Journal DOI: 10.36713/epra1013 | SJIF Impact Factor (2025): 8.619 ISSN: 2347-4378
EPRA International Journal of Economics, Business and Management Studies (EBMS)
Volume: 12 | Issue: 5 | May 2025 -Peer-Reviewed Journal

TO TRADE OR NOT TO TRADE: RETROSPECT AND PROSPECT OF INDIA'S AGRO-TRADE WITH SAARC NATIONS

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ABSTRACT

This study investigates the trajectory and structure of India's agricultural trade with SAARC nations, with an emphasis on the implications of the South Asian Free Trade Area (SAFTA) agreement. Employing analytical tools such as the Cuddy-Della Valle instability index, Balassa's Revealed Comparative Advantage (RCA), and Markov chain analysis, the research evaluates data from both pre-SAFTA (1991–2006) and post-SAFTA (2006–2021) periods. The study shows that despite India's economic and agricultural dominance in the region – accounting for over 70% of SAARC's agricultural exports – the overall intra-regional trade remains critically low at approximately 5%, highlighting SAFTA's limited impact. The RCA analysis further reveals that India possesses a strong comparative advantage in key commodities such as coffee, tea, spices, cereals, and cotton across several SAARC partners, particularly with Nepal and Bangladesh. However, this advantage has not consistently translated into trade gains due to trade volatility, weak retention of export markets, and geopolitical frictions. In several instances, India's comparative advantage weakened post-SAFTA, suggesting a misalignment between trade potential and policy outcomes. The study concludes that while India is well-positioned to lead agro-trade integration in South Asia, realization of comparative advantage requires political stability, resolution of bilateral and multi-lateral tensions, besides stronger institutional frameworks.

KEYWORDS: *Regional Trade; Comparative Advantage, Agro-Trade, SAFTA.*

INTRODUCTION

If economy happens to be the face of India, then agriculture is its smile. Despite the sector's contribution to the country's GDP, given the way it is being accounted for, happens to be around 18 per cent, which is much lower than the manufacturing and service sector counterparts, agriculture continues to hold its sway in the economy and will continue to be so for the times to come. Coming to the India's agro-exports alone, at the gross value of Rs. 4.18 lakh crores in 2023-24, which was only to the tune of Rs. 2.62 lakh crores a decade back (PIB, 2025). For the first time after independence, the country's agro-exports have crossed USD 50 billion on their own (GoI, 2022). The balance of trade in agriculture is also reported in the country's favour during 2020-21 to Rs. 132,579 crores as against Rs. 93,908 crores in 2019-20 (PIB, 2021). It is also the first time since the last three decades that India broke into top pipping New Zealand for the ninth position (Kumar, 2021). With the export market of 33 per cent in rice and 8 per cent in cotton, among many other commodities, it is also no coincidence that the balance of trade in Indian agriculture has improved at least 25 per cent of late (IANS, 2021).

Among the world nations that India exports, it will be beneficial to see India's trade relationship with the neighbouring countries that commonly happen to be grouped as SAARC nations. Formed in 1985, the South Asian Association for Regional Cooperation (SAARC) is an economic and geopolitical amalgamation of eight countries of South Asia, *viz*., Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka to promote regional trade akin to the functioning and existence of European Union. But the regional trade in South Asia is dismally low standing at five per cent when compared to that of the European Union (67%), the North American Free Trade Agreement (62%), the Association of South East Asian Nations (26%), the Common Market for Eastern and Southern Africa (22%) and the Gulf Cooperation Council (8%). This is in tune with Islam *et al.* (2024) who laments about the dismal intra-regional trade among the SAARC nations despite the tremendous potential.

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Even the South Asian Free Trade Area (SAFTA) agreement that came into force, after much negotiations, on 1 January 2006, is of no use in breaking the trade jinx among the SAARC nations. One plausible reason for such a low trade rate in South Asia is bilateral and multi-lateral differences among these countries. However, the immense potential of regional cooperation is realizable only with strong linkages. Trade, more than anything else, and its associated economic gains is one of the best ways forward for promoting mutual trust and cooperation among the SAARC member countries to resolve and overcome differences and apprehensions for the people's welfare of this region. It is also prudent to note that trade promotion among SAARC nations can also help India on geopolitical grounds more than any immediate economic benefits.

METHODOLOGY

The present study is focused on exploring share, instability pattern, comparative advantage, interrelationships and determinants of balance of trade (BoT) in agriculture of India with that of the neighbouring SAARC nations. The study also took into account the changes in the country's trade performance before and after the implementation of the South Asian Free Trade Area (SAFTA). The study comprised both Pre-SAFTA (1991-92 to 2005-06), and Post-SAFTA (2006-07 to 2020-21) periods with the following specific objectives: (i) To determine share and instability pattern of India's exports to SAARC nations before and after SAFTA; (ii) To study the comparative advantage and direction of trade of India's exports within SAARC; and (iii) To examine the impact of SAFTA on India's balance of trade in agriculture.

TOOLS OF ANALYSIS

(i) Instability Index

Instability index is an analytical technique to workout the fluctuation in time series data. Instability index formula recommended by Cuddy-Della Valle was applied to calculate instability. This method corrects the Coefficient of variation (CV) if data are scattered around the negative or positive trendline. The Cuddy-Della Valle Index is given as follows:

Instability index (II) = CV x $(1-R^2)^{0.5}$

Where: CV is defined as the ratio of sample standard deviation (SD) to its mean and R^2 is the corrected coefficient of determination of the log linear trend function that fits the time series. If the F-test is significant at 5 per cent, then the Index is calculated by using R^2. When test statistics is not significant or $R^2 < 0$, then CV is chosen to measure instability index.

(ii) Balassa Index

Balassa index is used to determine whether that commodity has comparative advantage for export or not. Balassa Index is defined as:

$$RCA_{ki} = (X_{ki} / X_{ti}) / (X_{ksa} / X_{tsa})$$

Where:

X_{ki} = Value of India's (i) export of item 'k' to the world,

X_{ti} = Value of India's total agricultural exports to the world,

X_{ksa} = Value of India's export to a SAARC country 'sa' of item k, and

X_{tsa} = Value of India's total agricultural exports (t) to a SAARC country 'sa'.

The RCA of country 'i' in the trade of product 'k' is calculated by that item's share in country's exports relative to its share in the SAARC exports. The numerator in equation shows item k's share in India's total agricultural exports, whereas the denominator represented item k's share in SAARC exports. Balassa Index was in turn divided into 4 groups as follows: (i) Index value (no comparative advantage): $0 < RCA \leq 1$; (ii) Index value (weak): $1 < RCA \leq 2$; (iii) Index value (medium): $2 < RCA \leq 4$; and Index value (strong): $RCA > 4$.

(iii) Markov Chain Analysis

Export data for the pre-SAFTA period (1991-92 to 2005-06) and post-SAFTA period (2006-07 to 2020-21) was used to analyze the direction of trade and changing pattern of exports of selected Indian commodities. The seven SAARC member countries, *viz*., Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka were selected for the analysis, while rest of the world was considered under other countries. The trade directions of items exported from India to the SAARC and other countries along with their retentions by the importing partners were examined using the Markov Chain Approach.

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Central to Markov chain analysis is the calculation of the transitional probability matrix P_{ji}. The probability of retaining the previous period market share is interpreted by studying the diagonal elements of transitional probability matrix. The matrix was obtained for the study period by using the actual proportion of exports to importingnations. The elements of the matrix 'P_{ji}' shows the export share of a country retained is studied by diagonal elements of the matrix. In this study, transitional probabilities were derived as a random process with eight importing SAARC countries and the rest of the world. The exports to a specific country can be shown as:

$$E_{it} = \sum_{i=1}^{n} E_{jt-1} * Pji + e_{it}$$

Where:

E_{it} = Exports from India to a country during the year 't', *i.e.*, current year;
E_{it-1} = Exports to a country during the period t-1, *i.e.*, previous year;
P_{ji} = Probability that India's exports shift from one country to the other;
e_{it} = Statistically independent error terms;
t = Time period; and
n = Number of countries.

The transitional probability P_{ji} which can be arranged in a [c x r] matrix has following properties:

$$0 \leq Pji \leq 1$$

$$\sum_{i=1}^{n} Pji = 1$$

The diagonal elements of the matrix 'P' indicate the probability that the export share of a particular importing partner of India's exports will remain the same from one period to another. The diagonal element or transitional probabilities, on the other hand, indicate the probability that the share of exports in a particular country will shift to another over time, thus the export share of a country during the period can be obtained by multiplying the actual exports in the previous period (t-1) by the transitional probability matrix.

(iv) Hypothesis testing of SAFTA's impact on trade

The impact of SAFTA agreement for India's exports and imports with the other SAARC nations was analyzed using a t-test of the following form:

$$t = \frac{TA - T_{2005}}{S/\sqrt{n}}$$

Where: 'T2005' was the triennium ending (TE) 2005 share of agricultural exports/imports of India with the SAFTA region in total agricultural exports/ imports of India in 2005; 'TA' was the average share of agricultural exports/ imports of India with the SAFTA region in total agricultural exports/imports of India during 2006-2020; 'S' referred to the standard deviation of share of agricultural exports/imports of India with the SAFTA region in total agricultural exports/imports of India during 2006-2021, while 'n' referred to study period.

Null hypothesis (H0): The share of agricultural trade (exports or imports) of India with SAFTA member countries in total agricultural trade (exports or imports) of India has not increased or decreased after the formation of SAFTA.

Alternative hypothesis (H1): The share of agricultural trade (exports or imports) of India with SAFTA member countries in total agricultural trade (exports or imports) of India has increased or decreased after the formation of SAFTA.

A positive t-value represents an increase in share of agricultural trade (exports or imports) of the region, country or product in the total agricultural exports/ imports of India after the formation of SAFTA. A negative t-value represents a decrease in share of agricultural trade (exports or imports) of the region, country or product in the total agricultural exports/ imports of India after the formation of SAFTA.

RESULTS AND DISCUSSION

The share of SAARC countries in total world and agricultural trade is presented in Table 1. During TE 2021, these countries together accounted for 2.6 per cent of the total world trade and 3.01 per cent of the total agricultural

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trade. India accounted for the highest share in world total trade as well as world agricultural trade among the SAARC nations. The share of agricultural trade in the total trade highlights the relative dominance of the sector across countries. The agricultural trade constitutes 10 per cent share in the overall trade at aggregate level. This share varied between 8 per cent (Bhutan) and 28 per cent (Maldives) among the SAARC counties. Though countries like Maldives and Sri Lanka contribute miniscule to the overall agricultural trade of SAARC nations, the agricultural sector contributes about one-fourth to the total trade from both these countries. The analysis of total and agricultural trade of SAARC nations has revealed an interesting fact that SAARC as a whole as well as all the SAARC countries are net importers as far as the total trade is concerned. However, SAARC is the net exporter in case of agricultural trade.

India is the largest economy contributing maximum to the total as well as agricultural trade in SAARC. India has 82 per cent share in the total exports and 74 per cent in agricultural exports from the region (Mitra and Velan, 2024). At the same time, India has 81 per cent share in total imports and 55 per cent in agricultural imports of the region. Apart from formal trade, the prevalence of informal trade is evident among the SAARC nations due to factors like porous border, neighbourhood, cultural similarities, common language, road access and similarity in demand for past many decades as reported by Taneja (2001).

Table 1: Share of SAARC nations in overall and agricultural world trade (TE 2021)

Country	Total exports	Total imports	Total trade	Ag exports	Ag imports	Total Ag trade	Share of agriculturein total trade (%)
Afghanistan	0.00	0.04	0.02	0.01	0.05	0.03	15
Bangladesh	0.15	0.20	0.17	0.11	0.56	0.34	20
Bhutan	0.00	0.00	0.00	0.00	0.00	0.00	8
India	1.69	2.58	2.12	2.60	1.40	1.99	9
Maldives	0.00	0.01	0.00	0.00	0.02	0.01	28
Nepal	0.00	0.03	0.02	0.01	0.04	0.02	13
Pakistan	0.14	0.24	0.19	0.60	0.34	0.47	25
Sri Lanka	0.05	0.10	0.08	0.19	0.17	0.18	23
SAARC	2.04	3.20	2.60	3.50	2.53	3.01	12

Source: Computed from IMF (2023)

Trade Volatility

The volatility in agricultural trade (in agricultural exports and agricultural imports), measured through instability indices after the SAFTA agreement, is presented in Figure 1. It is certain that India accounted for the largest share in agricultural trade among the SAARC nations. But, among all SAARC nations, Indian agricultural imports were most volatile, which is reflected through the instability of 82 per cent. India's agricultural exports also witnessed a great degree of volatility among other SAARC nations (78%). Lowest volatility in agricultural trade was witnessed for Nepal in both imports and exports. Agricultural exports and agricultural imports of Pakistan were also found to be quite stable. Though volatility many-a-times may arise due to uncertainties in global environment, the countries reflecting high volatility need to follow stringent measures to reduce the same by monitoring the domestic production and trade environment. The findings of Saxsena *et al*. (2015) are in congruence with the present study who also showed higher levels of instability of agricultural exports and imports of India within the SAARC bloc when compared with the rest of the member countries.

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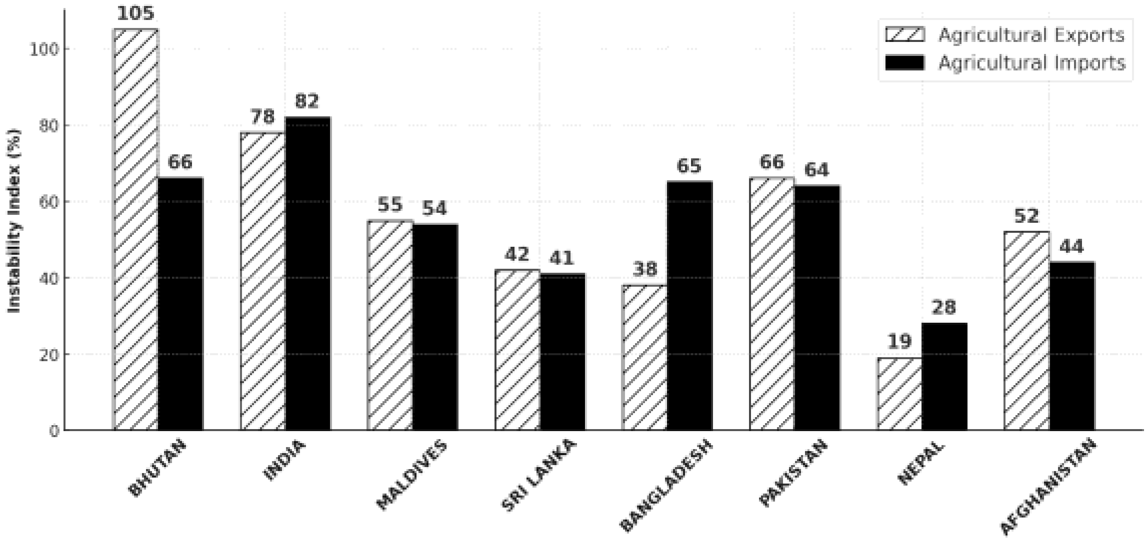

Figure 1: Agricultural Trade Volatility of Member Nations Within the SAARC bloc

Intra-Trade Volume Share

The intra-SAARC trade volume shares of the nations in their total world trade as well as total agricultural trade is furnished in Figure 2. The overall share of intra-SAARC trade in the total trade is 5.29 per cent, which ranges from as low as 2.15 per cent in India to as high as 83.11 per cent in Bhutan. This way the regional trade in South Asia is dismally low compared to the regional trade of the European Union (67%), the North American Free Trade Agreement (62%), the Association of South East Asian Nations (26%), the Common Market for Eastern and Southern Africa (22%), Gulf Cooperation Council (12%), Latin America and Caribbean (22%). Khalid (2023) also reported similar findings revealing only 5.8 per cent of intra-regional trade among the SAARC nations. Going further, for countries like Bhutan and Nepal the intra-SAARC shares of their total trade are as high as 83 per cent and 72 per cent, respectively. Similarly, the intra-SAARC share of agro-trade is also high as 96 per cent and 64 per cent for Bhutan and Nepal, respectively. This could only show the smaller economies can reap higher benefits under SAARC bloc. The intra-SAARC share of agro-trade of Afghanistan and Maldives further confirms the same observation. Though, in terms of volume share, it looks as though India could manage without trading with the SAARC nations, but the country needs the at least neighbouring smaller economies to liquidate the exportable surpluses. For instance, India alone accounts for at least 50 per cent of Nepal's imports in total trade. This is the much-needed soft power that India should retain within the SAARC bloc. During the past decade, SAARC has launched notable initiatives for greater integration through liberalization, but has achieved little in terms of intra-regional trade. The share of intra-SAARC agricultural trade is much higher for all SAARC countries (except Nepal) as compared to the proportion of intra-SAARC total trade.

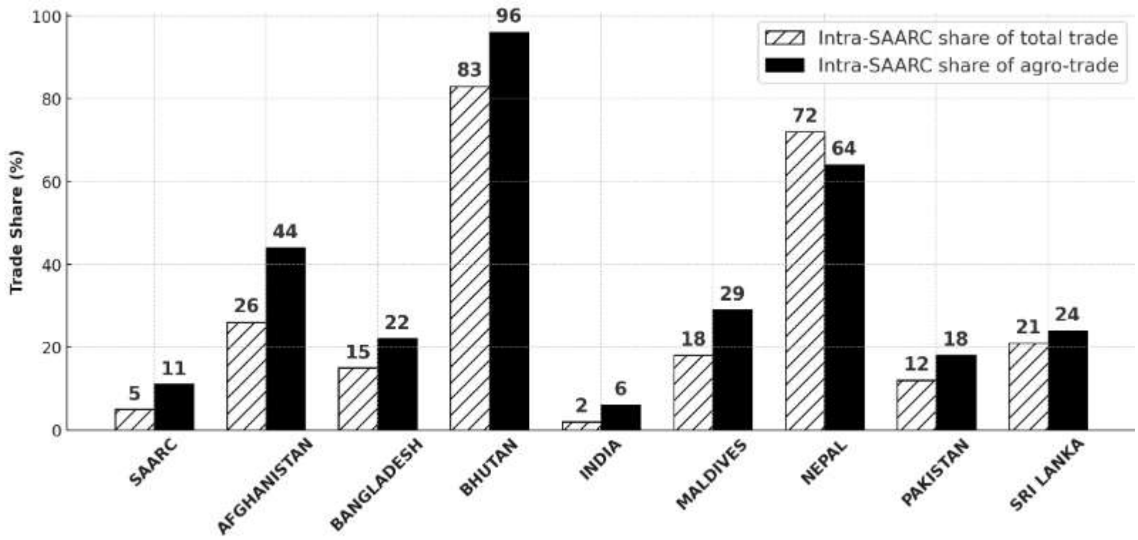

Figure 2: Intra-Trade Volume Share Amongst SAARC nations

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Instability in Agro-Exports from India to SAARC

India's agricultural exports witnessed a great degree of volatility among other SAARC nations. The instability in export of five major agricultural commodities from India to South Asian countries was analysed by calculating the Cuddy Della Valle index and the results are presented in Table 2. The instability levels of India's reports to the SAARC nations exceed 100 per cent for most of the countries in most of the commodity groups that they import from India. Comparably, India's exports with the rest of the world fares better when compared with SAARC nations. It can be safely ascertained that over the decades India has focussed on widening its export base at the cost of attaining stability with the SAARC nations.

Table 2: Instability in export of five major agricultural commodities from India to SAARC countries after SAFTA (USD Million)

Destination	Export of cereals		Export of cotton		Export of dairy products and eggs		Export of coffee, tea, and spices		Export of sugar and honey	
	Avg. value	II (%)	Avg. value	II (%)	Avg. value	II (%)	Avg. value	II (%)	Avg. value	II (%)
Afghanistan	6.5	189.8	2.5	41.4	10.7	66.7	5.3	78.8	3.4	172.0
Bangladesh	429.1	71.1	883.3	60.3	29.9	100.7	49.9	56.1	94.5	81.5
Bhutan	2.9	43.5	0.0	179.8	1.9	140.7	1.9	140.7	1.3	60.4
Maldives	7.6	37.3	0.2	38.1	2.8	54.8	2.8	54.8	2.5	67.4
Nepal	91.4	101.0	34.3	38.1	8.7	46.6	22.5	39.0	11.3	51.6
Pakistan	15.3	69.6	272.0	62.2	11.7	95.1	55.4	53.5	83.9	169.6
Sri Lanka	50.6	193.8	175.8	32.1	2.3	69.7	63.9	33.3	113.0	73.4
Other countries	4670.4	66.2	4894.7	40.1	258.9	44.1	1852.1	37.3	804.1	65.3

Note: II – Instability indices.

Specifically speaking, it is observed from the table that the export of cereals in terms of value to Sri Lanka, Afghanistan and Nepal was relatively unstable compared to other countries as indicated by their instability index of 193.8 per cent, 189.8 per cent and 101 per cent respectively, whereas on other hand export of cereals to Maldives was most stable 37.3 per cent followed by Bhutan with 43.5 per cent co-efficient of variation noticed to other countries. The value earned by the exports of cotton from India was unstable for Bhutan with index of 179.8 per cent. The instability in case of dairy products was the highest in case of Bhutan (140.7 per cent) followed by Bangladesh and Pakistan. Similarly, coffee, tea, and spices exports to Bhutan were unstable with a variability value of 140.7 per cent.

Balassa Index of Comparative Advantage

Balassa Index is useful for measuring whether a country has comparative advantage for export of that commodity or not. The index provides a ranking of commodities by degree of comparative advantage and identifies a binary type demarcation of commodities based on the same criterion. In the present study, the Balassa indices were estimated before and after SAFTA. A number of studies report mixed performance of India's export of agricultural commodities with the SAARC nations, with SAFTA agreement benefitting the export of some commodities from India to the member nations while the country's comparative advantage decreasing a shade less from that of the Pre-SAFTA period (Sharma and Sharma, 2023; Mitra and Velan, 2024). In the same vein, the perusal of Table 3 revealed mixed results in terms of RCA of five major agricultural commodities from India to the SAARC member nations. It is found that India attained a strong comparative advantage for coffee, tea and spices in Nepal (5.62) after the implementation of the agreement. The indices also showed comparative advantage for India for commodities such as cereals in Maldives (1.12) and Pakistan (2.54). The findings contradict that of Naseri and Sidana (2020) who reported larger comparative advantage of India in cotton exports after SAFTA instead of the mixed degree of advantages in some of the countries as reported here.

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Table 3: Revealed Comparative Advantage of major commodities from India to SAARC nations

India's export commodities	Afghanistan		Bangladesh		Bhutan		Maldives		Nepal		Pakistan		Sri Lanka	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Cereals	0.00	0.00	0.00	0.00	0.41	0.12	0.87	1.12	0.00	0.02	2.82	2.54	0.01	0.12
Coffee, tea, spices	0.44	1.91	0.12	0.02	0.48	1.17	0.81	0.74	0.31	5.62	0.06	0.22	4.97	2.81
Dairy products and eggs	0.00	0.05	0.01	0.01	0.04	0.10	1.38	1.04	0.99	0.77	0.23	1.96	0.28	0.19
Sugar and honey	0.00	0.00	0.00	0.14	0.00	0.00	1.00	0.79	0.64	0.06	2.19	5.04	0.04	0.06
Cotton	0.01	0.00	2.22	3.85	0.00	0.00	0.11	1.14	0.00	0.00	6.06	1.69	0.01	0.00

Note: Pre – before SAFTA and Post – after SAFTA study period.

In case of dairy products and eggs, India reported comparative advantage only with Maldives (1.04) and Pakistan (1.96) after the launch of the treaty. The Balassa indices also decreased in case of cotton from 6.06 during Pre-SAFTA to 0.69 during Post-SAFTA for Pakistan while the same reported an increase from 2.22 to 3.85 for Bangladesh on the contrary.

South Asian Free Trade Area (SAFTA) agreement

The SAFTA Agreement was implemented through the following instruments: trade liberalisation programme, rules of origin, institutional arrangement, consultation and dispute settlement procedure, safeguard measures, any other instrument that may be agreed upon along with the agreements related to tariffs, para tariffs and non-tariff measures. The timeline of various tariff reduction measures under SAFTA are as follows:

Tariff Reduction Programme under SAFTA Agreement

Country	Existing Tariff Rate	Proposed Reduction	Time-Line
		First Phase	
Non-least developed countries (India, Pakistan and Sri Lanka)	More than 20%	Reduce maximum tariff to 20%	Within 2 years (1 Jan2006- 1 Jan 2008)
	Less than 20%	Further annual reduction of 10%	Each of 2 years (1 Jan2006- 1 Jan 2008)
Least developed countries (Bangladesh, Bhutan, Nepal and Maldives)	More than 30%	Reduce maximum tariffto 30%	Within 2 years (1 Jan2006- 1 Jan 2008)
	Less than 30%	Further annual reduction of 10%	Each of 2 years (1 Jan2006- 1 Jan 2008)
		Second Phase	
Non-least developed countries (India, Pakistan and Sri Lanka)	20% or below	0-5%	Within 5 years (1 Jan2008- 1 Jan 2013)
Least developed countries (Bangladesh, Bhutan, Nepal and Maldives)	30% or below	0-5%	Within 8 years (1 Jan2008- 1 Jan 2016)

Source: SAARC (2004)

India's Agro-Trade with SAFTA member nations

For the study, 31 commodities based on HS Code with two-digit level have been included in agriculture trade, including meat, fish, sugar, cocoa, cereal and products, dairy products, fruits, vegetable, tea, coffee, wool, rubber, cotton, *etc.* The findings presented in

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Table 4: India's Agricultural Trade with SAARC nations before after SAFTA agreement

Country	TE 1993	TE 1996	TE 1999	TE 2002	TE 2005	TE 2008	TE 2011	TE 2014	TE 2017	TE 2020
India's Agricultural Exports to the SAARC nations (in millions of U.S. Dollar)										
Afghan istan	31 (0.22)	27 (0.17)	58 (0.29)	59 (0.25)	86 (0.46)	71 (0.26)	88 (0.22)	79 (0.16)	92 (0.17)	57 (0.11)
Bangla desh	850 (6.15)	767 (4.81)	1119 (5.66)	1795 (7.47)	884 (4.73)	1501 (5.46)	1748 (4.42)	2491 (5.15)	3011 (5.41)	2995 (5.88)
Bhutan	16 (0.12)	11 (0.07)	10 (0.05)	12 (0.05)	12 (0.06)	13 (0.05)	17 (0.04)	21 (0.04)	17 (0.03)	42 (0.08)
Maldives	14 (0.10)	18 (0.11)	21 (0.11)	36 (0.15)	30 (0.16)	32 (0.12)	51 (0.13)	50 (0.10)	58 (0.10)	54 (0.11)
Nepal	145 (1.05)	159 (1.00)	228 (1.15)	255 (1.06)	193 (1.03)	273 (0.99)	345 (0.87)	348 (0.72)	577 (1.04)	679 (1.33)
Pakistan	159 (1.15)	636 (3.99)	579 (2.93)	588 (2.45)	365 (1.95)	1222 (4.45)	755 (1.91)	611 (1.26)	908 (1.63)	883 (1.73)
Sri Lanka	269 (1.95)	338 (2.12)	444 (2.25)	547 (2.28)	358 (1.91)	506 (1.84)	922 (2.33)	660 (1.36)	722 (1.30)	853 (1.67)
Overall	1484 (10.7)	1956 (12.3)	2459 (12.4)	3292 (13.7)	1928 (10.3)	3618 (13.2)	3926 (9.9)	4260 (8.8)	5385 (9.7)	5563 (10.9)
India's Agricultural Imports from other SAARC nations (in millions of U.S. Dollar)										
Afghan istan	53 (0.47)	46 (0.51)	75 (0.62)	132 (0.98)	120 (0.77)	144 (0.73)	114 (0.47)	74 (0.27)	212 (0.79)	242 (0.83)
Bangla desh	35 (0.31)	84 (0.93)	78 (0.65)	96 (0.71)	108 (0.70)	167 (0.85)	314 (1.28)	262 (0.95)	250 (0.94)	223 (0.76)
Bhutan	6 (0.05)	27 (0.30)	52 (0.43)	22 (0.16)	8 (0.05)	5 (0.03)	6 (0.03)	6 (0.02)	5 (0.02)	8 (0.027)
Maldives	0.2 (0.00)	0.1 (0.00)	0 (0.00)	0.1 (0.00)	0 (0.00)	0.2 (0.00)	0.5 (0.00)	0.2 (0.00)	0.2 (0.00)	0.1 (0.00)
Nepal	132 (1.17)	99 (1.09)	126 (1.05)	146 (1.09)	94 (0.61)	117 (0.60)	121 (0.50)	96 (0.35)	134 (0.50)	197 (0.68)
Pakistan	142 (1.26)	129 (1.42)	153 (1.27)	107 (0.80)	110 (0.71)	134 (0.68)	132 (0.54)	147 (0.53)	216 (0.81)	246 (0.84)
Sri Lanka	215 (1.90)	199 (2.19)	245 (2.04)	173 (1.29)	102 (0.66)	186 (0.95)	185 (0.76)	190 (0.69)	204 (0.76)	241 (0.83)
Overall	583 (5.2)	584 (6.4)	729 (6.1)	676 (5.0)	542 (3.5)	753 (3.8)	872 (3.6)	775 (2.8)	1021 (3.8)	1157 (4.0)

Note: Figures in parentheses indicate percentage to total.

It is evident from Table 4 that India alone accounts 74 per cent of agricultural exports from the region and 55 per cent of the agricultural imports to the region from the rest of the world. But the story of India's agricultural trade with SAFTA member countries is different. The share of agricultural exports to SAFTA region in India's total agricultural exports worldwide, which was 10.7% in TE 1993, fluctuated between 8.8% and 13.7% and it was 10.9% in TE 2020. Almost a half of Indian agricultural exports to SAFTA region were destined to Bangladesh. The share of agricultural exports to SAFTA member countries in total agricultural exports of India has not registered any significant increase after the SAFTA Agreement. The Indian agricultural imports from SAFTA member countries have declined after the formation of SAFTA to such an extent that the share of Indian agricultural imports from the region in total agricultural imports of India declined from 5.2% in TE 1993 to 4.0% in TE 2020. The agricultural imports of India from SAFTA were mainly from Afghanistan, Sri Lanka, Pakistan and Bangladesh. Table 5 shows product-wise agricultural trade of India with SAFTA member countries. The main commodities exported by India to SAFTA member countries are cotton, sugar, cereals, coffee and tea, rubber articles, dairy products, vegetables and fruits. Main commodities imported by India from SAFTA member countries are fruits, tea and coffee, lac, gums and resins, cotton, vinegar and beverage, hides and skins, and rubber and articles. The analysis of products' trade shows that only a small part of India's agricultural trade is involved in trading with SAFTA member countries.

Direction of Export Trade

The dynamics of export trend is an important aspect in evolving export-oriented programs in order to enhance or sustain current export trends. Hence, the knowledge of changing export trade across the destinations is important. The dynamics of changes in the export trade of selected Indian agricultural commodities such as cereals, cotton, dairy products, eggs, coffee, tea, spices and sugar& honey was studied by estimating transitional probability matrix. The seven SAARC member countries *viz.*, Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka were selected for the analysis, while rest of the world was considered under other countries. The time period considered for the analysis for before and after SAFTA periods. The probability of retaining the previous period market share of India's exports by the importing country is interpreted by studying the diagonal elements of transitional probability matrix. Transitional probability matrix was obtained for the study period by using the actual proportion of exports to importing SAARC member countries and the findings are provided in Tables 5 and 6.

Transitional probability for export of agriculturalcommodities

Among the SAARC nations, Bhutan, Maldives and Sri Lanka were highly unstable importer of India's agricultural commodities as they were found to retain zero per cent of their previous market share. Nepal had stable market for India's agricultural commodities as compared to others SAARC countries during the pre-SAFTA period. Bhutan lost its cent per cent market share to Nepal. Afghanistan probably retained 1.65 per cent of its previous market share and lost its 6.8 per cent market share to Maldives, 20.39 per cent to Nepal and 71.07 per cent will lose to Pakistan. Nepal retained 43.03 per cent market share of previous year, lost 56.97 per cent market share to Pakistan and gained 100 per cent market share from Bhutan and 20.39 per cent from Afghanistan. Other countries retained 94.24 per cent market share of previous years of India's top five agro-commodity exports *i.e.*, other countries are more stable as compared to SAARC members. During the post-SAFTA period, Bangladesh emerged as the most loyal partner of India's agro-exports retaining 78.93 per cent of the previous year's exports followed by Nepal (37.73%) and Sri Lanka (31.05%). The findings are in line with that of Kumar and Bharti (2021) who showed unreliable retention shares of India's agro-exports by most of the SAARC member nations after SAFTA despite tariff reductions.

Table 5: TPM for India's exports of Agricultural Commodities (Pre-SAFTA)

Destination	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Sri Lanka	Others Countries
Afghanistan	**0.0165**	0.0000	0.0000	0.0689	0.2039	0.7107	0.0000	0.0000
Bangladesh	0.0071	**0.2517**	0.0102	0.0085	0.0000	0.0000	0.2905	0.4320
Bhutan	0.0000	0.0000	**0.0000**	0.0000	1.0000	0.0000	0.0000	0.0000
Maldives	0.0000	1.0000	0.0000	**0.0000**	0.0000	0.0000	0.0000	0.0000
Nepal	0.0000	0.0000	0.0000	0.0000	**0.4303**	0.5697	0.0000	0.0000
Pakistan	0.0000	0.3394	0.0000	0.0000	0.0000	**0.0156**	0.0000	0.6450
Sri Lanka	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	**0.0000**	0.0000
Other countries	0.0028	0.0309	0.0000	0.0009	0.0066	0.0097	0.0068	**0.9424**

Table 6: TPM for India's exports of agricultural commodities (Post-SAFTA)

Destination	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Sri Lanka	Others countries
Afghanistan	**0.0000**	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000
Bangladesh	0.0000	**0.7893**	0.0027	0.0094	0.1416	0.0000	0.0256	0.0315
Bhutan	0.0000	1.0000	**0.0000**	0.0000	0.0000	0.0000	0.0000	0.0000
Maldives	0.0000	1.0000	0.0000	**0.0000**	0.0000	0.0000	0.0000	0.0000
Nepal	0.0000	0.0000	0.0000	0.0102	**0.3773**	0.0000	0.6126	0.0000
Pakistan	0.0000	0.4575	0.0067	0.1867	0.0000	**0.0588**	0.0000	0.2903
Sri Lanka	0.0000	0.0337	0.0000	0.0794	0.0000	0.5611	**0.3105**	0.0152
Other countries	0.0000	0.0000	0.0000	0.0000	0.0033	0.0000	0.0000	**0.9967**

Journal DOI: 10.36713/epra1013 | SJIF Impact Factor (2025): 8.619 ISSN: 2347-4378
EPRA International Journal of Economics, Business and Management Studies (EBMS)
Volume: 12 | Issue: 5 | May 2025 -Peer-Reviewed Journal

Analysis of India's agro-exports to SAARC

As furnished in Table 7, India's overall agricultural exports have significantly declined to Bhutan and Pakistan after the implementation of SAFTA. In terms of imports, though agricultural imports have significantly increased after SAFTA, there is significant decline in imports from Maldives, Nepal, Pakistan and Sri Lanka to India. The rise of informal trade among Bhutan and Nepal sharing borders approached by well-functioning roadways might be one of the reason for the declining trade trends in agriculture. The geo-political concerns are the prime reasons for the decreased trade activities with Pakistan. As far as Sri Lanka is concerned, though the agro-exports from India have increased after the agreement the trend is not found to be significant. The rise in production of tea and spices in India in the last decades can also be the reason for India's lesser dependence on Sri Lanka for agricultural imports. There is also the possibility of countries like Sri Lanka interested in exporting to high end markets including European nations and Pakistan targeting Gulf nations, Iran, Iraq and Turkey to liquidate its exportable surpluses. The present findings refurbish the findings of Mitra and Velan (2024) who showed India's prospective position in agro-trade with SAARC nations, especially Afghanistan, Nepal and Bangladesh. In a similar study, Bhasin and Manocha (2015) employed gravity model and showed that the direction of agricultural exports from India are largely influenced by economic size, trade openness (of importer economy) and presence of regional trade agreements (RTAs) like SAFTA, which are in line with the present study except that of RTA which was not found to be a significant factor in influencing India's direction of agro-exports. Much in line with the present finding, Sharma and Kumar (2021) showed decreasing trade engagements between India and other member nations after SAFTA.

Table 7: Analysis of India's agro-trade with SAARC nations after SAFTA

	Agricultural exports from India to other member countries			Agricultural imports to India from other member countries	
	t-value			t-value	
			Region/Country-wise		
SAFTA	0.712	H_0 accepted	SAFTA	- 2.071	H_0 accepted
Afghanistan	0.221	H_0 accepted	Afghanistan	-2.518	H_0 accepted
Bangladesh	- 2.250	H_0 accepted	Bangladesh	8.088*	H_0 rejected
Bhutan	-1.356*	H_0 rejected	Bhutan	-1.217	H_0 accepted
Maldives	2.683	H_0 accepted	Maldives	- 4.072*	H_0 rejected
Nepal	- 0.467	H_0 accepted	Nepal	-4.502*	H_0 rejected
Pakistan	-3.404*	H_0 rejected	Pakistan	- 3.665*	H_0 rejected
Sri Lanka	0.379	H_0 accepted	Sri Lanka	- 3.705*	H_0 rejected

CONCLUSION

The SAFTA Agreement failed to push regional trade in south Asia. Period. India's trade with SAFTA member countries declined to 3.1 per cent of its total trade post-SAFTA from 5.2 per cent in pre-SAFTA. The scenario of agricultural trade of India with the regional economies is no different than the overall trade. The agricultural trade of India with SAARC economies, which was 8.8 per cent of total trade before SAFTA, declined to 7.1 per cent after SAFTA. However, there have been some changes in composition of agricultural trade after the implementation of SAFTA Agreement. Geo-political and security issues trump trade prospects as far as SAARC is concerned. Despite large-scale similarities in dietary consumption, tastes and preferences the export-import of agricultural commodities happening within the region is dismal to say the least. There are other social issues for the countries to handle first before a normal trade channel can naturally take place. With its obvious advantage in production and exportable surplus in many of the key agricultural and livestock commodities, India can obviously provide leadership and step-up trade. But it is also the responsibility of other nations like Pakistan, Afghanistan and Sri Lanka to ensure normalcy for the prospects of bilateral and multi-lateral trade to happen. The unhindered access to Nepal, Bhutan and Bangladesh, to an extent, has resulted in the flourishing informal trade which in turn can be channelized for ensuring stability in the region. Any improvement in trade scenario will be advantageous for India as it can find a ready market to not only export surplus production but also import key commodities including wheat, cotton, edible oil and sugar to target inflation and manage domestic demand for raw materials, ensuring growth in processing and value-addition sector.

POLICY IMPLICATIONS

It is recommended that concerted efforts be put forth to enable India to assume the pivotal position of accelerating the inter-regional agricultural trade among SAARC nations to exceed 20 per cent by 2030. A trade performance of such scale is vital for India to harness the full potential of its comparative advantage in agricultural commodities. Besides, SAFTA should focus more on reducing the non-tariff barriers and logistical issues between the nations to improve overall farm trade volume and value. Efforts should also be on the anvil to leverage India's performance in the SAARC bloc to its advantage in world trade forums.

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