Article

Post-SAFTA NTMs for Agricultural Trade: What Revealed from India–South Asia Approach

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Abstract

Commitment of South Asian Free Trade Agreement (SAFTA) from South Asian Preferential Trading Agreement (SAPTA) for trade liberalisation was one of the hopes in South Asia. This article highlights untapped trade potential in agro-trade between India and its trading partners in South Asia through Trade Potential Index (TPI). This article evaluates post-SAFTA effects of non-tariff measures (NTMs) on agro-products (HS 6-digit level) over the period 2004–2016. After 2004, many agro-products of South Asia have suffered trade restrictions which create challenges over SAFTA implementation. This article inquires whether NTMs in post-SAFTA has been trade creating or trade inhibiting in agro-trade for member countries as per the earlier commitments. Research methodology for this study includes qualitative and quantitative approach. Qualitative approach examines agri-trade constraints faced between India and rest seven South Asian countries and vice versa. Quantitative analysis explores prevailing trade barriers in selected agro-products during 2002–2016 applying Regional Trade Barrier Index and NTM Coverage Ratio. Results establish the presence of agri-trade barriers from South Asian countries against India as well as India's barriers against rest seven countries of South Asia. Study concludes that agri-trade restrictions prevail in South Asia despite SAFTA which shows the slow process of trade liberalisation.

JEL Codes: F13, F14, Q17

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Keywords

Non-tariff measures, trade potential, South Asia, RTB index

Introduction

International trade has been affected by protectionism today (Murray, 1990). Agriculture and food products have experienced widening and deepening of market ties in the post-globalised world. Agriculture has become an emerging sector with many challenges under the regime of World Trade Organization (WTO) where non-tariff measures (NTMs) are constituent components in the construction, coordination and regulation of trade policies. NTMs are policy measures other can ordinary custom tariffs that can potentially have an economic effect on international trade in goods, or prices or both (UNCTAD, 2012). NTMs are heterogeneous policy tools prominently linked to international trade and used as alternatives of tariffs to restrict trade (Deardorff, 1987; Fugazza, 2013). It has made international trade costly in spite of presence of regulations favouring consumers, environment and economy (Stiglitz, 2014). It distorts trade flows through various channels (Chakraborty et al., 2019). NTMs reduce the export volumes and decrease the gains from international trade (Jordaan, 2017).

South Asian countries have attracted the attention of policy makers due to substantial trade reforms (Pangariya, 1999). Forming South Asian Association for Regional Cooperation and Agreement (SAARC) and South Asian Free Trade Agreement (SAFTA) has considerably helped South Asia to improve trade connectivity amongst selected trading partners to some extent. South Asia is regarded as one of the least economically integrated regions in the world. South Asian Preferential Trading Agreement (SAPTA) was adopted in 1995. Inefficiency of SAPTA led to the formation of SAFTA in 2004 for trade generating capacities. SAFTA came into effect on 1 January 2006, where member countries agreed to reduce sensitive product list by different margins. The agreement aims to promote trade and investment; reduce trade barriers and increase economic integration. Article 6 of the agreement relates to tariffs, para-tariffs and NTMs. Article 8 relates to harmonise standards and develop lab testing and certifications. There remains a question that to what extent SAFTA has been trade creating or trade inhibiting. In reality, despite this agreement in post-SAFTA, trade restrictions have prevailed.

In spite of large focus on NTMs, South Asian countries still prefer to import agro-products from distant countries instead of availability of agro-products in neighbouring countries. This is a serious concern as it leads to high prices for consumers. Raihan et al. (2014) contended that NTMs are invisible barriers in South Asia which acts as major constraints and affects trade liberalisation policies. Batra (2007) opined that India has a more sustained growth amongst all the countries in South Asia. Kelegama (2007) inquired that removal of trade impediments would lead to more intra-regional trade in South Asia and high growth rate of India would create spillovers for different regions of South Asia. In an interesting study, Mukherji (2002) presented non-tariff barriers (NTBs) faced by selected South Asian countries for the year 2007 and calculated the bilateral potential trade.

Against this background, this article shows the post-SAFTA agri-trade restrictions in specific agro-products, that is, Harmonised System (HS) six-digit classification. This study adds to the literature by examining two central questions. First, what are post-SAFTA agri-trade restrictions between India and selected members of South Asia and secondly what trade potential lies ahead of NTMs in agri-trade.

Methodology

Qualitative approach of the study analyses South Asia's agri-trade restrictions. This study referred and compiled all the government imposed cases and disputes of NTMs in agri-trade between India and rest seven trading partners in South Asia through exploring different sources like the UNCTAD TRAINS NTMs database, International Trade Centre (ITC) and WTO. Quantitative approach calculates Revealed Trade Barrier (RTB) Index between India and SAARC countries and vice versa to inquire trade barriers in intra-regional trade in South Asia. For this, 28 agro-products of HS six-digit level were calculated over the period 2002–2016. Product details are illustrated in Appendix 1. Further, coverage ratio (CR) and TPI were also calculated for 17 agro-products for India and its trading partners.

CR measures value of trade affected by NTMs for a particular product. At the country level, it is proportion of value of imports affected by NTMs for a country. It is also known as Country Based CR (CBCR) and is calculated for both importing as well as exporting country. For importing country like India, it shows proportion of a particular South Asian country's imports that are affected by NTMs notified by the importing country, that is, India. For an exporting county, that is, any South Asian country it shows the proportion of a country's exports that face NTMs in an importing country. Its formula is:

$$\mathrm{CBCR}_i = (D_k V_k)/(\Sigma \underline{V_k})\,100 \tag{1}$$

where D_k is a dummy variable equal to 1 if an NTM is applied to item k or else 0. V_k is value of imports of product k for importing country i.

TPI identifies products of high trade complementarities between exports of a country and imports of the partner country. It is obtained by matching total export supply of a particular product of a country i with the import demand for that product of a trading partner. Products with high TPI are regarded important for bilateral trade between two given trading partners and show high trade expansion. It is estimated using the formula

$$\mathrm{TPI} = [\text{minimum (IE, GM)} - \mathrm{BE}] \tag{2}$$

where

IE is value of India's total export of a particular product,
GM is value of South Asia's total import of particular product,
BE is value of bilateral exports of a particular product from India to South Asia.

RTB index shows to what degree a commodity's share of imports in import basket from a country is larger or smaller than the share of total imports of that commodity in partner country's total import baskets (summed over all products). In other words, it shows whether imports of a particular commodity from a country is relatively more or less important compared to partner country's total imports from all sources of that commodity. Its formula is:

$$RTB^{j}_{ik} = [\,(M^{j}_{ik}/\Sigma_k M^{j}_{ik}) \div (\Sigma_i M^{j}_{ik}/\Sigma_i \Sigma_k M^{j}_{ik})\,] \quad (3)$$

where

M^{j}_{ik} is value of country j's import from country i of product k,
$\sum_k M^{j}_{ik}$ is value of country j's total import of all the product from country i,
$\sum_i M^{j}_{ik}$ is value of country j's import of product k from all the countries,
$\sum_i \sum_k M^{j}_{ik}$ is value of country j total imports.

If the ratio is <1, it is concluded that India is exporting a commodity relatively more to the rest of the world than to any South Asian countries possibly due to trade barriers in South Asia and vice versa.

Findings and Results

Table 1 provides description of how selected SAARC countries have used different types of NTMs over India's 23 selected agro-products of (HS 2-digit level) over the period 1 January 2002 to 31 December 2016. Data for Bangladesh, Bhutan and Maldives were unavailable. Nepal has initiated and applied most NTMs over India's agro-products. Nepal initiated 237 measures which included 113 Sanitary and Phyto sanitary (SPS) and 91 Technical Barriers to Trade (TBT) measures during the same period. This shows growing complexity in agri-trade between both the trading partners. After Nepal, Sri Lanka and Pakistan have initiated total 86 and 81 measures respectively. Sri Lanka has mostly used SPS measures. Pakistan has mostly used export related measures for India amongst SAARC countries.

Table 2 presents the picture of how India has initiated different NTMs over rest seven SAARC country's agro-products. Data was unavailable for Afghanistan and Bhutan. India has used total 199 measures which are mostly dominated by contingent trade protective measures followed by SPS measures. Number of measures imposed was applicable for all members of South Asia. India has also widely used export related measures.

How South Asian Countries Restrict India's Agro-Products?

A notable implementation of NTMs can be seen where rest seven South Asian Economies (SAEs) imposed NTMs on India's agro-products. Table 3 highlights that SAEs have actively imposed NTMs on India's agro-products which are dominated by Pakistan and Nepal. Regular amendments in food safety norms and

Table 1. Details of NTMs Applied by SAARC Countries over India's Agro-Products (2002–2016 in No.)

Country	SPS	TBT	Quantity Control Measures	Price Control Measures	Other Measures	Pre-Shipment Inspection	Export Measures	Total
Afghanistan	2	25	35	1	1	–	10	74
Nepal	113	91	2	19	5	–	7	237
Pakistan	10	26	14	–	1	6	24	81
Sri Lanka	36	33	–	3	–	1	13	86
Total	161	175	51	23	7	7	54	424

Source: UNCTAD (2018).

Table 2. Details of NTMs Applied by India Over all SAARC Trading Partner's Agro-Products (2002–2016 in No.)

Country	SPS	TBT	Quantity Control Measures	Price Control Measures	Other Measures	Pre-Shipment Inspection	Export-Related Measures	Contingent Trade Protective Measures
India	44	20	28	2	5	–	33	67

Source: UNCTAD (2018).

Table 3. South Asia's NTMs on India's Agro-Products

Country	Products under NTMs
Bangladesh	Bangladesh had banned and restricted India's products like poultry and other products, juices, spices, tobacco, rice, fish, wines and alcoholic items, etc., on the ground of inefficient radioactive tests. Many products were also restricted at different ports. Bangladesh had put a one month ban on India's raw jutes in November 2015.
Bhutan	In 2016, Bhutan had banned India's agro-products like cauliflowers, green chillies, beans, etc., due to the presence of high pesticides. These products were imported from state West Bengal and were infected with high pesticides content.
Nepal	On 1 January 2010, Nepal used price control measures and imposed 5 per cent agricultural reform tax on India's products like live plants and animals, natural honey, edible fruits, soya bean, ground nut, cotton seeds, oil cakes, mangoes, apples, pears, cereals, tea, coffee, spices, etc. On 15 March 2012, Nepal notified that for all imports from India, a form named ARE 1 must be included.
Pakistan	On 1 January 1967, Pakistan imposed SPS measures and made rules for imports of plant and plant material (HS060220) from India. On 1 March 2013, Pakistan used pre-shipment inspection and introduced Import Policy Order, 2013 and made new procedural requirements for imports of live bovine animals (HS010290), fresh or chilled potatoes (HS070190), pineapples (HS080430), etc., from India. On 1 July 2014, Pakistan used SPS measures and made amendments in Import Policy Order due to infections by bovine spongiform encephalopathy (BSE) in products like fresh or chilled edible oil of bovine animals (HS020610).

Source: WTO (2019) and UNCTAD TRAINS NTMs Database 2018.

regulations of rest SAEs countries affects agri-trade negatively. Setting high standards in food products has deteriorated the pattern of trade for many India's agro-products.

How India Restricts South Asian Countries Agro-Products?

NTMs have emerged as one of the reactionary tools in South Asia. Like other South Asian partners, India has also retaliated and imposed many NTMs against rest seven trading partners of South Asia. Since, India is the largest country in South Asia with huge population and diversified agriculture, it applies different kinds of NTMs to promote her own exports and restrict other countries imports. Table 4 depicts how India has imposed many NTMs on agro-products of its partners in South Asia.

Figure 1 shows the most affected agro-products which India faces in trade with South Asia for year 2011. Product *'grains of oats'* and *milk and milk products* faced high NTMs. Figure 2 shows CR of Nepal with India for 2011. Many

Table 4. India's NTMs on South Asia's Agro-Products

Country	Products Under NTMs
For all SAARC countries	On 1 January 2004, India imposed SPS measures and required post-entry quarantine growing for 45 days for snowflake (HS060110). During the same period, India notified all SAARC countries that a permission was required from the Department of Agriculture and Cooperation for import of flax (seeds for sowing) (HS12040010). Weed seeds or pests should not be present in freesia (HS060110), watermelon (seeds for sowing) HS12077010), etc. Crop inspection must be done for carnation seeds (HS060312).
Afghanistan	On 1 January 2004, India notified that apple (HS080810) must be free from raspberry beetle pest. India made post-entry quarantine period for 45 days for neorogelia (HS06029020). Weed seeds should not be present in aster (HS120930).
Bangladesh	On 1 January 2004, India notified that finger millet (HS10082130) and okra sees for sowing (HS12099190) should be free from quarantine weed seeds. India made requirement of Registration Certificates (RCs) necessary from Bangladesh importers from 1 July 2013. India also requires certificates for technical and health standards for few agro-products which are costly for Bangladesh. Major agro-products affected were fruit juices, processed foods, wheat and wheat products, non-basmati rice and fishes, etc.
Bhutan	On 1 January 2004, India notified Bhutan that pest should not be present in ginger (HS09101110). Post-quarantine growing was 2–3 months for ginger. India had rejected Bhutan's fruit juice imports as India does not accept the certification process done by Bhutan Agriculture and Food Regulatory Authority (BAFRA). India wanted Bhutan to prepare a certificate from the Kolkata laboratory. Thus, a requirement of Mutual Recognition Certificate (MRC) from the BAFRA became a problem in trade.
Nepal	India imposed many SPS measures on Nepal's agro-products. On 1 January 2004, India notified post-entry quarantine for 45 days for yew (plants for propagation) (HS06022090) and 60 days for Swertia (HS06029090). Post-quarantine growing was 2 to 3 months for ginger (HS09101110) and 6–9 months for vanilla (HS060210). India made approval necessary from Department of Agriculture and Cooperation for imports of castor seeds (HS12099190). India notified that weed seeds should not be present in radish finger millet (HS10082130) and required mango (HS08045020) to be fumigated with methyl bromide (MB). India banned tea imports from Nepal during March 2016 to May 2016 due to the presence of animal quarantine. It also made quality test certificates necessary for tea imports. India also imposed quantitative restrictions on Nepal's vegetable ghee. Nepal suffers from lack of standardised tests and certification process which is done by their domestic laboratories. There is also no Mutual Recognition Agreement (MRA) between India and Nepal. Indian organisation 'Bureau of Indian Standards' (BIS) does not give accreditation to the tests done by Nepal Bureau of Standards and Metrology (NBSM) and Department of Food Technology and Quality Control (DFTQC) of Nepal. Samples are firstly sent to select India's cities for certification which takes long time and creates burden for exporters. Nepal's agro-products also face strict quarantine inspection fee and checks at the border posts of India.

(Table 4 continued)

(Table 4 continued)

Country	Products Under NTMs
Pakistan	Pakistan faces various NTMs by India in the form of labelling, packaging and stringent custom documentations. On 1 January 2004, India used pre-shipment inspection and made rules for import of potato (HS070190) from Pakistan. During the same period, India notified that sesamum (HS12074090), should be free from weed seeds. India imposed strict regulations in the form of Textile Consumer Protection Regulation, 1988 which restricted Pakistan's textile exports. This regulation included measures like producer identification, production composition, colour, size, letters and signs.
Sri Lanka	India imposed many NTMs on Sri Lanka's fruits and vegetables due to low standards and technical regulations. On 1 January 2004, India imposed SPS measures and required asparagus (HS070920) and rambutan ((HS060210) to be fumigated with MB and pest free. During the same period, it notified that an approval was required from Department of Agriculture and Cooperation for import of sugar apple (HS060210) and macadamia nuts (HS060210), etc. Post-entry quarantine was 45 days except for research for macadamia nuts (HS060210). Weeds should not be present in asparagus (HS070920), etc. Lotus (seeds for consumption) (HS12129990) should be free from tomato ring spot virus. India had put a quota restriction on Sri Lanka's pepper imports because large amount of imported pepper had led to fluctuations in the domestic pepper prices. India had also imposed quotas on Sri Lanka's vegetable oil imports in 2006.

Source: UNCTAD TRAINS NTMs Database 2018.

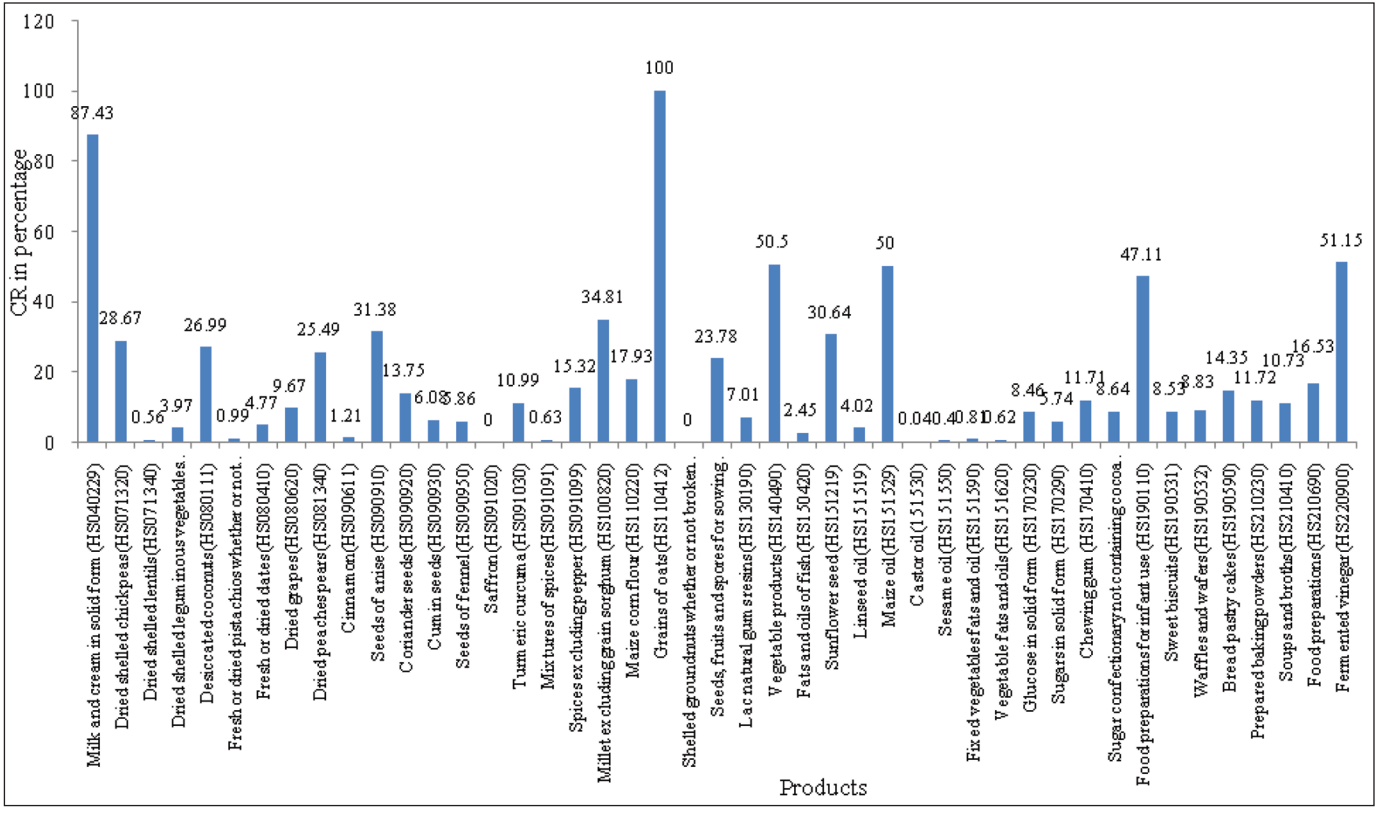

Figure 1. CR of India as Exporting Country to South Asia 2011

Source: Authors' calculation based on UNCTAD and ITC database.

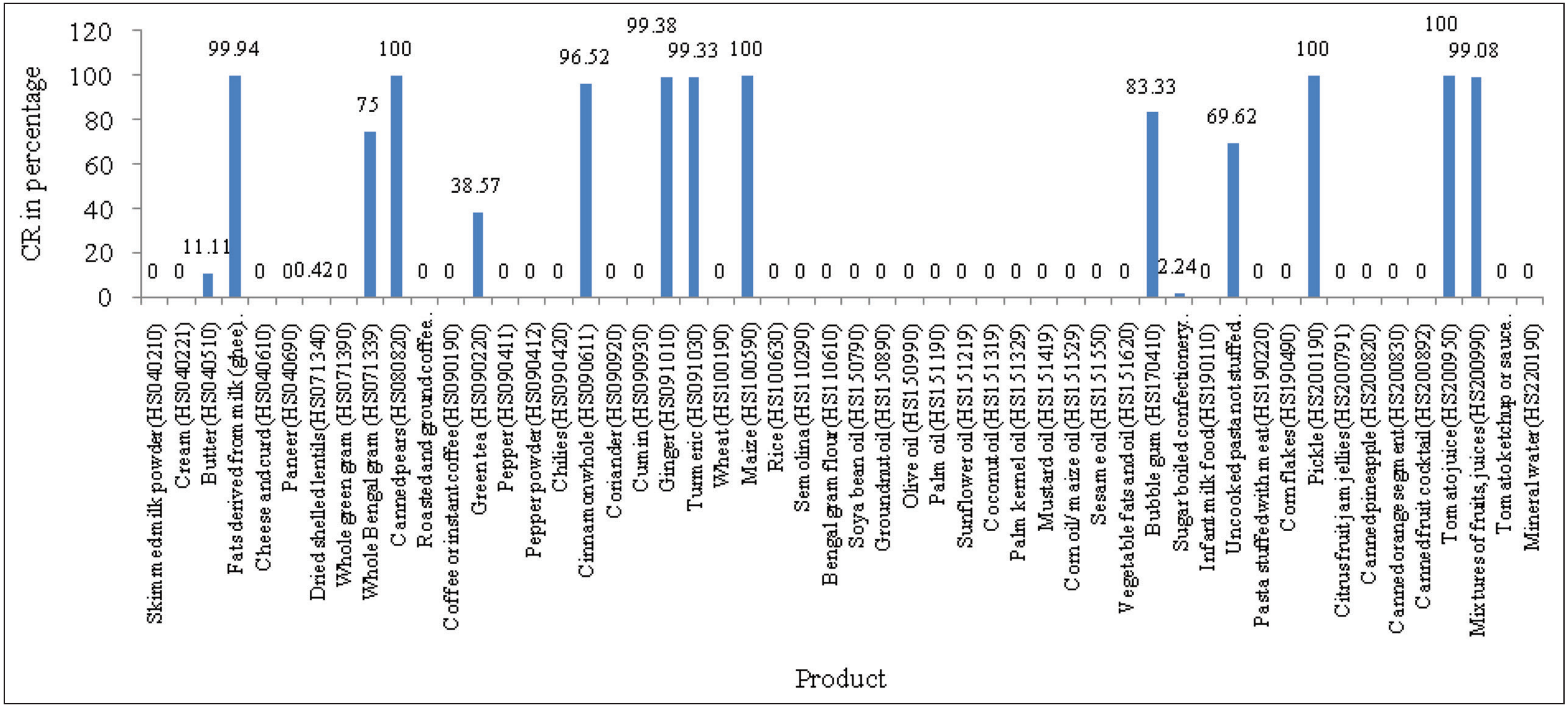

Figure 2. CR of Nepal as Exporting Country to India 2011

Source: Authors' calculation based on UNCTAD and ITC database.

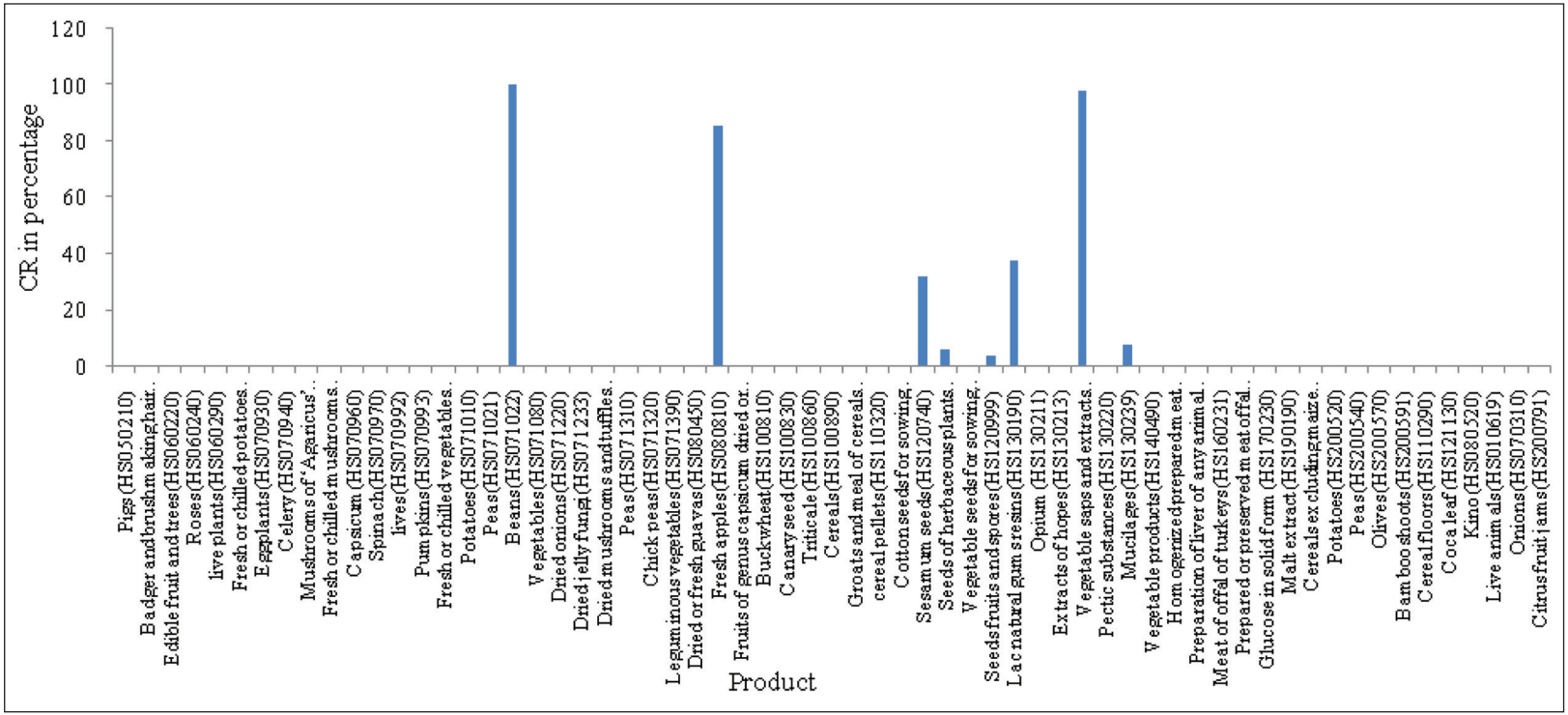

Figure 3. CR of Pakistan as Exporting Country to India 2013

Source: Authors' calculation based on UNCTAD and ITC database.

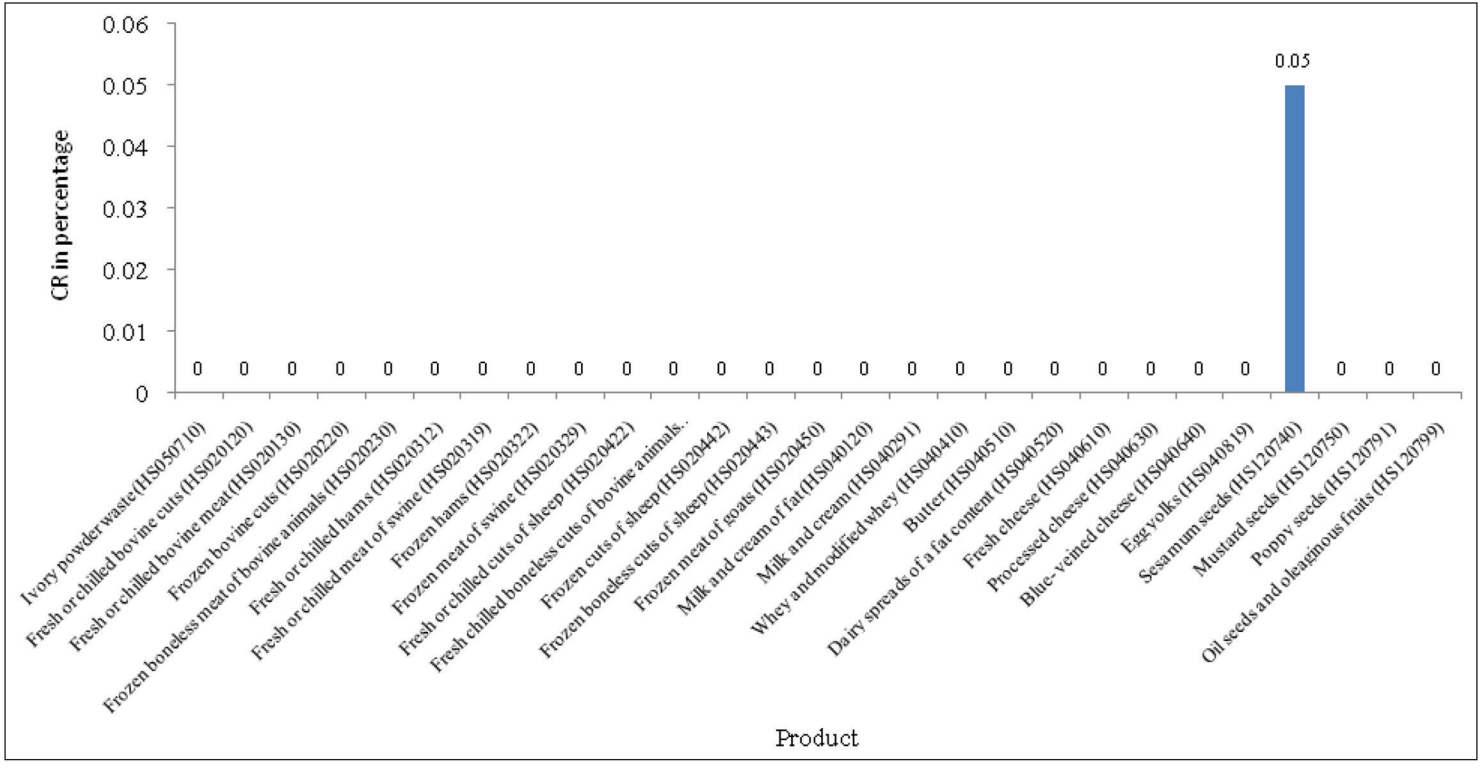

Figure 4. CR of Sri Lanka as Exporting Country to India 2011

Source: Authors Calculation based on UNCTAD and ITC database.

agro-products of Nepal faced NTMs in India which is dominated by maize, pickle, tomato juice, mixed fruit juices, turmeric and ginger. Figure 3 shows CR of Pakistan with India for 2013. Figure 4 shows that compared to other SAARC countries, CR of Sri Lanka with India was very less for 2011. It was observed that very few products faced NTMs in bilateral trade between India and Sri Lanka like for example sesamum seeds.

Table 5 shows RTB index for South Asia's agro-exports to India during 2002–2016. Mixed results were obtained, that is, zero and one for many agro-products. Products such as selected live animals and fruits, wheat, rice, maize, etc., have obtained zero. This shows that SAEs exported these commodities relatively more to the rest of the world than to India due to trade barriers in India. Live animals are hardly exported to India. India is itself self-sufficient in the production of livestock. Fruits and vegetables were mostly imported to India. It was noted that vegetable products imports from South Asia to India witnessed extraordinary boom.

Table 6 provides a distinguishing feature of trade barriers prevailing in exports of India to rest seven SAEs. Non-basmati rice is mostly exported from India to

Table 5. RTB Index for South Asia's Agro-Exports to India

Product	2002	2004	2006	2008	2010	2012	2014	2016
HS010410	0	0	0	0	0	0	0	0
HS010420	11.68	10.68	0	0	0	0	0	0
HS020130	0	0	0	0	0	0	0	0
HS030274	0	0	0	0	0	0	0	0
HS030281	0	0	0	0	0	0	0	0
HS030232	0	0	0	0	0	0	0	0
HS040590	0	18.39	11.55	14.38	3.92	10.91	87.92	15.03
HS060220	0	0	0	0	0	8.42	0	0
HS060240	0	0	0	0	0	0	0	0
HS060290	0	0	0.05	0.12	4.29	1.51	0	0
HS070190	0	10.68	9.39	0	0	0	0	0
HS070200	0	0	0	0	0	0	0	0
HS070310	0	0	0	14.47	15.67	0	34.31	13.87
HS071331	2.44	8.22	0.28	0.01	3.08	0.42	1.22	1.30
HS080410	36.81	59.79	40.11	41.70	47.28	25.79	46.40	50.31
HS080610	1.08	1.58	0	0.89	0.24	0.23	0.36	1.71
HS090411	0	31.92	41.97	55.71	76.77	74.63	48.29	36.34
HS100199	0	0	0	0	0	0	0	0
HS100510	0	0	0	0	0	0	0	0
HS100620	0	0	0	0	0	0	0	0
HS100640	0	0	0	0	0	0	0	0
HS130190	26.24	37.76	56.22	84.16	99.40	94.39	12.04	99.79
HS140490	80.90	41.30	62.60	124.30	139.37	145.18	133.46	43.46
HS180500	0	0.24	1.12	0.52	1.30	0.42	5.60	9.68
HS170490	2.26	1.69	12.73	11.22	2.38	4.38	17.41	21.27
HS170410	0.72	4.86	1.73	0	0	2.53	11.27	39.16
HS220110	12.71	73.22	60.83	16.04	0.30	0	10.58	83.97
HS220300	10.28	33.81	5.32	5.10	0	4.37	0.34	0.15

Source: Authors' own calculation based on data from ITC UN COMTRADE database 2016.

Table 6. RTB Index for India's Agro-Exports to South Asia

Product	2002	2004	2006	2008	2010	2012	2014	2016
HS010410	NA	0	0	0	32.05	0	0	23.15
HS010420	0	0	39.55	45.09	37.62	41.45	30.61	27.01
HS020130	0	0	38.77	2.59	6.44	1.71	1.76	1.87
HS030274	NA	–	–	–	–	–	–	–
HS030281	NA	–	–	–	–	–	–	–
HS030232	0.20	0	4.54	4.77	15.76	0	1.17	0.08
HS040590	0.03	0.24	0.63	0.63	0.05	1.45	5.76	4.59
HS060220	0.07	0.10	0.16	0.02	0.02	0.06	0.10	0.08
HS060240	0	0.83	3.49	18.03	13.68	9.22	10.93	0
HS060290	0.97	8.39	1.20	1.46	0.84	1.28	3.20	1.84
HS070190	10.45	15.01	23.64	31.58	23.43	0.61	20.77	18.13
HS070200	18.95	17.97	12.83	43.07	34.80	3.97	28.44	23.16
HS070310	89.76	157.17	40.77	39.37	30.03	37.99	24.13	25.50
HS071331	4.73	0.80	1.77	0.23	0.80	1.33	0.00	0.04
HS080410	0.00	0.00	0.01	0.13	0.00	0.03	0.02	0.03
HS080610	4.66	4.90	6.42	2.03	9.32	4.20	1.73	3.49
HS090411	0.01	0.01	0.01	0.38	0.22	0.19	0.08	0.06
HS100199	NA	NA	NA	NA	NA	39.19	34.94	0.70
HS100510	0.31	4.60	6.28	11.45	10.99	8.96	2.54	7.04
HS100620	0	0	1.97	0.03	0	0	5.23	0
HS100640	23.46	7.57	16.33	5.27	3.58	33.43	25.73	26.46
HS130190	0.37	1.07	0.20	1.41	0.77	0.95	1.78	1.11
HS140490	30.80	17.64	18.78	15.78	14.46	11.80	9.21	8.13
HS180500	0	0	0	0	0.03	0.01	0.00	0.01
HS170490	6.64	5.78	5.93	6.83	7.71	12.49	10.56	8.77
HS170410	0.90	1.10	10.76	11.00	11.53	27.44	20.32	13.96
HS220110	0.73	0.62	0.50	0.84	0.52	0.23	0.30	1.70
HS220300	0.09	0	21.94	17.31	12.31	7.37	1.49	0.14

Source: Authors' own calculation based on data from ITC (2016) database.
Note: NA denotes not available.

almost all South Asian trading partners but lesser to Pakistan. RTB value for broken rice (HS100640) was more than 1, which indicated that India's trade with rest SAEs in this product was more compared to other world. Live animals like goats are mostly exported to South Asia but processed meat is quite restricted. Fresh or chilled onions are second top products traded to South Asia. Dairy products are also highly traded due to the recent developments through white revolution in the country. Live plants imports from India were widely restricted. Overall, vegetables have shown remarkable growth with South Asia. Mixed results were obtained where fresh grapes trade has increased but fresh or dried date's trade was very low.

Table 7 shows trade potential of India with rest SAEs for 17 agro-products during 2002–2016. Overall, year wise, trade potential between these two trading partners was maximum in 2010, that is, USD 4,092,944 thousand which decreased to USD 3,630,732 thousand in 2016. Product wise, cotton has maximum bilateral trade potential followed by cane or beet sugar. India offers a growing and increasingly open market for rest seven SAEs. But, with the growing importance of

Table 7. TPI Between India and Rest Seven Trading Partners of South Asia (USD 1,000)

Product	2002	2004	2006	2008	2010	2012	2014	2016	Total
Pure Bred Breeding Bovines) (HS010210)	0	20	0	23	21	28	0	0	92
Fresh or Chilled Bovine Meat, Boneless (HS020130)	0	15	179	766	2,113	3,310	4,859	56	1,298
Frozen Shrimps and Prawns (HS030617)	0	0	0	0	0	0	5,409	8,731	14,200
Natural Honey (HS040900)	2,615	3,589	2,041	3,887	5,590	4,870	3,250	4,798	30,640
Guts, Bladders and Stomachs of Animals (Other Than Fish) (HS050400)	81	111	88	987	473	588	860	414	3,602
Live Plants Including Their Roots, Mushroom Spawn (HS060290)	1,247	1,373	4,491	6,457	6,562	8,441	9,383	10,065	48,019
Fresh or Chilled Onions and Shallots (HS070310)	3,653	46,268	21,589	81,908	153,355	3,052	70,954	30,905	823,368
Fresh or Dried Cashew Nuts, Shelled (HS080132)	606	1,194	1,669	1,265	9,530	12,203	4,295	34,476	65,238
Black Fermented Tea and Partly Fermented Tea Whether or not Flavoured (HS090240)****	18,049	215,859	240,631	255,076	323,567	364,717	329,123	497,667	2,499,720
Semi-Milled or Wholly Milled Rice Polished or Glazed or not (HS100630)	2,820	41,000	53,243	7,219	404,491	84,381	243,226	67,814	904,194
Wheat and Mesin Excluding Seed for Sowing and Dorum Wheat (HS100199)	0	0	0	0	0	0	358,456	1,326,229	1,684,685
Soya Beans Whether or not Broken (HS120190)	0	0	0	0	0	0	7,170	388,082	395,252
Vegetable Saps and Extracts Excluding Liquorices, Hops and Opium (HS130219)	3,742	4,647	3,458	10,152	15,216	27,031	28,279	32,003	124,528
Vegetable products (HS140490)	1,306	967	2,927	14,234	11,791	12,198	16,235	21,813	81,471
Cane or Beet Sugar and Chemically Pure Sucrose in Solid Form (HS170199)	2,910	101,684	714,102	155,079	896,476	257,127	164,816	223,942	2,516,136
Chocolates and Other Containing Cocoa in Packaging of <= 2 kg (HS180690)	356	1,747	3,846	7,720	8,630	32,031	57,768	99,756	211,854
Cotton Neither Carded Nor Combed (HS 520100)	6,271	101,494	825,082	1,039,406	2,255,129	2,413,186	79,498	883,981	7,604,047
Total	43,656	519,968	1,656,778	1,584,179	4,092,944	3,223,163	1,378,722	3,630,732	

Source: Authors' own calculation based on data from ITC (2016) database.

NTMs, it is difficult to say if the trade potential in high value agro-products will exist or not in the long term.

Discussion and Conclusion

NTMs were started with non-trade objectives like protecting health and environment and looking beyond the objectives of NTBs which were only for trade restricting purposes. But in South Asia, the case is found different. Here, NTMs have turned into NTBs. It was found that post-SAFTA; member countries have not successfully reaped the benefits of trade due to emerging hidden trade barriers. Almost all the trading partners have witnessed trade barriers within the SAARC region. Exporting countries of South Asia are unable to meet the technical requirements of standards due to poor infrastructure, defective accreditation boards and testing and laboratory at the land custom check points, etc., Nepal and Bhutan have remained landlocked for long period of time due to no transit route for investment opportunities with the neighbouring countries. Removing NTMs from agriculture in South Asia is difficult because a large population is dependent on agriculture for employment. Lack of NTMs awareness is one of the major reasons behind trade restrictions. Thus, each country must be aware of different trade procedures and regulations of one another. Trading partners must aim to revamp the policies and regulations, identify, evaluate and eliminate NTMs for rapid growth. Sensitive products should be identified and extensively promoted for fast intra-regional trade in South Asia. Regional cooperation may be an important tool to bring productive endeavours and new dimensions. Mukherji (2015) suggested that countries like India, Pakistan and Afghanistan must try to seize the emerging trade opportunities through removing NTMs and ensuring that NTMs are used in a transparent manner otherwise NTMs may turn into a NTB. Based on our own findings and also by other authors cited above, the focus should be given to reduce NTMs, increase product competitiveness and diversification. Connectivity, collaborations, international standards and trade agreements must be developed to achieve high trade benefits within South Asia.

To conclude, it was pointed out that although SAARC members had agreed to follow SAFTA but when it came to investing NTMs in agri-trade, results gave a different picture. It is noteworthy to mention that the major objectives and commitments of SAFTA are yet to be achieved and import penetration within the members of South Asia is low. This article provides a concerted effort to show that agri-trade between India and selected SAARC trading partners are poorly disseminated with low shares. Trade barriers are present within South Asia in spite of trade potential present in many agro-products between India and rest SAEs (see Table 7). RTB index confirmed that low exports were present due to existing trade barriers (as evident from Tables 5 and 6). This was also supported by Tables 3 and 4. Study proves that post-SAFTA, NTMs have emerged as a key challenge and substantially reduced intra-regional agri-trade in South Asia. Trade of wheat between India and SAARC countries was severely affected during 2002–2012. Export ban was one of the major reasons that India had put in 2007.

Trade potential as well as RTB value for wheat between both the trading partners was also nil during the same period. NTMs are also extensively used by rest SAARC countries to restrict India's agri-trade (see Figure 1). On the other side, it was also revealed that India too restricted agro-products of trading partners like Nepal and Pakistan (see Figures 2 and 3). CR of Sri Lanka as exporting country to India was found in very few products (see Figure 4). Thus, in spite of recent trade liberalisation, high levels of protection and export pessimism is found in agri-trade in South Asia and, therefore, further reduction is required in trade barriers. This study has implications for policy architect and agricultural exporters of South Asia as it suggests ensuring transparency in NTMs in agriculture sector. Finally, a proper trade facilitation may also be framed for each South Asian country to reduce present trade impediments through simplifying, harmonizing and standardizing trade procedures. Pro-active initiatives by each country can bring more regional integration and future conformity amongst each other. This study provides a future scope for quantifying NTMs in South Asia in other sector by exploring repercussions with other methods.

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Appendix 1

Product Code	Product
HS010410	Live sheep
HS010420	Live goats
HS020130	Fresh or chilled bovine meat, boneless
HS030274	Fresh or chilled eels
HS030281	Fresh or chilled dogfish and other sharks
HS030232	Fresh or chilled tunas
HS040590	Fats and oils derived from milk, hydrated ghee butter
HS060220	Edible fruit or nut trees, shrubs and bushes
HS060240	Roses whether or not grafted

(Appendix 1 continued)

(Appendix 1 continued)

Product Code	Product
HS060290	Live plants incl. roots, mushroom
HS070190	Fresh or chilled potatoes (excl seed)
HS070200	Tomatoes, fresh or chilled
HS070310	Fresh or chilled onions
HS071331	Dried shelled beans of vigna mungo
HS080410	Fresh or dried dates
HS080610	Fresh grapes
HS090411	Pepper of genus piper neither crushed nor ground
HS100199	Wheat and mesin excluding seed for sowing and dorum wheat
HS100510	Maize seed for sowing
HS100620	Husked or brown rice
HS100640	Broken rice
HS130190	Lac; natural gums, resins
HS140490	Vegetable products
HS180500	Cocoa powder, not containing added sugar or other sweetening matter
HS170490	Sugar confectionery not cocoa
HS170410	Chewing gum
HS220110	Mineral water not containing sugar
HS220300	Beer made from malt

Source: ITC (2016).

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