey (2019) stated that India exports more diversified agricultural products to ASEAN than it imports, and their results revealed that India's agriculture export earnings from ASEAN are stable, which can contribute to economic growth in the long run. Suresh and Mathur (2016) found that the RCA has been improving in the case of cotton, maize, and certain fruits and vegetables over time, but in the case of some spices, rice, and wheat, it has been declining. India is slowly losing its comparative edge, mainly to Asian nations in the case of plantation-based spices and other commodities. Nabi and Kaur (2019) evaluated the structure of India's comparative advantage from 1995–2017 with the top five agriculture-exporting nations, namely the USA, UK, UAE, Singapore, and China. Most of the commodities, such as fish, fish preparations, fruits, vegetables, sugar, sugar preparations, miscellaneous food products, wood, lumber, and cork, have shown a comparative advantage.

Jagdambe and Kannan (2020) analyzed the ASEAN–India Free Trade Agreement (AIFTA) and its trade creation and trade diversion effects on agricultural trade among the partner countries using data from 50 countries for the 2005–2014 period. The study found that income, common border, and common language are the factors influencing the bilateral trade flow between the countries. The results suggest that there is still scope to further liberalize the agricultural sector under the FTAs. Bhasin and Manocha (2015) empirically examined the impact of the SAFTA and the APTA on India's agricultural exports. The study used a gravity framework using panel data from 2001 to 2013 to measure India's agricultural exports to 16 Asian countries and found that India's exports were positively affected by the presence of RTAs. The impacts of RTAs on agricultural trade in the context of the rules of origin were also studied by Huchet-Bourdon, Le Mouel, and Peketi (2016). Their study distinguishes trade in raw agricultural products and processed food products by applying a gravity model for a sample of 180 countries over four points in time – 2001, 2004, 2007, and 2011. They found that trade in food products is more responsive to RTAs than trade in agricultural products.

The levels and compositions in the export competitiveness of fruit and vegetable products are evaluated by the RCA index. Most of the EU's 27 member nations have exhibited comparative disadvantages in fruit and vegetable products in the international markets. Spain and the Netherlands experienced strong outcomes of the RCAs from 2000 to 2011 over the other EU nations (Bojnec & Ferto, 2016). Zimbabwe's agricultural trade movements increased by 307.96% and 437.09% since its membership in the Economic Partnership Agreement (EPA) in 2012 and the Southern African Development Community Free Trade Area (SADC FTA) in 2008, respectively (Chawarika, Madzokere, & Murimbika, 2022). A study by Atif, Haiyun, and Mahmood (2017) found that a common border, colonial links, and RTAs are the most important factors that positively impact agricultural exports. However, common language did not play a role in the agriculture exports of Pakistan. Ghazalian (2017) analyzed the effects of the North American Free Trade Agreement (NAFTA) and the Canada–United States Free Trade Agreement (CUSFTA) on agricultural trade flows for disaggregated product categories. The net post-

NAFTA/CUSFTA magnitudes of trade among member nations emphasized missed opportunities for regional trade to some extent.

In the agri-food sector in the context of the international market, all Southeast European countries (excluding Albania) have exhibited comparative advantages. While partial productivity in the agriculture sector showed a positive effect on comparative advantage, the GDP per capita has been negatively impacted (Matkovski, Kalaš, Zekić, & Jeremić, 2019). The competitiveness of the food sector in Poland was assessed by applying the RCA method using data from the WITS Comtrade trading database from 2004–2017. The results showed that Poland's membership in the European Union resulted in its comparative advantages in the food trade in the global market (Szczepaniak, 2019). The estimated RCA indices of Pakistan's agricultural sector revealed that mangoes, citrus, and dates have comparative advantages. Both onions and potatoes have exhibited revealed comparative advantages, as well as disadvantages. These results imply substantial export potential for fruits and vegetables from Pakistan (Ahmad, Anwar, Badar, Mehdi, & Tanveer, 2021). A heterogeneity analysis showed that both developed and developing countries have reduced protection for farmers under RTAs. While developed countries reduced protection for more protected and subsidized producers, developing countries reduced protection for less protected and taxed producers. To incentivize farmers in developing countries, it is suggested that the reduced protection resulting from their partners' RTA formation should be counteracted (He, 2022).

A study by Muganyi and Chen (2016), with regard to China and its major trading partners, applied the gravity model for the period from 2000 to 2014 and found that the size of the market, the distance, the annual average market exchange rate, status of integration, culture, and language all play an important role in determining China's bilateral agricultural trade with its partners. Jean and Bureau (2016) studied the trade effects of agricultural and food products for 74 country pairs during the 1998–2009 period, and the results showed that, on average, RTAs had enhanced the bilateral agricultural and food exports between partners. It was also found that RTAs strengthened the prospects of exporting an agriculture product to a partner nation. Timsina and Culas (2020) estimated the agricultural trade creation and export diversion effects of Australia's free trade agreements (FTAs) at the aggregate and disaggregate levels from 1996 to 2017. Overall, the trade creation was larger in comparison to the export diversion of the FTAs. Hndi, Maitah, and Mustofa (2016) employed the gravity model to examine the effect of FTAs on selected countries in North Africa (Algeria, Egypt, Morocco, and Tunisia) as reporting countries and the rest of the world as partner countries. Their study revealed that being a member of an FTA positively determines the overall agricultural trade between the countries.

The review of the literature revealed some studies on agricultural trade that have used gravity model. Similarly, there are many notable studies which have applied Revealed Comparative Advantage (RCA) index to analyze the agricultural trade (Fayaz & Ahmed, 2020; Irena, Mansoor, Lubos, Karel, & Natalia, 2017; Mizik, Szerletics, & Jámor, 2020). These studies have revealed export competitiveness regarding selected agricultural commodities. Moreover, they highlight the emerging trends of agriculture exports in the global market. Most studies have used RCA metrics to measure the export competitiveness of agricultural exports. These studies have also found that RTAs have been effective in promoting agricultural trade. However, the export competitiveness of countries may differ depending on the country's economic characteristics. Moreover, there could be situations in which some RTAs promote agricultural exports while some RTAs do not. The key objective of this study is to understand whether India's agricultural export competitiveness with its bilateral RTA partners has improved, deteriorated, or remains unchanged after the creation of these Regional Trade Agreements.

### 3. RESEARCH METHODOLOGY

Data for the study was collected via the World Integrated Trade Solution (WITS). The data was analyzed for Animals (PC 01 to 05), Vegetables (PC 06 to 15), and Food Products (PC 16 to 24) based on the Harmonized System (HS2) classification. Table 1 lists the product codes (PC) and product descriptions.

Table 1. Product code and description.

PC	Product description	PC	Product description
01	Live animals	13	Lac, gums, resins, and other vegetables saps & extracts
02	Meat, edible meat, and offal	14	Vegetable plaiting materials and other vegetable products
03	Fish & crustaceans, mollusks & other aquatic invertebrates	15	Animal/vegetable fats & oils and their cleavage products
04	Dairy products, birds' eggs, natural honey & other edible animal products	16	Preparations of meat, fish or crustaceans, mollusks & others
05	Other products of animal origin	17	Sugars and sugar confectionery
06	Live trees and other plants, bulbs, roots, cut flowers & others	18	Cocoa and cocoa preparations
07	Edible vegetables, certain roots, and tubers	19	Preparations of cereal, flour, starch, milk & pastrycooks' products
08	Edible fruit and nuts, citrus fruit peel	20	Preparations of vegetables, fruit, nuts, or other parts of plants
09	Coffee, tea, maté and spices	21	Miscellaneous edible preparations
10	Cereals	22	Beverages, spirits and vinegar
11	Products of the milling industry, malt, starches, inulin, wheat gluten	23	Residues & waste from the food industry; prepared animal fodder
12	Oil seed, oleaginous fruits, miscellaneous grains, seeds, & others	24	Tobacco and manufactured tobacco substitutes

Source: WITS and the World Bank. PC = Product code.

The Revealed Comparative Advantage (RCA) index was used to measure India's export competitiveness with its RTA partners. The RCA index is the ratio of the share of a country's total exports of commodity *j* to its total exports and the share of world exports of the same commodity (commodity *j*) of the total world exports. The RCA can take a value that ranges between 0 and  $+\infty$ . If the RCA value is greater than one, a country will obtain a revealed comparative advantage. To assess a country's export competitiveness, RCA measures have been utilized. The formula for the RCA index of country 'i' for product 'j' is:

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

Where  $x_{ij}$  and  $x_{wj}$  are the respective values of country *i*'s exports of product *j* and the world exports of product *j*;  $X_{it}$  and  $X_{wt}$  refer to the country's total exports and world total exports, respectively.

Since the key objective of this study is to measure whether India's agriculture export competitiveness has increased or decreased after the formation of RTAs, a 't-test' is employed to test whether there is a statistically significant increase or decrease in the export competitiveness in terms of the RCA with seven nations with whom India has signed an RTA. Commodities are classified based on 'improvement in export competitiveness', 'deterioration of export competitiveness' and 'no change in export competitiveness'. Statistically significant plus *t* values imply a statistically significant improvement in RCA, and a statistically significant minus *t* value implies a deterioration in the RCA concerning a particular commodity. India's RTAs considered for the estimation of RCA values and the t-test are given in Table 2. The study period is different for different RTAs as the year of establishment is different.

Table 2. India's Bilateral RTAs.

Sr. No.	RTA	Year of establishment	Study period
1	India–Sri Lanka FTA	2000	1990-2020
2	India–Thailand FTA	2004	1991-2020
3	India–Singapore CECA	2005	1997-2020
4	India–Chile PTA	2007	1997-2019
5	India–Republic of Korea CEPA	2010	1996-2020
6	India–Malaysia CECA	2011	1997-2020
7	India–Japan CEPA	2011	1996-2020

#### 4. RESULTS AND DISCUSSION

Tables 3 to 9 present the results for each of the bilateral trade agreements considered for the study. Each table contains the mean RCA values before the formation of the RTA (RCA-1), the mean RCA values after the formation of the RTA (RCA-2), t values, and p-values that are used to test whether there is any statistically significant difference between RCA-1 and RCA-2. The null hypothesis is that there is no difference between the RCA values before the formation of the RTA and after the formation of the RTA. The alternative hypothesis is that there is a significant difference in the RCA values (RCA-1 and RCA-2). The t-test is designed in such a way that if the 't' value is positive and statistically significant, there is an improvement in export competitiveness. A negative and statistically significant 't' value implies a deterioration in export competitiveness. If the 't' value is insignificant, the null hypothesis is not rejected, which indicates that there is no change in export competitiveness.

##### 4.1. India–Sri Lanka FTA

In March 2000, the India–Sri Lanka Free Trade Agreement (ISFTA) came into existence. The ISFTA deals only with trade in goods. It provides either duty-free access (zero duty) or duty preferences for products which are on the 'positive list.' Sri Lanka offers duty-free access to 2802 Indian products, whereas India offers duty-free access to 4227 Sri Lankan products. At present, there are 1180 tariff lines on Sri Lanka's negative list, while India's negative list comprises 429 items.

**Table 3. Export competitiveness under the India–Sri Lanka FTA.**

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	182	225	0.033	0.974	13	3.03	1.66	-1.745	0.094*
02	0.46	0.69	0.371	0.714	14	8.54	2.42	-3.976	0.001***
03	0.73	0.16	-3.629	0.001***	15	0.16	0.63	1.159	0.258
04	1.65	2.52	0.839	0.41	16	2.61	0.17	-1.219	0.235
05	0.36	0.26	-0.541	0.593	17	629	207	-2.115	0.045**
06	0.15	0.06	-1.605	0.122	18	8.68	2.18	-2.706	0.012**
07	17	12.1	-0.825	0.417	19	16	3.32	-4.779	0.000***
08	0.1	0.09	-0.562	0.579	20	1.94	0.18	-2.653	0.014**
09	0.13	0.13	-0.107	0.916	21	0.36	0.43	0.382	0.706
10	84.3	36.7	-1.716	0.099*	22	1.47	1.45	0.71	0.485
11	0.21	0.44	0.807	0.428	23	53032	5.22	-2.09	0.047**
12	1.13	1.73	1.355	0.188	24	0.53	0.12	-4.075	0.000***

Note: RCA-1 = Mean RCA before the RTA. RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level, \* Significant at the 10% level.

Product codes 03 (Fish & crustaceans, mollusks & other aquatic invertebrates), 14 (Vegetable plaiting materials and other vegetable products), 17 (Sugars and sugar confectionery), 18 (Cocoa and cocoa preparations), 19 (Preparations of cereal, flour, starch, milk & pastrycooks' products), 20 (Preparations of vegetables, fruit, nuts, or other parts of plants), 23 (Residues & waste from the food industry; prepared animal fodder) and 24 (Tobacco and manufactured tobacco substitutes) have shown a statistically significant decline in the RCA values at the 1% and 5% levels of significance. Product codes 10 (Cereals) and 13 (Lac, gums, resins, and other vegetables saps & extracts) have also shown a statistically significant decline in RCA values but at the 10% level of significance.

##### 4.2. India–Thailand FTA

The India–Thailand FTA came into force in September 2004 and covers 84 items and several areas in the first phase. It includes goods, services, investment, and economic cooperation. The tariff reduction or elimination program of both countries involves the gradual reduction and elimination of tariffs by both countries on listed products as per Article 3 (deals with trade in goods). The rules of origin were made applicable in determining the origin of products acceptable for the preferential tariff concessions under the framework agreement between India and Thailand.

Table 4. Export competitiveness under the India–Thailand FTA.

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	0.14	0.12	0.743	0.464	13	6.69	12.6	3.314	0.003***
02	0.01	12	2.65	0.013**	14	0.76	1.07	1.285	0.209
03	1.22	4.19	3.278	0.003***	15	20.8	3.68	-4.421	0.000***
04	0.87	1.59	1.761	0.089*	16	0	0.04	3.533	0.001***
05	0.54	0.99	1.125	0.27	17	0.03	0.12	1.423	0.166
06	0.06	0.2	5.533	0.000***	18	0	3.2	2.032	0.052*
07	0.02	0.23	4.074	0.000***	19	0.2	0.43	2.158	0.04**
08	0.11	0.64	5.109	0.000***	20	0.01	0.1	1.558	0.131
09	0.91	48.5	4.489	0.000***	21	0.11	0.09	0.09	0.929
10	0.03	0.15	1.451	0.158	22	0.17	0.42	1.038	0.308
11	0.15	0.24	2.401	0.023**	23	23.6	9.48	-4.284	0.000***
12	4.56	14.8	3.122	0.004***	24	0.34	3.88	3.191	0.004***

Note: RCA-1 = Mean RCA before the RTA, RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level, \* Significant at the 10% level.

Product codes 02 (Meat, edible meat, and offal), 03 (Fish & crustaceans, mollusks & other aquatic invertebrates), 06 (Live trees and other plants, bulbs, roots, cut flowers & others), 07 (Edible vegetables, certain roots, and tubers), 08 (Edible fruit and nuts; citrus fruits peel), 09 (Coffee, tea, matī and spices), 11 (Products of the milling industry, malt, starches, inulin, wheat gluten), 12 (Oil seed, oleaginous fruits, miscellaneous grains, seeds, & others), 13 (Lac, gums, resins, and other vegetables saps & extracts), 16 (Preparations of meat, fish or crustaceans, mollusks & others), 19 (Preparations of cereal, flour, starch, milk & pastrycooks' products) & 24 (Tobacco and manufactured tobacco substitutes) have shown a statistically significant increase in the RCA at the 1% and 5% levels of significance. Similarly, product codes 04 (Dairy products, birds' eggs, natural honey & other edible animal products) and 18 (Cocoa and cocoa preparations) have also shown a positive change in the RCA but at a 10% level of significance after the formation of the India–Thailand FTA. Product codes 15 (Animal/vegetable fats & oils and their cleavage products) and 23 (Residues & waste from the food industry; prepared animal fodder) have shown a negative growth in the RCA. As per the statistical results, a total of 14 products showed a significant improvement in export competitiveness from India, whereas only two products have lost their export competitiveness.

#### 4.3. India–Singapore CECA

The India–Singapore Comprehensive Economic Cooperation Agreement (CECA) became operational in August 2005. To boost the trade among this CECA there is a list of Products for stage-by-stage elimination and reduction in duty. The products' duty elimination and reduction are structured upon three different target tariff rate timelines. Singapore has agreed to abolish customs duties on all originating goods from India once the Agreement is in force.

Table 5. Export competitiveness under the India–Singapore CECA.

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	0.09	0.01	-1.735	0.097*	13	22	3.45	-8.887	0.000***
02	8.88	0.71	-4.636	0.000***	14	0.79	0.6	-0.965	0.345
03	9.78	10.3	0.133	0.896	15	0.93	0.6	-1.507	0.146
04	0.56	0.99	1.928	0.067*	16	1.21	1.88	0.867	0.395
05	35.7	0.47	-4.856	0.000***	17	7.77	1.57	-2.038	0.054*
06	2.71	1.87	-1.255	0.223	18	0.01	0.16	1.173	0.253
07	15.8	20.2	1.244	0.227	19	0.91	0.17	-6.305	0.000***
08	8.81	4.29	-4.799	0.000***	20	1.44	0.8	-2.806	0.01**
09	3.78	3.23	-0.929	0.363	21	1.43	0.45	-4.748	0.000***
10	3.51	48.6	-5.655	0.000***	22	0.16	0.27	1.915	0.069*
11	4.55	2.54	-1.18	0.251	23	147	6.28	-5.89	0.000***
12	11.6	6.23	-4.64	0.000***	24	1.46	1.06	-1.951	0.064*

Note: RCA-1 = Mean RCA before the RTA, RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level, \* Significant at the 10% level.

The product codes such as 02 (Meat, edible meat, and offal), 05 (Other products of animal origin), 08 (Edible fruit and nuts; citrus fruits peel), 10 (Cereals), 12 (Oil seed, oleaginous fruits, miscellaneous grains, seeds, & others), 13 (Lac, gums, resins, and other vegetables saps & extracts), 19 (Preparations of cereal, flour, starch, milk & pastrycooks' products), 20 (Preparations of vegetables, fruit, nuts, or other parts of plants), 21 (Miscellaneous edible preparations) and 23 (Residues & waste from the food industry; prepared animal fodder) have exhibited a negative growth in RCA at the 1% and 5% levels of significance. At a 10% level of significance, product codes 01 (Live animals), 17 (Sugars and sugar confectionery) and 24 (Tobacco and manufactured tobacco substitutes) have shown a drop in RCA.

Products 04 (Dairy products, birds' eggs, natural honey & other edible animal products) and 22 (Beverages, spirits, and vinegar) have seen a rise in RCA at a 10% level of significance. The total number of products that have seen positive growth in export competitiveness from India is two, whereas 13 products have shown a fall in export competitiveness after the formation of the India–Singapore CECA.

#### 4.4. India–Chile PTA

The India–Chile Preferential Trade Agreement (PTA) became effective in August 2007. Both countries agreed to sign a Preferential Trade Agreement for the free flow of goods between their countries through the abolition or reduction of tariffs. This PTA is controlled by the provisions of Annex A (India's list of products for Chile) and Annex B (Chile's list of products for India). Under the expanded PTA in May 2017, India has offered a concession on 1,031 tariff lines to Chile, while Chile has provided a concession on 1,798 tariff lines to India.

**Table 6.** Export competitiveness under the India–Chile PTA.

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	N/A	N/A	N/A	N/A	13	0.27	0.28	0.042	0.967
02	N/A	N/A	N/A	N/A	14	0.39	0	-1.164	0.257
03	0.41	0.03	-2.958	0.008***	15	0.22	0.09	-0.76	0.456
04	0.23	0.003	-1.186	0.249	16	N/A	N/A	N/A	N/A
05	0.79	0.001	-1.718	0.101	17	1.63	0.1	-1.87	0.076*
06	0.06	0.01	-1.005	0.327	18	N/A	N/A	N/A	N/A
07	0.04	0.01	0.73	0.474	19	0.04	0.05	0.492	0.628
08	0.01	0.002	-1.735	0.097*	20	0.03	0.1	3.719	0.001***
09	0.44	2.53	0.734	0.471	21	0.03	0.06	2.011	0.057*
10	0.01	0.03	1.104	0.282	22	0.01	0.01	2.561	0.018**
11	0	0.03	0.898	0.379	23	0.7	0.12	-0.76	0.456
12	0.07	0.04	-0.572	0.573	24	5.03	1.93	-0.833	0.414

**Note:** RCA-1 = Mean RCA before the RTA, RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level, \* Significant at the 10% level.

Product codes 20 (Preparations of vegetables, fruit, nuts, or other parts of plants), 22 (Beverages, spirits, and vinegar) and 21 (Miscellaneous edible preparations) have shown an improvement in the RCA at the 1%, 5% and 10% levels of significance, respectively. Product codes 03 (Fish & crustaceans, mollusks & other aquatic invertebrates), 08 (Edible fruit and nuts; citrus fruits peel) and 17 (Sugars and sugar confectionery) have highlighted a drop in RCA at the 1% and 10% levels of significance.

As per the above analysis, an equal number of products (03 agricultural commodities) have shown positive and negative growth in export competitiveness after the India–Chile PTA formation.

#### 4.5. India–Republic of Korea CEPA

This Comprehensive Economic Partnership Agreement (CEPA) was established in January 2010. Both countries agreed to lower or eliminate import tariffs on a vast range of goods for the next decade and simultaneously enhance opportunities for investments and services trade between them. The Republic of Korea was



prepared to eliminate or reduce tariffs on 90% of Indian goods over the following ten years, while India had agreed to do the same for 85% of Korean goods.

**Table 7.** Export competitiveness under the India–Republic of Korea CEPA.

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	3.35	0.37	-1.426	0.167	13	21.26	26.72	1.536	0.138
02	28.7	2.25	-1.407	0.173	14	85.6	416.5	3.721	0.001***
03	2.48	2.35	-0.282	0.781	15	31.83	21.25	-2.226	0.036**
04	27.6	1.65	-5.359	0.000***	16	1.764	1.55	-0.115	0.91
05	2.19	1.16	-1.717	0.099*	17	1.44	4.85	1.786	0.087*
06	0.57	1.39	3.081	0.005***	18	0.17	4.87	1.392	0.177
07	0.85	0.67	-0.83	0.415	19	0.08	0.19	2.539	0.018**
08	2.9	11	3.917	0.001***	20	0.65	1.52	3.397	0.003***
09	44.38	71.59	1.39	0.178	21	0.61	0.56	-0.255	0.801
10	6002	1395	-1.694	0.104	22	3.01	0.46	-2.271	0.033**
11	7.481	11.5	0.878	0.389	23	492	115	-4.475	0.000***
12	14.94	31.23	3.234	0.003***	24	2.38	5.44	2.9	0.008***

Note: RCA-1 = Mean RCA before the RTA, RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level, \* Significant at the 10% level.

In Table 7, the products which have exhibited beneficial growth in RCA are Live trees and other plants, bulbs, roots, cut flowers & others (06), Edible fruit and nuts; citrus fruits peel (08), Oil seed, oleaginous fruits, miscellaneous grains, seeds, & others (12), Vegetable plaiting materials and other vegetable products (14), Sugars and sugar confectionery (17), Preparations of cereal, flour, starch, milk & pastrycooks' products (19), Preparations of vegetables, fruit, nuts, or other parts of plants (20), and Tobacco and manufactured tobacco substitutes (24).

The products with 04 (Dairy products, birds' eggs, natural honey & other edible animal products), 05 (Other products of animal origin), 15 (Animal/vegetable fats & oils and their cleavage products), 22 (Beverages, spirits and vinegar) and 23 codes (Residues & waste from the food industry; prepared animal fodder) have shown a fall in RCA. The total number of products whose export competitiveness from India has increased is eight, whereas five products have shown a decline in competitiveness of agricultural commodities after the formation of the India–Republic of Korea CEPA.

#### 4.6. Malaysia–India CECA

On February 18, 2011, the Malaysia–India Comprehensive Economic Cooperation Agreement (MICECA) was signed and became effective from July 1, 2011. The MICECA is a comprehensive agreement that covers trade in goods, trade in services, investments, and the movement of natural persons.

**Table 8.** Export competitiveness under the Malaysia–India CECA.

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	0.03	0	-1.204	0.242	13	76.1	37.5	-2.156	0.042**
02	807	430	-2.359	0.028**	14	12.2	0.22	-1.504	0.147
03	6.07	3.46	-2.156	0.042**	15	0.09	0.08	-0.568	0.576
04	0.3	0.5	0.91	0.373	16	1.88	0.1	-3.037	0.006***
05	4.84	2.18	-1	0.328	17	18.6	7.84	-1.249	0.225
06	0.64	0.41	-1.826	0.081*	18	0.02	0.1	3.875	0.001***
07	53	22.4	-5.94	0.000***	19	0.75	0.38	-3.445	0.002***
08	3.75	4.53	1.309	0.204	20	3.74	1.25	-2.538	0.019**
09	50.5	36.3	-1.188	0.248	21	1.45	0.75	-2.774	0.011**
10	2038	663	-1.435	0.166	22	0.17	0.36	3.25	0.004***
11	4.75	7.26	0.891	0.382	23	20.7	1.09	-2.813	0.01*
12	127	93.5	-1.701	0.103	24	2.96	1.93	-1.134	0.269

Note: RCA-1 = Mean RCA before the RTA, RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level, \* Significant at the 10% level.

There is a statistically significant increase in RCA for Cocoa and cocoa preparations (18) and Beverages, spirits, and vinegar (22) at the 1% significance level.

Products such as Meat, edible meat, and offal (02), Fish & crustaceans, mollusks & other aquatic invertebrates (03), Live trees and other plants, bulbs, roots, cut flowers & others (06), Edible vegetables, certain roots, and tubers (07), Lac, gums, resins, and other vegetables saps & extracts (13), Preparations of meat, fish or crustaceans, mollusks & others (16), Preparations of cereal, flour, starch, milk & pastrycooks' products (19), Preparations of vegetables, fruit, nuts, or other parts of plants (20), Miscellaneous edible preparations (21), and Residues & waste from the food industry; prepared animal fodder (23) have shown a statistically significant decline in RCA.

As per the above results, only two commodities have shown progress in the export competitiveness of agricultural commodities, whereas 10 products have worsened in export competitiveness after the formation of the Malaysia–India CECA.

#### 4.7. India–Japan CEPA

In August 2011, the India–Japan CEPA became functional. This CEPA aimed to reduce or eliminate tariffs over the following 10 years for more than 90% of goods traded between India and Japan. This Agreement, along with others, provides a 'schedule for India' and a 'schedule for Japan'. The schedule provided a list with details on the product-wise plan for the reduction or elimination of duties for imports into India and Japan.

**Table 9.** Export competitiveness under the India–Japan CEPA.

PC	RCA-1	RCA-2	T value	P-value	PC	RCA-1	RCA-2	T value	P-value
01	0.57	0.03	-0.967	0.344	13	160.1	153.8	-0.262	0.796
02	2.69	0.00	-1.506	0.146	14	416.6	529.4	1.001	0.327
03	132	42	-3.182	0.004***	15	64.8	35.19	-5.177	0.000***
04	145	38.3	-3.003	0.006***	16	8.658	1.796	-2.632	0.015**
05	208	27.3	-5.579	0.000***	17	0.28	0.07	-1.039	0.309
06	91.1	3.75	-3.637	0.001***	18	0.25	0.02	-0.982	0.336
07	10.4	7.42	-1.026	0.316	19	0.47	0.19	-2.408	0.025**
08	158	60.7	-3.192	0.004***	20	9.16	18	3.428	0.002***
09	315.7	50.15	-4.597	0.000***	21	1.68	1.36	-1.09	0.287
10	31.55	19.18	-0.667	0.511	22	2.76	0.23	-1.699	0.103
11	1.371	3.2	3.323	0.003***	23	308	223	-0.777	0.445
12	15.14	16.47	0.402	0.692	24	0.74	0.18	-2.596	0.016**

Note: RCA-1 = Mean RCA before the RTA, RCA-2 = Mean RCA after the RTA.

\*\*\* Significant at the 1% level, \*\* Significant at the 5% level.

In Table 9, the products that have seen the most statistically significant improvement in RCA at a 1% level of significance are Products of the milling industry, malt, starches, inulin, wheat gluten (11), and Preparations of vegetables, fruit, nuts, or other parts of plants (20).

The RCA associated with product codes 03 (Fish & crustaceans, mollusks & other aquatic invertebrates), 04 (Dairy products, birds' eggs, natural honey & other edible animal products), 05 (Other products of animal origin), 06 (Live trees and other plants, bulbs, roots, cut flowers & others), 08 (Edible fruit and nuts; citrus fruits peel), 09 (Coffee, tea, maté and spices), 15 (Animal/vegetable fats & oils and their cleavage products), 16 (Preparations of meat, fish or crustaceans, mollusks & others), 19 (Preparations of cereal, flour, starch, milk & pastrycooks' products) and 24 (Tobacco and manufactured tobacco substitutes) have shown a statistically significant deterioration.

Only two products have shown an improvement in export competitiveness, whereas ten products have shown a drop in export competitiveness of agricultural commodities after the formation of the India–Japan CEPA.

Table 10 presents the export competitiveness of India's agricultural commodities under bilateral agreements with its trade partners. Out of the 164 total cases of agricultural export competitiveness, 84 have shown statistically significant changes. Among these 84 cases, 31 have exhibited an improvement in RCA, whereas 53 have shown a

deterioration in RCA. Of the seven bilateral RTAs studied, the highest number of improvements in different product lines (total of 14) is seen in the India–Thailand FTA, which came into effect on September 1, 2004. India lost export competitiveness of 13 products (maximum) as a result of the India–Singapore CECA.

Table 10. Summary of export competitiveness.

Trade Agreement	No. of products with an improved RCA	No. of products with a deteriorated RCA	No. of products with an unchanged RCA
India–Sri Lanka FTA	0	10	14
India–Thailand FTA	14	2	8
India–Singapore CECA	2	13	9
India–Chile PTA	3	3	14
India–Republic of Korea CEPA	8	5	11
India–Malaysia CECA	2	10	12
India–Japan CEPA	2	10	12

## 5. CONCLUSION

The performance of India's agricultural exports after the formation of the RTAs is not uniform across all RTAs. In general, the export competitiveness of India's agricultural products has deteriorated after the formation of the RTAs, and the export competitiveness remained unchanged for around 50% of cases. Among India's seven RTAs studied, the most beneficial RTA for agricultural exports is the India–Thailand FTA. The formation of the India–Republic of Korea CEPA has also considerably benefited India's comparative advantage in exports. The India–Singapore CECA, India–Malaysia CECA and India–Japan CEPA did not provide many benefits, and the FTA with Sri Lanka can be treated as highly incompetent as no product fulfilled the criteria of improvement in the RCA. There is a mixed impact from the India–Chile PTA formation, and its influence on India's agriculture export competitiveness is negligible.

Thailand's import demands are significantly high and India has been meeting their demands for a long list of agricultural commodities. The average tariff rate of Thailand is lower than that of India. Also, India exports a relatively larger number of commodities than Thailand. The agricultural tariff was eliminated on a fast-track basis for 11 goods of export interest to India. With regard to the India–Sri Lanka FTA, India has agreed to duty-free access to almost double the number of products that Sri Lanka has agreed to import from India. Sri Lanka was also granted more time (eight years) to phase out its tariffs, while India has been given only three years for the same action. The negative list which Sri Lanka has faced under the ISFTA is almost half the size of the negative list in comparison to other SAFTA agreements. Concerning the India–Singapore CECA, since Singapore was already an open economy, India did not pay much attention to the tariff liberalization of goods under the CECA. Instead, India focused on tapping the benefits of tariff liberalization in services, then on agricultural goods.

India's overall agricultural export competitiveness has either deteriorated or remained unchanged after the formation of many RTAs due to less flexible rules of origin, a flawed phased-out tariff structure, the high cost of compliance, and the lack of awareness of regional agreements. The RCA of India's many agricultural commodities under the above-studied RTAs declined not only because of unfavorable trade policy frameworks but also due to external factors such as international competition, stagnated demand, and deflation from other economies with a bilateral agreement. India's agriculture also did not gain much from various RTAs because of poor infrastructure, poor packaging, poor storage, poor marketing facilities, and the lack of exportable products that do not meet global standards.

This study has significant trade policy implications as India seeks to sign more RTAs, some of which are in the proposal stages. The results should encourage stakeholders to take precautionary measures while granting tariff concessions to partners concerning India's agricultural commodities in the forthcoming RTA negotiations. This study can help policymakers take the initiative in promoting the export of prominent agricultural commodities

exhibiting comparative advantages. RTAs may benefit the export of goods and services and attract investment to the country, but they should not be at the cost of India's agricultural sector.

**Funding:** This study received no specific financial support.

**Competing Interests:** The authors declare that they have no competing interests.

**Authors' Contributions:** All authors contributed equally to the conception and design of the study.

## REFERENCES

- Abrams, R. K. (1980). International trade flows under flexible exchange rates. *Economic Review*, 65(3), 3-10.
- Ahmad, B., Anwar, M., Badar, H., Mehdi, M., & Tanveer, F. (2021). Analyzing export competitiveness of major fruits and vegetables of Pakistan: An application of revealed comparative advantage indices. *Pakistan Journal of Agricultural Sciences*, 58(2), 719-730.
- Aitken, N. D. (1973). The effect of the EEC and EFTA on European trade: A temporal cross-section analysis. *The American Economic Review*, 63(5), 881-892.
- Anjum, S., & Khan, A. (2017). Changing pattern in India's agricultural exports under WTO. *Economic Affairs*, 62(2), 253-262. <https://doi.org/10.5958/0976-4666.2017.00007.9>
- Ashish, A., & Kannan, E. (2015). Analysis of India's revealed comparative advantage in agro-processed products. *Indian Journal of Economics and Business*, 14(1), 115-130.
- Atif, R. M., Haiyun, L., & Mahmood, H. (2017). Pakistan's agricultural exports, determinants and its potential: An application of stochastic frontier gravity model. *The Journal of International Trade & Economic Development*, 26(3), 257-276. <https://doi.org/10.1080/09638199.2016.1243724>
- Balogh, J. M., & Leitão, N. C. (2019). A gravity approach of agricultural trade: The nexus of the EU and African, Caribbean and Pacific countries. *Agricultural Economics*, 65(11), 509-519. <https://doi.org/10.17221/131/2019-agricecon>
- Bergstrand, J. (1985). The gravity equation in international trade: Some microeconomic foundations and empirical evidence. *The Review of Economics and Statistics*, 67(3), 474-481. <https://doi.org/10.2307/1925976>
- Bhagwati, J., & Panagariya, A. (1996). The theory of preferential trade agreements: Historical evolution and current trends. *The American Economic Review*, 86(2), 82-87.
- Bhasin, N., & Manocha, R. (2015). Impact of regional trade agreements on India's agricultural exports. *FOCUS: Journal of International Business*, 2(2), 83-98. <https://doi.org/10.17492/focus.v2i2.8624>
- Bhatia, J. K., Mehta, V., Bhardwaj, N., & Nimbrayan, P. K. (2021). Export-import performance of major agricultural commodities in India. *Economic Affairs*, 66(1), 117-126. <https://doi.org/10.46852/0424-2513.1.2021.15>
- Bojnec, S., & Ferto, I. (2016). Export competitiveness of the European union in fruit and vegetable products in the global markets. *Agricultural Economics*, 62(7), 299-310. <https://doi.org/10.17221/156/2015-agricecon>
- Brada, J. C., & Mendez, J. A. (1983). Regional economic integration and the volume of intra-regional trade: A comparison of developed and developing country experience. *Kyklos*, 36(4), 589-603. <https://doi.org/10.1111/j.1467-6435.1983.tb00004.x>
- Bureau, J. C., & Jean, S. (2013). *The impact of regional trade agreements on trade in agricultural products*. Doctoral Dissertation, OCDE.
- Cantin, M.-H., & Duchesne, É. (2019). Canada-United States agricultural trade under the shadow of NAFTA: Liberalization, conflicts and challenges. *Canadian Foreign Policy Journal*, 25(2), 137-151. <https://doi.org/10.1080/11926422.2018.1551234>
- Chawarika, A., Madzokere, F., & Murimbika, A. (2022). Regional trade agreements and agricultural trade: An analysis of Zimbabwe's agricultural trade flows. *Cogent Economics & Finance*, 10(1), 2048482. <https://doi.org/10.1080/23322039.2022.2048482>
- Dianzah, Y. E. N. (2022). The effect of regional trade agreements on ASEAN trade flows. *Journal of Indonesian Applied Economics*, 10(2), 40-71. <https://doi.org/10.21776/ub.jiae.2022.010.02.2>

- Ejones, F., Agbola, F. W., & Mahmood, A. (2021). Do regional trade agreements promote international trade? New empirical evidence from the East African Community. *The Journal of International Trade & Economic Development*, 30(7), 1020-1053. <https://doi.org/10.1080/09638199.2021.1930110>
- Elbushra, A. A., Karim, I. E. E. A., & Suleiman, I. (2011). The role of COMESA in promoting intra-regional agricultural trade: Case study of Sudan. *Journal of the Saudi Society of Agricultural Sciences*, 10(2), 59-64. <https://doi.org/10.1016/j.jssas.2011.03.004>
- Fayaz, M., & Ahmed, M. (2020). Fisheries exports of India: A constant market share analysis. *The Indian Economic Journal*, 68(1), 29-39. <https://doi.org/10.1177/0019466220959572>
- Fernandez, R., & Portes, J. (1998). Returns to regionalism: An analysis of nontraditional gains from regional trade agreements. *The World Bank Economic Review*, 12(2), 197-220. <https://doi.org/10.1093/wber/12.2.197>
- Frankel, J., Stein, E., & Wei, S.-J. (1995). Trading blocs and the Americas: The natural, the unnatural, and the super-natural. *Journal of Development Economics*, 47(1), 61-95. [https://doi.org/10.1016/0304-3878\(95\)00005-4](https://doi.org/10.1016/0304-3878(95)00005-4)
- Gaurav, K., & Bharti, N. (2019). Some common lessons from uncommon FTAs. *South Asia Economic Journal*, 20(1), 138-157. <https://doi.org/10.1177/1391561418824479>
- Ghazalian, P. L. (2017). The effects of NAFTA/CUSFTA on agricultural trade flows: An empirical investigation. *Canadian Journal of Agricultural Economics*, 65(2), 219-248. <https://doi.org/10.1111/cjag.12119>
- Ghoshal, I. (2015). Trade-growth relationship in India in the pre and post trade agreements regime. *Procedia Economics and Finance*, 30, 254-264. [https://doi.org/10.1016/s2212-5671\(15\)01293-9](https://doi.org/10.1016/s2212-5671(15)01293-9)
- Hayakawa, K., Kimura, F., & Nabeshima, K. (2014). Nonconventional provisions in regional trade agreements: Do they enhance international trade? *Journal of Applied Economics*, 17(1), 113-137. [https://doi.org/10.1016/s1514-0326\(14\)60005-2](https://doi.org/10.1016/s1514-0326(14)60005-2)
- He, X. (2022). Regional trade agreements and excluded countries. *American Journal of Agricultural Economics*, 104(1), 428-449. <https://doi.org/10.1111/ajae.12233>
- Hndi, B., Maitah, M., & Mustofa, J. (2016). Trade impacts of selected free trade agreements on agriculture: The case of selected North African countries. *Agris on-line Papers in Economics and Informatics*, 8(3), 39-50. <https://doi.org/10.7160/aol.2016.080304>
- Huang, S., Gou, W., Cai, H., Li, X., & Chen, Q. (2020). Effects of regional trade agreement to local and global trade purity relationships. *Complexity*. <https://doi.org/10.1155/2020/2987217>
- Huchet-Bourdon, M., Le Mouel, C., & Peketi, M. (2016). *The impact of regional trade agreements on agri-food trade flows: The role of rules of origin*. Retrieved from Working Papers No. 245193, National Institute for Agronomic Research (INRA), Department of Social Sciences, Agriculture and Food, Space and Environment (SAE2).
- Irena, B., Mansoor, M., Lubos, S., Karel, T., & Natalia, I. (2017). Perspectives of the Russian agricultural exports in terms of comparative advantage. *Agricultural Economics*, 63(7), 318-330. <https://doi.org/10.17221/344/2015-agricecon>
- Jagdambe, S., & Kannan, E. (2020). Effects of ASEAN-India free trade agreement on agricultural trade: The gravity model approach. *World Development Perspectives*, 19, 100212. <https://doi.org/10.1016/j.wdp.2020.100212>
- Jean, S., & Bureau, J.-C. (2016). Do regional trade agreements really boost trade? Evidence from agricultural products. *Review of World Economics*, 152(3), 477-499. <https://doi.org/10.1007/s10290-016-0253-1>
- Kang, Y.-D. (2016). Development of regionalism: New criteria and typology. *Journal of Economic Integration*, 31(2), 234-274. <https://doi.org/10.11130/jei.2016.31.2.234>
- Kaushal, L. A. (2022). Impact of regional trade agreements on export efficiency—A case study of India. *Cogent Economics & Finance*, 10(1), 2008090. <https://doi.org/10.1080/23322039.2021.2008090>
- Kohl, T., Brakman, S., & Garretsen, H. (2016). Do trade agreements stimulate international trade differently? Evidence from 296 trade agreements. *The World Economy*, 39(1), 97-131. <https://doi.org/10.1111/twec.12272>
- Krugman, P. R. (1991). The move toward free trade zones. *Economic Review*, 76(Nov), 5-25.
- Mansfield, E. D., & Milner, H. V. (1999). The new wave of regionalism. *International Organization*, 53(3), 589-627. <https://doi.org/10.1162/002081899551002>

- Matkovski, B., Kalaš, B., Zekić, S., & Jeremić, M. (2019). Agri-food competitiveness in South East Europe. *Outlook on Agriculture*, 48(4), 326-335. <https://doi.org/10.1177/0030727019854770>
- Mizik, T., Szerletics, Á., & Jámbor, A. (2020). Agri-food export competitiveness of the Asean countries. *Sustainability*, 12(23), 9860. <https://doi.org/10.3390/su12239860>
- Muganyi, T., & Chen, H. (2016). Strategic economic partnerships, exchange rate policy and agricultural trade: A gravity model analysis of China's agricultural trade flows. *Open Journal of Social Sciences*, 4(5), 48-55. <https://doi.org/10.4236/jss.2016.45008>
- Nabi, T., & Kaur, T. P. (2019). Export specialization of India with top five agricultural economies: An application of RCA and RSCA. *International Journal of Innovative Technology and Exploring Engineering*, 8(12), 4705-4708. <https://doi.org/10.35940/ijitee.I3586.1081219>
- Nguyen, D. B. (2019). A new examination of the impacts of regional trade agreements on international trade patterns. *Journal of Economic Integration*, 34(2), 236-279. <https://doi.org/10.11130/jei.2019.34.2.236>
- Pandey, P., & Choubey, M. (2019). Agricultural trade diversity of India with Asean. *Economic Affairs*, 64(3), 607-614. <https://doi.org/10.30954/0424-2513.3.2019.17>
- Ratna, R. S., Sharma, S. K., & Dobhal, A. (2021). Indian agriculture under WTO and FTAs: An assessment. In *Indian Agriculture Under the Shadows of WTO and FTAs*. In (pp. 3-25). Singapore: Springer.
- Renjini, V., & Kar, A. (2016). Composition, intensity and competitiveness of agricultural trade between India and ASEAN. *Indian Journal of Economics and Development*, 12(2), 249-254. <https://doi.org/10.5958/2322-0430.2016.00133.5>
- Singh, O., Anoop, M., & Singh, P. (2020). Revealed comparative advantage, competitiveness and growth performance: Evidences from India's foreign trade of agricultural commodities. *Indian Journal of Agricultural Economics*, 75(4), 560-577.
- Singh, S. (2015). *India's approach towards bilateral, regional and multilateral negotiations*. CUTS International- Centre for International Trade, Economics & Environment (CUTS CITEE), D-217, Bhaskar Marg, Bani Park, Jaipur 302016, India. Discussion Paper.
- Sunge, R., & Ngepah, N. (2020). Agricultural trade liberalization, regional trade agreements and agricultural technical efficiency in Africa. *Outlook on Agriculture*, 49(1), 66-76. <https://doi.org/10.1177/0030727019870551>
- Suresh, A., & Mathur, V. (2016). Export of agricultural commodities from India: Performance and prospects. *Indian Journal of Agricultural Sciences*, 86(7), 876-883.
- Szczepaniak, I. (2019). Changes in comparative advantages of the Polish food sector in world trade. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 14(3), 463-480. <https://doi.org/10.24136/eq.2019.022>
- Timsina, K. P., & Culas, R. J. (2020). Impacts of Australia's free trade agreements on trade in agricultural products: An aggregative and disaggregative analysis. *Australian Journal of Agricultural and Resource Economics*, 64(3), 889-919. <https://doi.org/10.1111/1467-8489.12377>
- Urata, S. (2002). Globalization and the growth in free trade agreements. *Asia Pacific Review*, 9(1), 20-32. <https://doi.org/10.1080/13439000220141569>
- Zhou, M. (2022). Differential effectiveness of regional trade agreements, 1958-2012: The conditioning effects from homophily and world-system status. *The Sociological Quarterly*, 63(2), 337-358. <https://doi.org/10.1080/00380253.2020.1834463>

*Views and opinions expressed in this article are the views and opinions of the author(s). The Asian Economic and Financial Review shall not be responsible or answerable for any loss, damage or liability, etc., caused in relation to/arising from the use of the content.*