Agricultural Economics Research Review 2021, 34 (1), 15-31
DOI: 10.5958/0974-0279.2021.00002.1

Indo–Japan Comprehensive Economic Partnership Agreement (IJCEPA): lessons for India's access to agricultural markets

Murali Kallummal[1]* and Shaikh Mohd Mouzam[2]

[1]Centre for WTO Studies, CRIT, IIFT, New Delhi
[2]Agricultural Economist, Dept. of Econ. & Socio., COBSH, PAU, Ludhiana, Punjab

*Corresponding author: muralik@iift.edu

Abstract

India and Japan signed the Indo-–Japan Comprehensive Economic Partnership Agreement in 2011 to liberalize and eliminate tariffs. India's exports increased, but the gains were limited only to fishery products. Non-tariff measures (NTM)—sanitary and phytosanitary measures and technical barriers to trade—are applied on each tariff line; India's bilateral trade negotiation process should consider these NTMs. She should devise strategies to address it when it engages with a new trade partner in the FTA negotiations and then harmonise these barriers; understand the producers and processors in agriculture products; and encourage increased application of the WTO-compatible NTMs.

Keywords Free trade agreement (FTA), regional trade agreement (RTA), tariff measure, NTM, Indo-–Japan Comprehensive Economic Partnership Agreement (IJCEPA), balanced negotiations, sanitary and phytosanitary (SPS) measure, the technical barrier to trade (TBT), agriculture products, market access.

JEL codes F02, F10, F13, Q17

India began making bilateral trade deals with Sri Lanka in 2000; it continued with Singapore (in 2005), the Association of South East Asian Nations (ASEAN) in 2010, and with South Korea and Malaysia in 2011 (Chaudhary et al. 2012; Francis et al. 2013). India and Japan signed the Indo–Japan Comprehensive Economic Partnership Agreement (IJCEPA) on 16 February 2011. The trade-in-goods agreement aimed to eliminate about 94% of the tariffs between India and Japan over 10 years (2011–2021) (GoI 2011; Mouzam et al. 2016). India agreed to abolish 90% of its tariffs on imports from Japan; Japan agreed to abolish 97% of tariffs on imports from India. The content of liberalization in these free trade agreements (FTA) was much higher than in its multilateral commitments; and a review of the gains expected by India was called for (Francis 2012).

Did the active bilateral engagements create a large market where products flow freely? Countries impose tariff and non-tariff barriers to regulate the entry of specified goods into their markets. In international trade, market access for a partner's goods is conditional on the tariff and non-tariff barriers imposed by the other partner. Gaining access to national markets is an essential step towards enhancing trade relations; it is equally important not to concede the domestic production or market without a balanced outcome. Regional trade agreements (RTA) within the World Trade Organization (WTO) can give partners preferential market access; an RTA is 'a reciprocal trade agreement between two or more partners as legally exempted by the WTO' (WTO 2020 a). This is an exception under the General Agreement on Tariffs and Trade (GATT) Article XXIV (Kang 2015; Kallummal 2020b), and all countries have been expanding RTAs (Chauffour and Maur 2011; Mouzam et al. 2016; Cihelková 2012). As of 20 September 2020, 306 RTAs were in force. These correspond to 496 notifications

from WTO members—counting goods, services, and accessions separately—and most are FTAs that eliminate tariff and non-tariff measures to increase regional or bilateral trade (WTO 2020 a).

Non-tariff measures (NTM)—quotas, import licensing, rules for valuation of goods at the customs, local content requirements under the investment measures—are not compatible with the WTO (WTO 2020b). But 15 WTO-compatible non-price-based measures are referred to as NTMs (UNCTAD 2012):

1. sanitary and phytosanitary (SPS) measures;
2. technical barriers to trade (TBT);
3. pre-shipment inspection and other formalities;
4. contingent trade-protective measures;
5. non-automatic licensing, quotas, prohibitions, and quantity control measures other than for SPS measures or TBT reasons;
6. price control measures, including additional taxes and charges;
7. finance measures;
8. measures affecting competition;
9. trade-related investment measures;
10. distribution restrictions;
11. restrictions on post-sales services and subsidies (excluding export subsidies);
12. government procurement restrictions;
13. intellectual property;
14. rules of origin; and
15. export-related measures.

The WTO regulates most agreements and imposes binding rules and transparency requirements. Some studies argue that if a country gives even the slightest margins of preference (MOP), it has a sizeable impact in a globalized world in which overall transaction costs are decreasing and sources of comparative advantage can be found in small cost differences (Bhagwati 2008). Other studies suggest that market access is determined not only by tariffs but also by customs procedures; and other domestic policies, such as NTMs (standards), may affect foreign exporters' costs of access to a market (Kallummal 2013, Carrère and Melo 2011; Chauffour and Maur 2011). The agriculture sector is treated differently under FTAs or excluded from the tariff reductions schedule, but the manufacturing sector is liberalized; and non-agro producers benefit more (Fiorentino et al. 2006; Sithamaparam and Devadason 2016).

Some studies (Timini and Marina 2019; Chauffour and Maur 2011; Choi 2010) find that liberalizing agricultural trade under FTAs may be more successful than multilateral agreements, but other studies hold that these agreements tend to lock exporting countries, mostly developing countries, into a narrow range of products—such as raw materials and agricultural commodities. Some other studies reveal that, mainly, NTMs like SPS measures and TBTs influence a developing country's ability to tap the opportunities for exporting agricultural and food products to developed-country markets (Henson et al. 2000; Bacchetta and Bora 2001; Bhattacharya and Mukhopadhaya 2002; Disdier et al. 2008; Gao et al. 2018).

Several methods have been used to understand the impact of NTMs, each with its pros and cons (Deb 2006; Ishaq et al. 2016; Gao, Ito, and Saito 2018), but none offers a reliable measure. Some studies find NTMs to have similar or more significant aggregate negative impacts than tariffs do on agro-products trade, production, producer revenues, consumer expenditures, and value-added products (Sun et al. 2010). The harmonization of NTMs positively affects developed-country trade in agricultural products (Disdier and Tongeren 2010; Fontagné et al. 2005; Henry and Mark 2006). Deep integration clauses in RTAs, in particular the mutual recognition of conformity assessment procedures (MRAs), substantially reduce the price-raising effect of NTMs, possibly reflecting lower compliance costs (Cadot and Gourdon 2016), but trade agreements between developed and developing countries do not readily accept MRAs that are a part of deep integration.

Different methodologies have been used to analyse the intra-/inter-sectoral application of NTMs and trade liberalization. Tariffs (liberalization) and NTMs are treated differently; imbalance, a direct outcome, is growing, but we did not find a study that deals with the imbalance. We take the case of Japan to understand the free flow in the agricultural market access under the IJCEPA. Japan, a developed-country partner, is expected to export manufactured products and import

agricultural products (Kallummal 2020b). It becomes essential in a trade agreement between a low average ad valorem (applied) tariff country and another high ad valorem average (applied) tariff country like India with low notification of SPS and TBT measures (Kallummal 2016; Kallummal and Gurung 2020 a). Japan is ready to negotiate FTAs, but it is not willing to liberalize agricultural trade, and it has used a variety of instruments to curtail the concessions provided to agricultural commodities in FTAs (Mulgan 2008).

The IJCEPA was signed in 2011. Nataraj and Ashwani (2014) studied its initial impact on trade and investment relations; they revealed that removing tariff barriers helped India to increase its exports in the agricultural products, textile, and pharmaceuticals sectors, but the study was conducted too early to gauge the agreement's full impact. Alternatively, Ando et al. (2019) suggested, Japan signed several FTAs, but its partners' trade with other countries increased more than it did with Japan, and the FTAs did not expand trade with its partners significantly. Handling NTMs—and specifically, the choice between the shallow and deep approach to integration—is a challenge for the WTO (Staiger 2012); this paper sketches the contours of the challenge from the perspective of the economic theories of trade agreements. This study analyses if tariff reductions and concessions are made under the IJCEPA and, if so, which agriculture product categories gain and lose. The study analyses the overall impact of SPS measures and TBTs on the agriculture sector. The hypothesis of this study is that this agreement has resulted in 100% reduction in tariff and thereby increases in trade flows between both the countries.

Methodology

We analyse all aspects of market access in the context of a singular, bilateral approach of eliminating tariffs under the IJCEPA, but we overlook the stringent NTMs (SPS-based maximum residual limits and other deviated SPS measures and TBTs) imposed on the tariffs (Kallummal and Gurung 2020). We bifurcate the period of analysis, 2007 to 2017, into the pre-FTA period (2007 to 2010) and the post-FTA period (2011 to 2017), the marker being 2011, the year that the IJCEPA was implemented.

We take the average of most favoured nation (MFN) rates from 2007 to 2010 as the average pre-FTA tariffs and the average of 'preferential duties' committed by both countries in the trade agreement, calculated and applied as the average of post-FTA duties. We consider the import values (USD) for both partners, and for agricultural imports, separately for the pre- and post-FTA periods. We explore the structure of duties on the products traded bilaterally in the tariff categories (DoC 2020). The study covers all the agricultural and allied tariff lines under the IJCEPA—788 (at 6 digit HS) for India and 772 for Japan. The IJCEPA liberalized duties on 7,559 tariff lines for Japan (83.5%) and either eliminated duties on 9,755 tariff lines for India or reduced these for 16 years, beginning in 2011 (the year of implementation) and ending in 2026 (Table 1).

Table 1 Tariff reduction schedule and categories of IJCEPA

Sl.No.	Category	Description
1.	A	The applied MFN duties on originating goods classified under this category have been eliminated from the date of entry into force of the IJCEPA, i.e., 1st August 2011.
2.	B5	The custom duties on originating goods classified under this category shall be eliminated in six equal annual instalments (i.e., by 2016) from the base rate to free after the agreement came into force.
3.	B7	The custom duties on originating goods classified under this category shall be eliminated in eight equal annual instalments (i.e., by 2018) from the base rate to free after the agreement came into force.
4.	B10	The custom duties on originating goods classified under this category shall be eliminated in eleven equal annual instalments (i.e., by 2021) from the base rate to free after the agreement came into force.
5.	B15	The custom duties on originating goods classified under this category shall be eliminated in sixteen equal annual instalments (i.e., by 2026) from the base rate to free after the agreement came into force.
6.	X	For products under this category, there are no reduction commitments or kept out of the elimination of customs duties.

Source India-Japan Comprehensive Economic Partnership Agreement, Ministry of Commerce and Industry, GoI.

Tariffs on bilateral imports have been reduced and NTMs imposed; we analysed their impact by averaging the MFN rates from 2007 to 2010 and considering it the average pre-FTA tariff and average of 'preferential duties' committed by both the countries in trade agreement were analysed and taken as an average of post-FTA duties. We added the import values of both countries in the pre- and post-FTA periods separately and took these as agricultural imports. We analysed the duty structure and number of bilaterally traded products under the tariff categories, classified a range of tariff duties, and put commodities facing those tariff duties in that category.

Inventory approach for quantification of NTMs

United Nations Commodity Trade and Development (UNCTAD) uses an inventory approach to quantify the impact of NTB on trade; it comprises two measures, the frequency index (FI) and the coverage ratio (CR) (Saqib and Taneja 2005; Kallummal 2013). The frequency index is the percentage of tariff lines (products) in a significant product group subject to one or more non-tariff measure (or non-tariff barrier).

$$FI_{jt} = (N_r/N_j) \times 100 \quad (1)$$

Where,

N_r= number of products or commodities subject to reported NTMs in a given product class;

N_j = total number of products or commodities in the product class (chapter-level).

The CI is the percentage of the value of imported commodities in major product groups subject to one or more NTM.

$$CR_{jt} = (V_r/V_j) \times 100 \quad (2)$$

where,

V_r = value of imports in each product group subject to NTMs.

V_j =total value of imports in the product group.

We calculate the frequency index and coverage ratio by the presence of NTMs imposed on HS 4-digit product lines within a HS 2-digit (Chapter) in the numerator and dividing it by the total universe of products within an HS two-digit (Chapter), the index is finally presented in percentages for comparison. A partner imposes NTMs on imported goods; the frequency index and coverage ratio reveal the extent of goods impacted. The goods excluded show the actual market access beyond tariff liberalization initiatives. But goods are not exported because there is no import demand, or the NTMs are too stringent (Kallummal et al. 2018). Therefore, we assess the impact of NTMs by analysing the data on SPS measures and TBTs.

We collected the data from the web portal of the Centre for WTO Studies, Indian Institute of Foreign Trade (IIFT); and from the World Integrated Trade Solution (WITS) and Tariff Analysis Online (TAO) database of the WTO. We divided the study period (2007–2015) into the pre-FTA period (2007–2010) and the post-FTA period (2011–2015).

Results and discussion

The IJCEPA aims to enhance bilateral trade between India and Japan by removing tariff barriers. India had expected to gain access to Japan's agricultural market; its success needs to be evaluated, especially because Japan dominated in both SPS measures and TBTs.

Profiling tariff reduction categories

The total number of tariff lines (products) expressed at the most disaggregated level (HS 8 digits) subject to MFN tariffs are categorized into A, B5, B7, B10, B15, and X (Tables 1 and 2)—based on yearly reductions. Japan has 65% of its products under Category A (zero duty), but India only 18%; under Category B10 (zero duty by 2021), India has 63% of its products, but Japan only 4%. Japan front-loaded its tariff liberalization commitments under Category A and India back-loaded these under Category B10. In Category X (excluded tariff lines), India had 14% of its total products and Japan 16% (Table 2). Sectoral analysis suggests that 94% of Japan's manufacturing sector (non-agricultural market access, NAMA) is tariff-liberalized, under Categories A and B7. In the agricultural and allied sector (inclusive of fisheries), India excluded 36% of its products and Japan 50% (Table 2). Japan had excluded 14% of its agricultural and allied sector products, which could only be access markets only through the MFN route—some of these with non–ad valorem tariffs.

Trends in the pre- and post-IJCEPA periods

To understand an FTA is to assess the changes in the

Table 2 Composition of tariff categories IJCEPA and sectors (tariff lines - HS 8-digit level)

Category	Total		Agriculture		Fishery		NAMA	
	India's offer	Japan's offer	India's offer	Japan's offer	India's offer	Japan's offer	India's offer	Japan's offer
A	18.4	65.3	5.3	34.6	0.0	8.1	20.6	76.0
B5	4.5	0.0	0.0	0.0	0.0	0.0	5.2	0.0
B7	0.0	13.6	0.0	0.5	0.0	2.7	0.0	17.6
B10	63.5	4.4	59.7	12.9	59.2	19.5	64.1	1.4
B15	0.0	0.3	0.0	1.6	0.0	0.0	0.0	0.0
X	13.6	16.5	35.0	50.4	40.8	69.8	10.0	5.0
Total	11,287 (100)	9,042 (100)	1,420 (100)	1,855 (100)	169 (100)	298 (100)	9,698 (100)	6,889 (100)

Source India-Japan Comprehensive Economic Partnership Agreement, Ministry of Commerce and Industry, GoI.

Table 3 India's tariff structure of bilaterally traded commodities in pre- and post-FTA periods

Range of Advalorem duty (per cent)	No. of HS 6 digit tariff line		Value of agril. imports (Million US$)	
	Pre-FTA period	Post-FTA period	Pre-FTA period	Post-FTA period
0	0 (0)	2 (1.27)	0 (0)	0.01 (0.12)
1 to 5	05 (3.18)	5 (3.18)	2.11 (31.31)	0.54 (6.42)
6 to 10	01 (0.63)	4 (2.55)	0.03 (0.45)	0.47 (5.59)
11 to 15	05 (3.18)	5 (3.18)	0.37 (5.49)	1.39 (16.53)
16 to 20	09 (5.73)	7 (4.46)	0.29 (4.30)	0.63 (7.49)
21 to 25	04 (2.54)	1 (0.64)	0.03 (0.45)	0.01 (0.01)
>26	133 (84.71)	133 (84.71)	3.91 (58.01)	5.38 (63.97)
Total (Ag.)	157 (100)	157 (100)	6.74(100)	8.41 (100)
Total Indian trade with Japan (Ag. + Non-ag)			8855.07	7358.07

Note in parentheses represents the percentage share of total traded tariff line

tariff profiles between the pre- and post-FTA periods; Table 3 presents the distribution of the commodities under each tariff range and the import share of India from Japan.

India levies tariffs (0–120%) on imports from Japan. It imposes a 26% ad valorem duty on about 85% of agricultural imports from Japan. In the pre-FTA period, India used to levy a tariff on all imports; in the post-FTA period, it exempted grafted trees (0602.20) and shrubs (0602.90) from duties. India has liberalized its agricultural sector not instantly, but gradually, over 11 years (2011–2021), to eliminate tariffs. Nearly 60% of its agricultural commodities are in the B10 category (Mouzam et al. 2016).

Japan has always depended on imports to meet its domestic demand–supply shortfall for agricultural produce (60%); its ad valorem tariffs in the agricultural sector were low even before the IJCEPA. Japan's MFN duties (0–150%) did not apply to 99 agricultural and allied products in the pre-FTA period; in the post-FTA period, 165 products, 60% of its agricultural goods, are traded duty-free (Table 4).

Japan levies non–ad valorem tariffs on up to 14% of its agricultural and allied sector products (Kallummal 2015); reducing the tariff barrier has raised their import share from 47% to 81%. Japan levies a tariff of more than 20% on only a few goods, in both periods, and their import share was low. Japan's pre-FTA ad valorem

Table 4 Japan's tariff structure of bilaterally traded commodities in pre- and post-FTA periods

Range of Advalorem duty (%)	No. of HS 6 digit tariff line		Value of agril. imports (Million US$)	
	Pre-FTA period	Post-FTA period	Pre-FTA period	Post-FTA period
0	99 (34.85)	165 (58.09)	421.49 (47.3)	810.32 (81.5)
1 to 5	88 (30.98)	39 (13.73)	405.16 (45.5)	104 (10.5)
6 to 10	40 (14.08)	35 (12.32)	32.77 (3.7)	45.36 (4.6)
11 to 15	41 (14.43)	23 (8.09)	1.60 (0.2)	4.54 (0.5)
16 to 20	14 (4.92)	20 (7.04)	0.13 (0)	0.02 (0)
21 to 25	2 (0.7)	2 (0.7)	30.17 (3.4)	30.24 (3)
>26	0.00	0.00	0 (0)	0 (0)
Total (Ag.)	284 (100)	284 (100)	891.32 (100)	994.49 (100)
Total Japan's trade with India (Ag.+ Non-ag)			4713.98	4713.98

Note in parentheses represents the percentage share of total traded tariff line

tariff was 6% on animal products (section I), 4% on vegetable products (section II), 1.9% on fats and oils (section III), 7.3% on processed foods (section IV), 2.2% on chemical products (section V), and 0.2% on textile products (section VI). After the FTA, Japan reduced the tariffs the most in Sections III, II, VI, IV, I and XI—to meet its needs (Table 5). Japan reduced its average tariff only marginally, but imports by India increased—USD 103 million, mainly in section I, and US$ 100 million, mainly in Chapter three (fish and crustaceans) (Table 4).

India, too, reduced its average tariff in the post-FTA period, but exports to Japan fell, mainly in Sections III and IV, the top in terms of fall in tariffs, due to deviated NTMs (like SPS-based maximum residue limits) (Kallummal and Gurung 2020). The export of products in Chapters 15 and 23 fell because Japan imposed NTMs (Table 6). Indian agricultural exports to Japan increased in the post-FTA period, but the gains were not significant, because India reduced its tariffs under the IJCEPA (except in a few commodities, mainly fishery products). These results align with Nataraj and Ashwini (2014) and Bhattacharyay and Mukhopadhyay (2013).

Japanese exports to India attract tariffs seven times higher in ad valorem duties on average, as India has been using more of Ad valorem tariffs than NTMs (Kallummal and Gurung 2020). India reduced its tariffs on textile products (section XI) to 22.1% in the post-FTA period, the highest reduction in tariffs, and also on products in Sections II (by 5.4 percentage points), IV (5.2 percentage points), I (4.5 percentage points), VI (3.1 percentage points), and III (2.3 percentage points), but exports fell, because Japan imposed NTMs.

Japan reduced tariffs, and did impose NTMs—making post-FTA bilateral exports price-competitive—raising India's imports of products in Chapter 3 (fisheries) and fats and oils (Chapter 15) and in all the Chapters in Sections IV, VI, and XI (Table 7). The IJCEPA required Japan to lower tariffs on the import of such products by India, and not impose deviated NTMs, and Indian importers benefited. Therefore, the FTA improved overall trade in agricultural and allied products, but not necessarily in each product in each chapter or section, or for both partners (Table 8).

Non-tariff measures (NTM)

The average tariff level has fallen since the establishment of GATT, and the WTO negotiations, but the use of NTMs has increased. After Japan signed the IJCEPA, it imposed more—and more stringent—NTMs (SPS measures and TBTs) than India, annually and cumulatively, nullifying the gains from tariff liberalization and creating a formidable non-price-based barrier against access to its markets.

India imposed more SPS measures (60%) than TBTs (40%) (Figure 1). From 1995 to 2021, Japan imposed 1,575 NTMs, almost four times India's 409. Japan notified 4 times as many SPS to the WTO as India in the pre-FTA period and 2.5 times as many in the post-

Table 5 Section- and chapter-wise Japan's agricultural imports from India

Section/ HS Chapter	Name of the section/chapter product group	Average tariff duties (%)			Value of agricultural imports (Mln. US$)	
		Pre-FTA period	Post-FTA period	Fall in the Post-FTA	Pre-FTA period	Post-FTA period
I	Live animals & animal products	6.0	5.6	-0.4	318.3	426.4
1	Live animals	0.0	0.0	0.0	0.0	0.1
2	Meat products	0.0	0.0	0.0	0.0	0.0
3#	Fishery products	3.9	3.1	-0.8	298.7	397.9
4	Dairy produce; eggs; honey	18.1	18.1	0.0	5.8	11.9
5	Products of animal origin nes	0.7	0.0	-0.7	13.8	16.5
6	Live trees & other plants	0.5	0.0	-0.5	6.6	3.8
II	Vegetable products	4.0	2.7	-1.3	134.6	198.8
7	Edible vegetables	5.4	4.1	-1.3	0.9	1.7
8	Edible fruit & nuts	5.8	3.8	-2.1	32.6	57.1
9	Coffee, tea, maté & spices	3.3	1.3	-2.1	43.7	51.5
10	Cereals	0.4	0.1	-0.3	9.4	4.2
11	Products of the milling industry	13.6	13.6	0.0	0.3	0.9
12	Oil seeds & oleaginous fruits	1.4	0.7	-0.8	9.4	14.6
13	Lac; gums, resins	1.8	0.0	-1.8	27.4	56.8
14	Vegetable planting materials	2.4	0.0	-2.4	4.2	8.3
III	Animal or veg. fats & oils	1.9	0.4	-1.5	47.8	44.6
15	Animal/ vegetable fats & oils	1.9	0.4	-1.5	47.8	44.6
IV	Prepared foodstuffs & tobacco	7.3	6.7	-0.6	353.7	286.0
16#	Preparations of meat, of fish or of crustaceans	6.4	6.4	0.0	9.2	14.9
17	Sugars & sugar confectionery	6.1	4.4	-1.7	0.1	0.3
18	Cocoa and cocoa preparations	16.7	16.5	-0.2	0.1	0.1
19	Preparations of cereals, flour, starch or milk	11.6	11.5	-0.1	0.3	0.8
20	Preparations of veg., fruit, nuts	12.2	10.8	-1.4	12.3	15.9
21	Misc. edible preparations	10.1	9.4	-0.7	6.8	14.3
22	Beverages, spirits and vinegar	4.5	2.6	-1.9	0.9	5.9
23	Residues & waste from the food industries	0.2	0.0	-0.2	320.0	222.2
24	Tobacco & mftd. tobacco substitutes	5.8	5.6	-0.3	4.0	11.6
VI	Chemical products	2.2	1.1	-1.1	28.5	31.9
33*	Essential oils	1.3	0.0	-1.3	19.5	21.0
35*	Albuminoidal substances; modified starches	3.7	2.6	-1.0	9.0	10.9
38*	Misc. chemical products	0.0	0.0	0.0	0.0	0.0
XI	Textiles and textile articles	0.2	0.0	-0.2	8.4	6.9
50*	Silk	1.1	0.0	-1.1	0.0	0.0
51*	Wool	0.0	0.0	0.0	0.1	0.8
52*	Cotton	0.0	0.0	0.0	8.3	6.1
Total (Agriculture)		5.00	4.08	0.92	891.3	994.5

Note Agriculture and allied sector is being redefined to include the following revision (1) '*' it indicates the inclusion of es only relevant six digit agricultural lines; (2)'#' tariff lines in the complete chapter is taken and not as suggested by Annex 1 of Agreement on Agriculture.
Source Authors calculation based on Tariff analysis online (WTO), the Agreement text, and WITS online database.

Table 6 Section & Chapter-wise India's agricultural imports from Japan

HS Section/ Chapter	Name of the section/chapter (product group)	Average tariff duties (%)		Change over pre-FTA	Value of agricultural imports (Mln. US$)	
		Pre-FTA period	Post-FTA period		Pre-FTA period	Post-FTA period
I	Live animals & animal products	29.9	25.4	-4.5	0.56	0.83
1	Live animals	30.0	21.8	-8.2	0.04	0.01
2	Meat products	30.0	21.8	-8.2	0.01	0
3	Fishery products	30.0	26.4	-3.6	0.26	0.57
4	Dairy produce; eggs; honey	30.0	30.0	0.0	0	0.01
5	Products of animal origin nes	29.2	21.2	-8.0	0.25	0.23
II	Vegetable products	34.6	29.2	-5.4	2.72	1.43
6	Live trees & other plants	5.0	3.2	-1.8	0	0.06
7	Edible vegetables	30.0	26.7	-3.3	0.03	0.01
8	Edible fruit & nuts	30.0	30.0	0.0	0.11	0
9	Coffee, tea, maté & spices	62.2	53.1	-9.1	0.07	0.05
10	Cereals	70.0	70.0	0.0	0.01	0.02
11	Products of the milling industry	30.0	30.0	0.0	0.11	0.11
12	Oil seeds & oleaginous fruits	22.8	16.6	-6.2	2.23	0.86
13	Lac; gums, resins	25.6	18.7	-7.0	0.18	0.26
14	Vegetable planting materials	30.0	21.8	-8.2	0	0.05
III	Animal or veg. fats & oils	59.1	56.8	-2.3	0.36	0.87
15	Animal/ vegetable fats & oils	59.1	56.8	-2.3	0.36	0.87
IV	Prepared foodstuffs & tobacco	42.1	36.9	-5.2	2.82	4.05
16	Preparations of meat, of fish or crustaceans	30.0	24.3	-5.7	0.14	0.47
17	Sugars & sugar confectionery	40.0	36.3	-3.8	0.24	0.38
18	Cocoa and cocoa preparations	30.0	21.8	-8.2	0.03	0.18
19	Preparations of cereals, flour, starch or milk	30.0	23.9	-6.1	0.15	0.15
20	Preparations of veg., fruit, nuts	30.0	24.8	-5.2	0.06	0.1
21	Misc. edible preparations	40.9	33.5	-7.4	1.75	2.22
22	Beverages, spirits and vinegar	84.3	81.3	-3.0	0.11	0.26
23	Residues & waste from the food industries	17.5	17.5	0.0	0.33	0.28
VI	Chemical products	19.8	16.6	-3.1	0.28	1.23
29	Organic chemicals	20.0	14.6	-5.5	0.01	0.02
33*	Essential oils	20.0	14.6	-5.5	0.02	0.02
35*	Albuminoidal substances; modified starches	19.7	17.5	-2.2	0.26	1.19
XI	Textiles and textile articles	22.1	0.0	-22.1	0	0.01
52*	Cotton	22.1	0.0	-22.1	0	0.01
Total (Agriculture)		34.6	27.5	-7.1	6.7	8.4

Note Agriculture and allied sector is being redefined to include the following revision (1) '*' it indicates the inclusion of es only relevant six digit agricultural lines; (2)'#' tariff lines in the complete chapter is taken and not as suggested by Annex 1 of Agreement on Agriculture.
Source Authors calculation based on Tariff analysis online (WTO), the Agreement text, and WITS online database.

Table 7 Inventory approach for chapter-wise NTMs imposed by India (stock approach)

HS Section/ Chapter	Name of the chapter (product group)	Frequency index (FI)			Coverage ratio (CR)	
		1995 to 2006	Pre-FTA	Post-FTA	Pre-FTA	Post-FTA
I	Live animals; animal products	55.80	55.80	55.80	60.00	60.00
3	Fishery products	88	88	88	100	100
4	Dairy produce; eggs; honey	91	91	91	100	100
5	Products of animal origin nes	100	100	100	100	100
II	Vegetable products	55.56	55.56	55.56	55.56	55.56
8	Edible fruit & nuts	100	100	100	100	100
9	Coffee, tea, maté & spices	100	100	100	100	100
12	Oil seeds & oleaginous fruits	100	100	100	100	100
13	Lac; gums, resins	100	100	100	100	100
14	Vegetable planting materials	100	100	100	100	100
III	Animal or veg. fats & oils	100.00	100.00	100.00	100.00	100.00
15	Animal/ veg. fats & oils	100	100	100	100	100
IV	Prepared foodstuffs & tobacco	33.33	33.33	33.33	33.33	33.33
20	Preparations of veg., fruit, nuts	100	100	100	100	100
21	Misc. edible preparations	100	100	100	100	100
23	Residues & waste from food industries	100	100	100	100	100
VI*	Chemical products	24.75	24.75	24.75	5.50	8.50
29*	Organic chemicals	2	2	2	3	5
33*	Essential oils	14	14	14	4	11
35*	Albuminoidal substances; modified starches	71	71	71	2	9
38*	Misc. chemical products	12	12	12	13	9
VIII*	Raw hides & skins	0	0	0	0	0
XI*	Textiles and textile articles	6.25	2	6.25	0.5	3.75
52*	Cotton	25	8	25	2	15

*Note 1**includes only agricultural relevant lines as per Agreement on Agriculture of WTO

Note 2 Chapters 1,2,6,7,10,11,16, 17, 18,19,22, 24,41,43,50,51, and 53 are having Zero CR & FI

FTA period (Figure 2). Both India and Japan raised their SPS notifications, but Japan continued raising its notifications till 2019 (Figure 2). India committed to reducing its tariffs steeply and it imposed fewer NTMs (Figure 3). Japan, a world leader in technology, imposed more of TBTs (66%) than SPS measures (34%) (Kallummal 2012).

'Food, labelling, certification and conformity assessment' constitute most of the TBTs imposed (Figures 4 and 5) and 'food safety' most of the SPS measures (71% by India and 79% by Japan). Clearly, both partners consider 'food safety issues' (residuals of pesticides, chemicals, and food additives) important. India issued fewer SPS notifications on 'food safety and animal health' than Japan (Figures 6 and 7). India accounts for 59% international standards in SPS and Japan 45% (Figures 8 and 9). If developed countries follow 'national standards' in international trade, especially in the case of raw agricultural and processed food products, developing countries find it difficult to access their markets (Dankers and Liu 2003; Kallummal 2012; Kallummal 2020 a).

Results of inventory approach

We used the data to compute the frequency index and coverage ratio over time for the pre-FTA and post-FTA periods and compare these, focusing on trends and changes. The inventory approach provides an

Table 8 Inventory approach for chapter-wise NTMs imposed by Japan (stock approach)

HS Section/ Chapter	Name of the chapter (product group)	Frequency index (FI)			Coverage ratio (CR)	
		1995 to 2006	Pre-FTA	Post-FTA	Pre-FTA	Post-FTA
I	Live animals; animal products	55.80	55.80	58.20	60.00	60.00
3	Fishery products	88	88	100	100	100
4	Dairy produce; eggs; honey	91	91	91	100	100
5	Products of animal origin n.e.s.	100	100	100	100	100
II	Vegetable products	55.56	55.56	55.56	55.56	55.56
8	Edible fruit & nuts	100	100	100	100	100
9	Coffee, tea, maté & spices	100	100	100	100	100
12	Oil seeds & oleaginous fruits	100	100	100	100	100
13	Lac; gums, resins	100	100	100	100	100
14	Vegetable planting materials	100	100	100	100	100
III	Animal or veg. fats & oils	100.00	100.00	100.00	100.00	100.00
15	Animal/ veg. fats & oils	100	100	100	100	100
IV	Prepared foodstuffs & tobacco	33.33	33.33	33.33	33.33	33.33
20	Preparations of veg., fruit, nuts	100	100	100	100	100
21	Misc. edible preparations	100	100	100	100	100
23	Residues & waste from food industries	100	100	100	100	100
VI*	Chemical products	24.75	24.75	24.75	55.75	62.75
29*	Organic chemicals	2	2	2	2	1
33*	Essential oils	14	14	14	75	100
35*	Albuminoidal substances; modified starches	71	71	71	96	91
38*	Misc. chemical products	12	12	12	50	52
VIII*	Raw hides & skins	0	0	0	0	0
XI*	Textiles and textile articles	0.00	12.00	12.00	12.00	3.25
51*	Wool	0	23	23	2	6
52*	Cotton	0	25	25	11	12

Note *includes only agricultural relevant lines as per Agreement on Agriculture of WTO. Chapters 1,2,6,7,10,11,16, 17, 18, 19, 22, 24,41,43,50, and 53 are having Zero CR & FI.

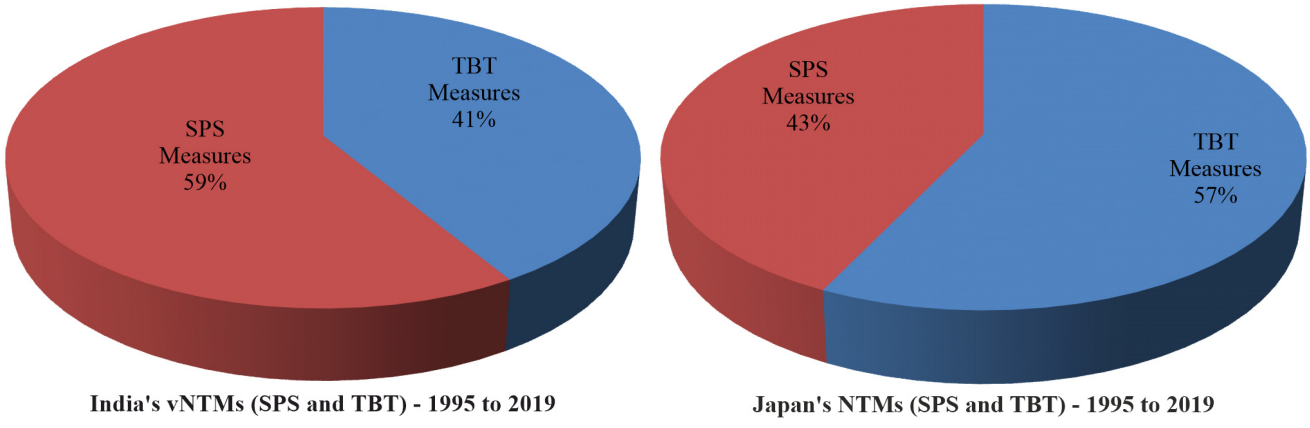

Figure 1 Composition of NTMs (SPS & TBT) imposed by India and Japan: 1995 to 2019

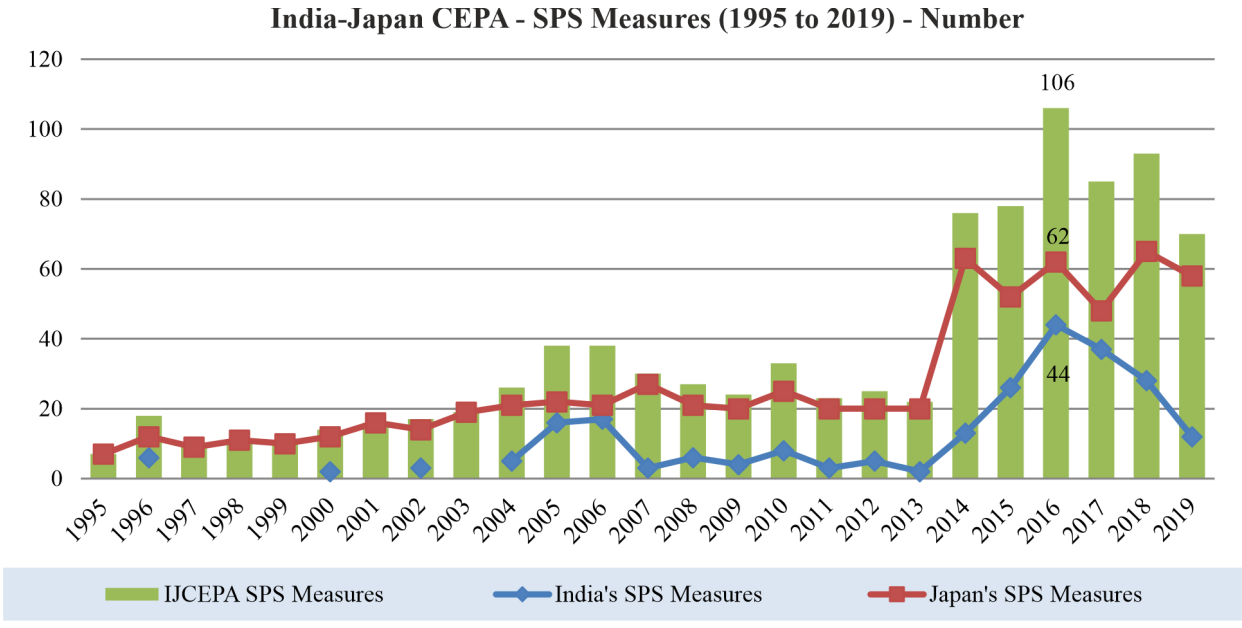

Figure 2 Number of SPS measures under the IJCEPA (1995 to 2019)

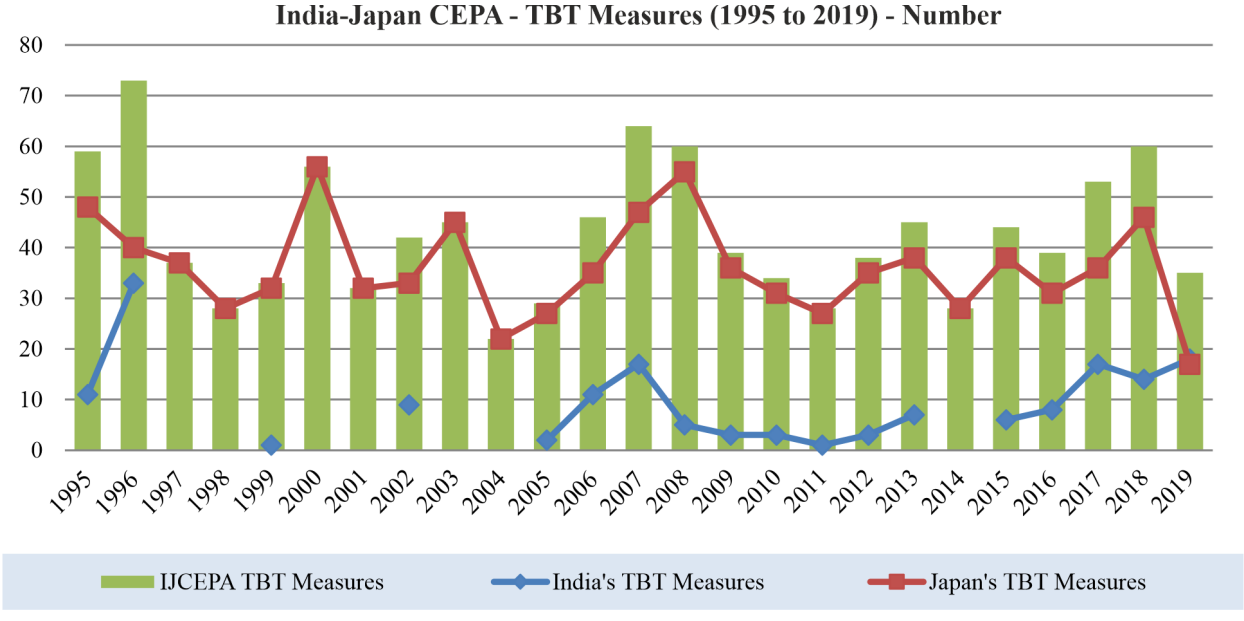

Figure 3 Number of TBT measures under the IJCEPA (1995 to 2019)

acumulative understanding of the NTMs and their impact over the study period. Both the cumulative and stock approaches explain the additional barrier imposed on a particular good, or how much of trade is free.

Calculating the coverage ratio of NTMs at the end of 2006–07 would be inappropriate and incorrect, because of HS transformation and the related nomenclature issues; therefore, we calculated the frequency index of NTMs. To analyse the frequency index and coverage ratio of the NTMs, we considered the end of 2010–11 as the pre-FTA period and the end of 2015–16 as the post-FTA period and took both cumulatives.

The frequency index at the end of the post-FTA period in both countries remaind similar across all sections except for the eleventh section. There was an increase in coverage ratio of sections VI and XI in the post-

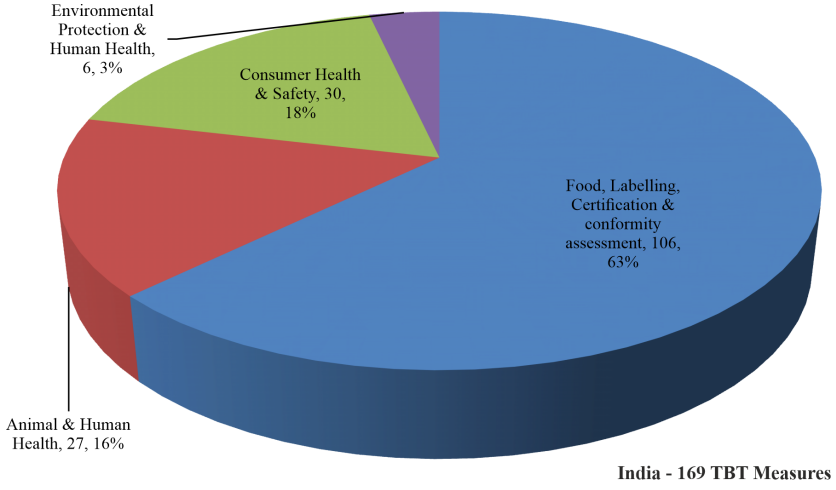

Figure 4 Composition of various objectives of TBT barriers imposed by India until 2019

TBT measures (Objectives)	India – 1995 to 2019
Food, labelling, certification & conformity assessment	106
Animal & human health	27
Consumer health & safety	30
Environmental protection & human health	6
Withdrawal and amendments	
	169

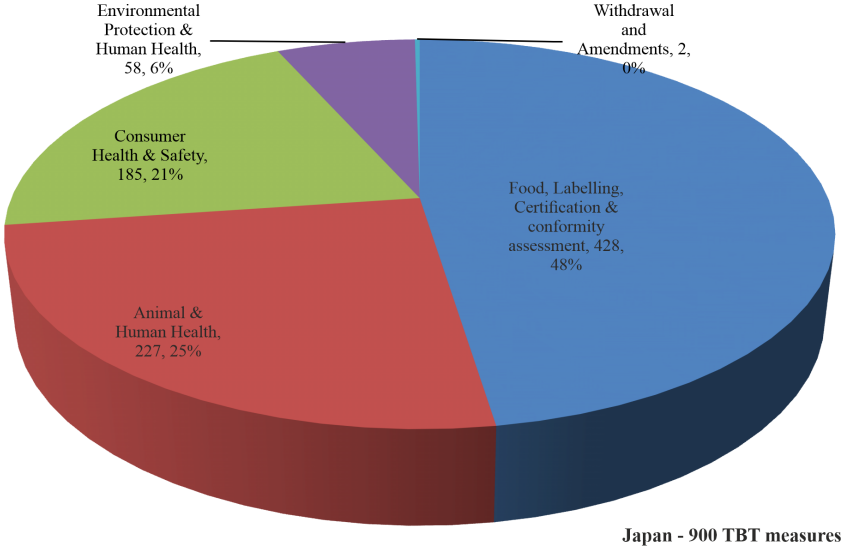

Figure 5 Composition of Various Objectives of TBT barriers imposed by Japan until 2019

TBT measures (Objectives)	Japan – 1995 to 2019
Food, labelling, certification & conformity assessment	428
Animal & human health	227
Consumer health & safety	185
Environmental protection & human health	58
Withdrawal and amendments	2
	900

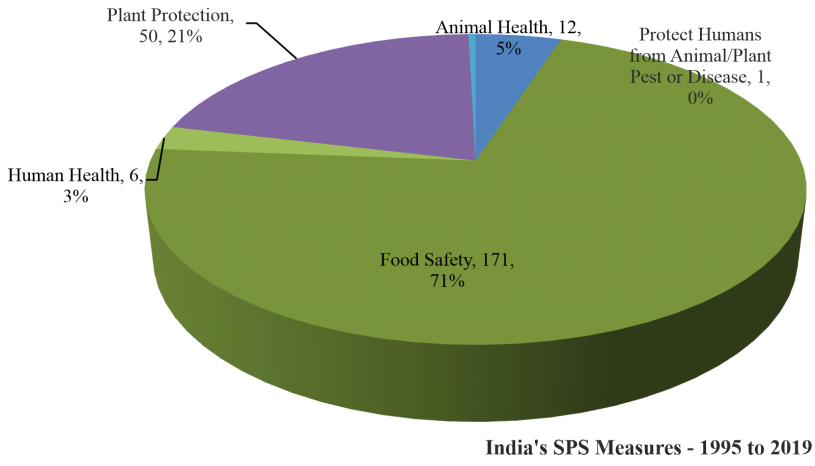

Figure 6 Composition of various objectives of SPS measures barriers imposed by India until 2019

SPS objective	1995 to 2019
India	240
Animal health	12
Food safety	171
Human health	6
Plant protection	50
Protect humans from animal/plant pest or disease	1

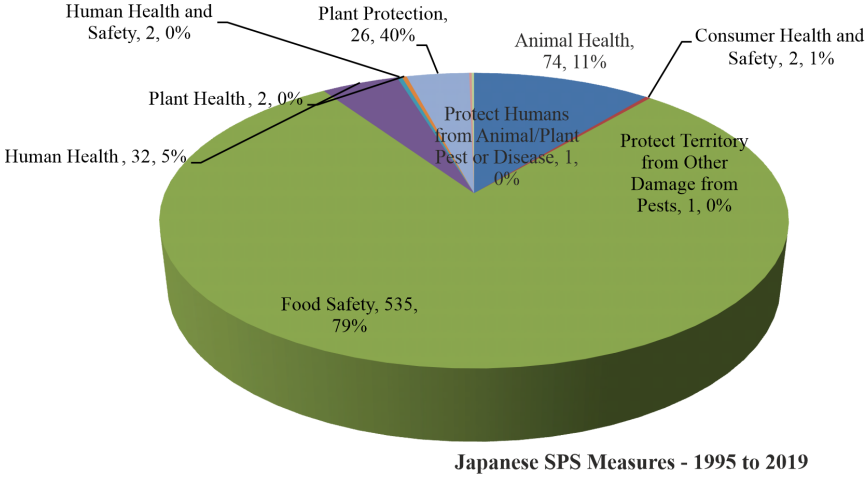

Figure 7 Composition of various objectives of SPS measures barriers imposed by Japan until 2019

SPS objective	1995 to 2019
Japan	675
Animal health	74
Consumer health and safety	2
Food safety	535
Human health	32
Human health and safety	2
Plant health	2
Plant protection	26
Protect humans from animal/plant pest or disease	1
Protect territory from other damage from pests	1

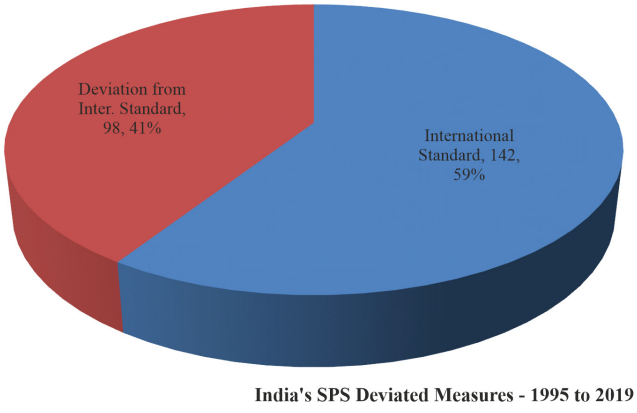

Figure 8 Usage of India's Deviated and International Standards in SPS Measures: 1995 to 2019

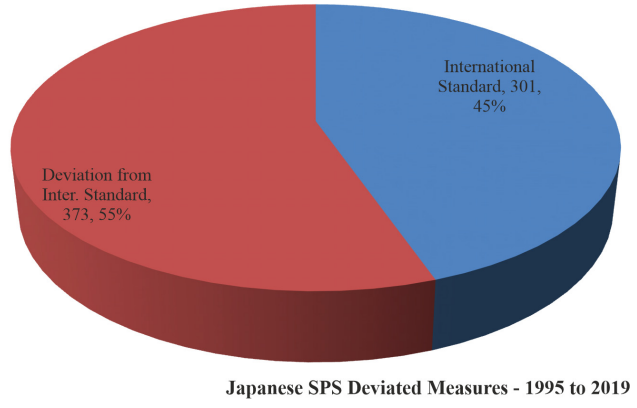

Figure 9 Usage of Japan's Deviated and International Standards in SPS Measures: 1995 to 2019

FTA period in India's imports from Japan compared to the pre-FTA period (Table 5). The coverage ratio of Japan's imports from India was found stable in all sections except in sections VI and XI where section VI recorded a positive trend, and section XI recorded a negative trend (Table 6).

India and Japan imposed NTMs on similar goods (Tables 5 and 6). We analysed bilateral trade in products in 34 chapters. We found NTMs imposed on products in 10 chapters (5, 8, 9, 12, 13, 14, 15, 20, 21, and 23); the coverage ratio and frequency index was 100%. India's exports of vegetable products, animal or vegetable fats and oils, and prepared foodstuffs were the worst affected by Japan's SPS measures and TBTs. Ghosh (1994) found such barriers even before the WTO existed, and therefore suggested their existence before the signing of the FTA.

Both India and Japan committed to reduce or eliminate tariffs on products in Chapters 5, 8, 9, 12, 13, 14, 15, 20, 21, and 23, but the coverage ratio and frequency index of both their NTMs was 100%. Non-tariff measures offer import-competing firms de facto protection (Thilmany and Barrett 1997); this study confirms the finding.

The hypothesis—the IJCEPA reduced NTMs—is rejected. India and Japan imposed 'food safety and plant protection' (SPS) measures. Japan imposed 'consumer protection and labelling' TBTs and also TBTs in Chapters 12 (26 measures), 20, and 21.

Conclusions and policy recommendations

Any product being exported faces tariff and non-tariff barriers; this paper studies the issue of access to markets in the context of these barriers. The IJCEPA reduced tariffs considerably, increasing agricultural and allied exports for India and Japan in a limited fashion, but it resulted in a surge of non-harmonized non-price-based NTMs like SPS and TBT. India must urgently harmonize NTMs and engage in MRAs by educating exporters and traders. Technological prowess is not involved in SPS measures in agricultural and allied products, but health and safety concerns need addressing and harmonizing for both countries. Mostly, TBTs are privately driven innovations and technological content and, therefore, India is the weaker partner.

Price-based (tariff) measures of liberalization and non-price-based measures are clearly imbalanced. The IJCEPA ends in 2021, eliminating 80% of tariff lines and making NTMs even more stringent—a direct outcome of the design of the negotiation process. The two partners should understand the issues of production, consumption, tariff and NTMs on each tariff line by consulting stakeholders and the micro, small and medium enterprises (MSME) sector, and it should negotiate the trade agreement on that understanding and address the imbalance like the one seen in IJCEPA of Japan with a characteristic of low ad valorem tariffs along with the presence of non-transparent tariffs (non–ad valorem duties) and the deviated NTMs and a developing country with relatively high average tariff and low NTMs.

Introducing traceability-related NTMs on small consignments affects many stakeholders; future

research should consider the impact on them. India should organize trade better and improve product quality to meet NTMs and negotiatie on issues like deviations in SPS measures and TBT, which are within the purview of the SPS and TBT agreements. All trade negotiations should address the livelihood concerns of the smallest administrative unit; all possible efforts should be made in this direction. One or two agricultural or allied products should be picked based on the livelihood concerns from each of the 718 districts and mapped to the closest harmonized code; all factors of regulating the ecosystem should be identified before entering a bilateral trade commitment.

References

Ando, M, S Urata, and K Yamanouchi. 2019. *Do Japan's free trade agreements (FTAs) increase its international trade?* Research Institute of Economy, Trade and Industry (RIETI). https://www.rieti.go.jp/en/publications/summary/19100035.html

Bacchetta, M and B Bora. 2001. *Post-Uruguay round market access barriers for industrial products*. UNCTAD Policy Issues in International Trade and Commodities Study Series, No 12, UN, New York and Geneva. https://unctad.org/system/files/official-document/itcdtab13_en.pdf

Bhagwati, Jagdish. 2008. *Termites in the trading system: how preferential agreements undermine free trade*. Oxford University Press, Oxford. https://dx.doi.org/10.1093/acprof:oso/9780195331653.001.0001

Bhattacharya, B, and S Mukhopadhaya. 2002. *Non-tariff measures on South Asia's exports: an assessment*. SAARC Business Information Network, Delhi.

Bhattacharyay, B, and K Mukhopadhyay. 2013. *Economy-wide impact of the trade integration between Japan and India: a computable general equilibrium analysis*. Center for Economic Studies (CES) Working Paper No 4557: 1–24. https://ideas.repec.org/p/ces/ceswps/_4557.html

Cadot, O, and J Gourdon. 2016. Non-tariff measures, preferential trade agreements, and prices: new evidence. *Review of World Economics* 152: 227–249. https://dx.doi.org/10.1007/s10290-015-0242-9

Carrère, Céline, and Jaime de Melo. 2011 b. Non-tariff measures: what do we know, what might be done? *Journal of Economic Integration* 26 (1): 169–196. https://dx.doi.org/10.11130/jei.2011.26.1.169

Carrère, Céline, and Jaime de Melo. 2011 a. Notes on detecting the effects of non-tariff measures. *Journal of Economic Integration*. 26 (1): 136–168. https://dx.doi.org/10.11130/jei.2011.26.1.136

Chaudhary S, M Kallummal, and P Verma. 2013. Trade creation and trade diversion in the India Sri Lanka free trade agreement: a sector-specific analysis. *Journal of Economic Policy and Research* 8 (1): 36–61.

Chauffour, J-P, and J-C Maur (eds). 2011. *Preferential trade agreement policies for development: a handbook*. World Bank Group. https://hdl.handle.net/10986/2329

Chauffour, J-P, and J-C Maur. 2011. Beyond market access, in *Preferential trade agreement policies for development: a handbook*, edited by J-P Chauffour and J-C Maur. World Bank Group, 17–36. http://hdl.handle.net/10986/2329

Choi, B. 2011. Whither the KORUS FTA? the moment of truth, in *Navigating Turbulence in Northeast Asia: The Future of the US–ROK Alliance, Joint US–Korea Academic Studies* 45–58. https://keia.org/publication/whither-the-korus-fta-the-moment-of-truth

Cihelková, E. 2012. Regional environmental governance: the NAFTA case. *Agricultural Economics,* 58 (10): 454–466. https://dx.doi.org/10.17221/76/2012-AGRICECON

Dankers, Cora, and Liu Pascal. 2003. *Environmental and social standards, certification and labelling for cash crops*. Food and Agriculture Organization (FAO) of the United Nations. https://www.fao.org/3/y5136e/y5136e.pdf

Deb, U K. 2006. *Rules of origin and non-tariff barriers in agricultural trade: perspectives from Bangladesh and Cambodia*. Asia-Pacific Research and Training Network on Trade (ARTNeT) Working Paper Series, AWP 12. https://www.unescap.org/sites/default/files/AWP%20No.%2012.pdf

Disdier, A C, L Fontagne, and M Mimouni. 2008. The impact of regulations on agricultural trade: evidence from the SPS and TBT agreements. *American Journal of Agricultural Economics* 90 (2): 336–350. https://www.jstor.org/stable/30139588

Disdier, A-C, and F van Tongeren. 2010. Non-tariff measures in agri-food trade: what do the data tell us? evidence from a cluster analysis on OECD imports. *Applied Economic Perspectives and Policy*. 32 (3): 436–455. https://dx.doi.org/10.1093/aepp/ppq008

Fontagné, L, M Mimouni, and J-M Pasteels. 2005. Estimating the impact of environmental SPS and TBT

on international trade. *Integration and Trade Journal* (22): 7–37. https://hal.archives-ouvertes.fr/hal-00270511

Francis, S, and M Kallummal. 2013. India's comprehensive trade agreements: implications for development trajectory. *Economic & Political Weekly* 48 (31): 109–122. https://www.epw.in/journal/2013/31/special-articles/indias-comprehensive-trade-agreements.html

Francis, S. 2011. A sectoral impact analysis of the ASEAN–India free trade agreement. *Economic & Political Weekly* 46 (2): 8–14. https://www.epw.in/journal/2011/02/special-articles/sectoral-impact-analysis-asean-india-free-trade-agreement.html

Gao, Q, S Ito, and H Saito. 2018. Measuring Japan's technical barriers to trade based on China's fruit exports to Japan. *Agricultural Economics* 64 (3): 141–147. https://dx.doi.org/10.17221/235/2016-AGRICECON

Ghosh, M. 1994. *Non-tariff barriers to trade: case study of India vis-à-vis EC, Japan and USA*. National Institute of Public Finance and Policy (NIPFP) Working Paper No 3. https://www.nipfp.org.in/media/pdf/working_papers/WP_1994_143.pdf

Government of India (GoI), Department of Commerce. 2020. https://commerce.gov.in/InnerContent.aspx?Type=InternationalTrademenu&Id=32

H de Frahan, B, and M Vancauteren. 2006. Harmonisation of food regulations and trade in the single market: evidence from disaggregated data. *European Review of Agricultural Economics* 33 (3): 337–360. https://dx.doi.org/10.1093/eurrag/jbl015

Ishaq, M, Q Ping, Z Haq, C Li, and C Tong. 2016. Maximum residue limits and agrifood exports of China: choosing the best estimation technique. *Agricultural Economics* 62 (2): 78–92. https://dx.doi.org/10.17221/17/2015-AGRICECON

Jacopo, T, and M Conesa 2019. Chinese exports and non-tariff measures: testing for heterogeneous effects at the product level. *Journal of Economic Integration* 34 (2): 327–345. https://dx.doi.org/10.11130/jei.2019.34.2.327

Kallummal M. 2020 c. *Is trade negotiation under the WTO a victim of half-hearted strategies and inconsistencies?* Centre for WTO Studies, Indian Institute of Foreign Trade. https://dx.doi.org/10.2139/ssrn.3708427

Kallummal, M, A Gupta, and P Verma. 2013. Agricultural trade of South Asia and impact of SPS measures: a case study of European Rapid Alert System for Food and Feed (RASFF). *Journal of Economic Policy and Research* 8 (2): 40–75. https://www.ipeindia.org/wp-content/uploads/2020/09/Vol.8.No_.2-April2013-September2013.pdf

Kallummal, M, and H M Gurung. 2020. *Market access disciplining in agriculture trade: prevalence of SPS-based MRL standards*. Centre for WTO Studies (CWS) Working Paper No 60.

Kallummal, M, D Mendiratta, and S Sangita. 2018. US import refusals of agricultural products and their impact on the participation of Indian firms. *Agrarian South: Journal of Political Economy: a triannual journal of Agrarian South Network and CARES* 7(1): 78–104. https://dx.doi.org/10.1177/2277976018758079

Kallummal, M. 2006. NAMA negotiations under the WTO: real concerns? *Social Scientist* 34 (9/10): 34–47. https://www.jstor.org/stable/27644169

Kallummal, M. 2012. *SPS measures and possible market access implications for agricultural trade in the Doha Round: an analysis of systemic issues*. Asia-Pacific Research and Training Network on Trade (ARTNeT) Working Paper Series, AWP 116. https://www.unescap.org/sites/default/files/AWP%20No.%20116.pdf

Kallummal, M. 2015. North–South imbalances in the Doha round: the use of specific duties as a trade policy instrument. *Agrarian South: Journal of Political Economy: a triannual journal of Agrarian South Network and CARES* 4(1): 85–104. https://dx.doi.org/10.1177/2277976015574052

Kallummal, M. 2020 b. *Did the US GSP scheme truly benefit the indian economy—political economy of denying market access?* Centre for WTO Studies, Indian Institute of Foreign Trade. https://dx.doi.org/10.2139/ssrn.3632164

Kallummal, M. 2020 a. *Market access and issues of data gaps and transparency and information asymmetry: a case of RCEP negotiations*. Centre for WTO Studies, Indian Institute of Foreign Trade. https://dx.doi.org/10.2139/ssrn.3555910

Kang J W. 2015. *The noodle bowl effect: stumbling or building block?* Asian Development Bank (ADB) Economics Working Paper Series No 446. http://hdl.handle.net/11540/5114

Mouzam, S M, and G S Mahadevaiah. 2016. Trade creation and trade diversion effects of India-Japan Comprehensive Economic Partnership Agreement (IJCEPA) on the agricultural and allied sector. *Mysore Journal of Agricultural Sciences* 50 (2): 15–20.

Mouzam, S M, G S Mahadevaiah, M Kallummal, and S Jagdambe. 2016. Ex-ante impact assessment of India-

Japan comprehensive economic partnership agreement (IJCEPA) on fishery sector. *International Journal of Agriculture Sciences* 8 (53): 2703–2707.

Mulgan, A G. 2008. Japan's FTA politics and the problem of agricultural trade liberalisation. *Australian Journal of International Affairs* 62 (2): 164–178. https://dx.doi.org/10.1080/10357710802060535

Nataraj, G, and Ashwani. 2014. *India-Japan economic partnership agreement: gains and future prospects*. Observer Research Foundation (ORF) Occasional Paper. https://www.orfonline.org/research/india-japan-economic-partnership-agreement-gains-and-future-prospects

Saqib, M, and N Taneja. 2005. *Non-tariff barriers and India's exports: the case of ASEAN and Sri Lanka*. Indian Council for Research on International Economic Relations (ICRIER) Working Paper No 165. https://www.icrier.org/pdf/wp165.pdf

Sithamaparam, A G, and E S Devadason. Do non-tariff measures in the EU, Japan and the ASEAN matter for export consignments from Malaysia? *Institutions and Economies* 8 (2): 1–25. https://mjs.um.edu.my/index.php/ijie/article/download/5034/2870/11656

Staiger, R W. 2012. *Non-tariff measures and the WTO*. World Trade Organization, Economic Research and Statistics Division, Staff Working Paper ERSD-2012-01. https://www.wto.org/english/res_e/reser_e/ersd201201_e.pdf

Sun, L, B E C Bogdanski, B Stennes, and G C van Kooten. 2010. *The role of tariff and non-tariff trade barriers in the global forest products trade: a Canadian perspective*. Canadian Forest Service, Pacific Forestry Centre, Information Report BC-X-424. https://d1ied5g1xfgpx8.cloudfront.net/pdfs/31407.pdf

Thilmany, D D, and C B Barrett. 1997. Regulatory barriers in an integrating world food market. *Review of Agricultural Economics* 19 (1): 91–107. https://www.jstor.org/stable/1349680

United Nations Conference on Trade and Development (UNCTAD). 2012. *International non-tariff measures, 2012 version*. United Nations, New York and Geneva. https://unctad.org/system/files/official-document/ditctab20122_en.pdf

World Trade Organization (WTO). 2020 b. Non-tariff barriers: red tape, etc. https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm9_e.htm

World Trade Organization (WTO). 2020 a. *Regional trade agreements*. https://www.wto.org/english/tratop_e/region_e/region_e.htm#facts

Received: 7 September 2020 Accepted: 25 December 2020