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Dynamics of Indian Vegetables Trade with South-Asia: Growth, Composition and Direction

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Abstract

The present study was conducted to analyze the trend, compositional changes and direction of Indian vegetables (based on Harmonized systems code) trade with South Asian countries during the period 2002 to 2021. The Secondary data were gathered from various sources to meet the stipulated objectives of the study. Tri-annum ending averages were used to decrease the fluctuations in the data. The results of the study revealed that India's export performance of vegetables with South Asian countries was increasing with a positive trend except for Pakistan which was decreasing at a compound annual rate of 7.94 per cent per annum due to tense relations and lack of political will between two countries. The instability analysis indicated that India's export of vegetables was highly unstable with Bhutan and Afghanistan in contrast to Maldives and Nepal for which the export of vegetables was found more stable. Overall, India's export of vegetables to South Asia was significantly increasing at a compound annual growth rate of 5.06 per cent during the study period. The results of Markov chain analysis depicted that Nepal, Bangladesh and Pakistan had the most stable export market for India's vegetables with market retention probabilities of 98.12, 87.34, and 90.96 per cent respectively while Bhutan would be considered as unstable importer as it could not retain its original share. From the various literature reviewed, it is found that, para-tariff barriers, protectionist policies, disproportionate high cost of trade, lack of political will and trust deficits were the major impediments to trade with South Asia. Therefore, India should focus on improving its mutual relation with all South-Asian countries to get more foreign exchange. The potential and benefit of trade must be realized by countries in the region to ensure mutual economic gains.

Key Words: Compositional changes, Direction, Export, Vegetables

JEL Classification: C22, F10, F13

Introduction

Horticulture is increasingly recognized as one of the most emerging sector in agriculture during the past two decades. The volume and variety of fruits and vegetables traded globally have increased significantly as a result of rising incomes, declining transportation costs, better technology, and evolving international agreements (Huang 2004). India produces a wide variety of horticultural crops round the year to its diversified agro-climatic conditions, significant genetic diversity, and diversity among crops. The horticulture sector includes a variety of crops, including fruits, vegetables, flowers, spices, plantation crops like coconut, alcoholic beverages like tea and coffee, as well as various medicinal and aromatic plants. India is the second-largest producer of vegetables, after China, contributing 10 per cent of the World's production of vegetables (Aneja 2017; GOI 2017).

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Fruits and vegetables account for the largest single sub-sector of horticultural crops in India, accounting for 65.32 per cent of the area under cultivation and more than 90 per cent of the total production (GOI 2018). India's export value of fresh vegetables was increased from Rs 6.43 billion during 2002-03 to Rs 52.98 billion in 2017-18 growing at the rate of 15.14 per cent per annum (Singh *et al* 2020).

Trade has had a crucial role in reducing global poverty. Some of the most successful countries have created strong trade links with their neighbours in order to maximize the potential of trade. India too had good trade relations with its South Asian neighbours like Afghanistan, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan, and Sri Lanka. It is home to almost 1.8 billion people, accounting for nearly a quarter of the world's population. Approximately 57 per cent of the region's total area is cultivable and also a major destination for Indian export (Sinha and Sareen 2020).

HS codes of Vegetables (HS code 07) with their respective product detail

HS Code	Items	HS Code	Items
0701	Potatoes, fresh or chilled	0708	Leguminous vegetables, shelled or unshelled, fresh or chilled
0702	Tomatoes, fresh or chilled	0709	Other vegetables, fresh or chilled (excluding potatoes, tomatoes, alliaceous vegetables)
0703	Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled	0710	Vegetables, uncooked or cooked by steaming or boiling in water, frozen
0704	Cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, fresh or chilled	0711	Vegetables provisionally preserved, e.g. by sulphur dioxide gas, in brine, in sulphur water
0705	"Lettuce ""Lactuca sativa"" and chicory ""Cichorium spp."", fresh or chilled"	0712	Dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared
0706	Carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, fresh or chilled	0713	Dried leguminous vegetables, shelled, whether or not skinned or split
0707	Cucumbers and gherkins, fresh or chilled	0714	Roots and tubers of manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar

Geographically, India serves as the hub for trade among South Asian Association for Regional Cooperation (SAARC) nations. Because of its importance on the political, economic and military levels, it has a significant impact in the region. India is a crucial participant in the region because of their shared land and maritime borders, reliance on connectivity, massive trade volume, and strong political ties (Grover and Agarwal 2019).

South Asia is now one of the least economically connected regions in the world, with intra-regional commerce at barely 5 per cent, despite geographical proximity and the existence of bilateral and multilateral free trade agreements (FTAs). However, by utilising its strong human capital, rich and diverse natural resources, innovative culture, and strengths in manufacturing and services, the region has a huge possibility to grow into a powerful geo-economic hub (GOI 2018; World Bank 2018; Sinha and Sareen 2020). In the backdrop of this, the present study was undertaken to examine the trends, composition and direction of India's vegetables trade with South-Asia.

Data Sources and Methodology

The study primarily relied upon secondary data. Time series data from the year 2002 to 2021 were collected from International Trade Centre, ITC (Trade Map, Trade statistics for international business development) to study the trend and composition of Indian vegetables trade with South Asian countries. Tri-annum ending averages were used to decrease the fluctuations in the data. All classification of Harmonized System with HS code 07 (edible vegetables and certain roots and tubers) were used for the present study. To analyse the growth of Indian vegetables export over time, Compound annual growth rate (CAGR) was used. To identify instability in Indian vegetables export, Cuddy-Della Velle Instablity Index (CDVI) was used. Tri-annum ending (TE) averages were used to decrease the fluctuations in the data. Data were analysed using descriptive statistics such as percentages and averages to visualize the compositional changes of India's vegetables trade between TE 2004 to TE 2021. HS code with its respective products details for vegetables (HS code 07) are presented below.

The "compound"annual "growth rates (CAGRs) of India's trade with World and South Asia were estimated using the following growth model:

$$Y_t = AB_t$$

Y_t = India's trade with South Asia for the time 't'

t = Time period, A = Constant, B = Coefficient of growth

The above function's Log transformation is:

$$\ln Y_t = \ln A + t (\ln B)$$

Where, ln B = ln (1 + t), and

$$t = [antilog (\ln B) - 1]$$

$$\text{CAGR (\%)} = [anti\ log (\ln B) - 1] \times 100$$

Cuddy-Della Velle Instability Index:

The Present study used coefficient of variation and Cuddy-Della Velle Index of Instability to examine the instability in import and export of vegetables of India to South Asian countries.

$$\text{Coefficient of Variation (CV\%)} = \frac{\text{Standard Deviation}}{\text{Mean}} \times 100$$

Instability Index = $\sqrt{CV \times (1 - R^2)}$

Where, coefficient of variation is denoted by CV, and the coefficient of determination from a time trend regression is denoted by R^2.

Markov Chain Analysis

The core of this investigation was the calculation of the transitional probability matrix (P). The probability that exports would shift from the P_{ij} to the J_{th} country over time was represented by the matrix element P_{ij}. In the transitional probability matrix, the diagonal elements P_{ij} represents the probability that the export share of a country would be maintained in the consecutive periods, this effectively means, measured an importing country's loyalty to a specific exporting country. There were seven major nations that imported Indian vegetables and fruits in the context of the current implementation, viz. Afghanistan, Pakistan, Nepal, Bangladesh, Bhutan, Maldives, and Sri Lanka. The average exports to a specific country were thought to be a random variable that was simply dependent on its prior exports to that country and was algebraically represented by

$$E_{jt} = \Sigma E_{jt-1} P_{ij} + e_{jt}$$

where,

E_{jt} = India exported to the country during the year t

E_{jt-1} = Exports to the country in the year t – 1

P_{ij} = Probability that exports will switch from the country to the country

e_{jt} = Error-term that is statistically independent of E_{jt-1},

Results and Discussion

India's export of edible vegetables and certain roots and tubers (HS code 07) export to South-Asian countries in TE 2004 was USD 115.18 million which increased majorly from TE 2010 and registered its peak of USD 415.19 in TE 2015 (Fig. 1). India's export of vegetables decreased in the following years and later increased to USD 322.9 million in TE 2021. Over the study period, export of vegetables (HS code 07) to South-Asian countries increased with a compound annual growth rate of 3.63 per cent per annum. India negligibly import vegetables (HS code 07) from South-Asian countries and the import has increased with a compound annual growth rate (CAGR) of 0.70 per cent per annum. India majorly exported vegetables (HS code 07) to South-Asian countries for the study period.

Country wise composition of India's trade vegetables and certain roots and tubers (HS code 07) are presented in fig 2 and fig 3. The result suggested that, India mainly exported vegetables to Bangladesh, Nepal and Sri-Lanka. India has exported vegetables (HS code 07) worth of USD 137.03 million USD to Bangladesh in TE 2021, followed by Nepal (USD 100.943 million) and Sri-Lanka (USD 66.30 million). Indian vegetables were exported to Pakistan from TE 2011 to TE 2016 but the export has decreased in the recent years.

India was importing vegetables worth of USD 42.47 million from South-Asian countries in TE 2005, where Pakistan accounted for 79.97 per cent of the total share followed by Nepal (18.83 per cent). The import reached its lowest of USD 5.58 million in TE 2009 and later increased with an increasing trend. In recent years the composition of India's import of vegetables from South-Asia is mostly occupied by Afghanistan. India imported vegetables worth USD 170.2 million from Afghanistan in TE 2015, accounting for 80.86 per cent of its overall imports from South Asian nations. This amount increased to USD 183.24 million in TE 2019, accounting for 92.09 per cent of India's overall imports from South Asian nations. In the year TE 2021, India imported vegetables worth USD 28.79 million. Afghanistan ranked first, contributing about 84.93 per cent of India's total share of South Asian vegetable imports, followed by Sri Lanka (11.0%) and Nepal (2.98%).

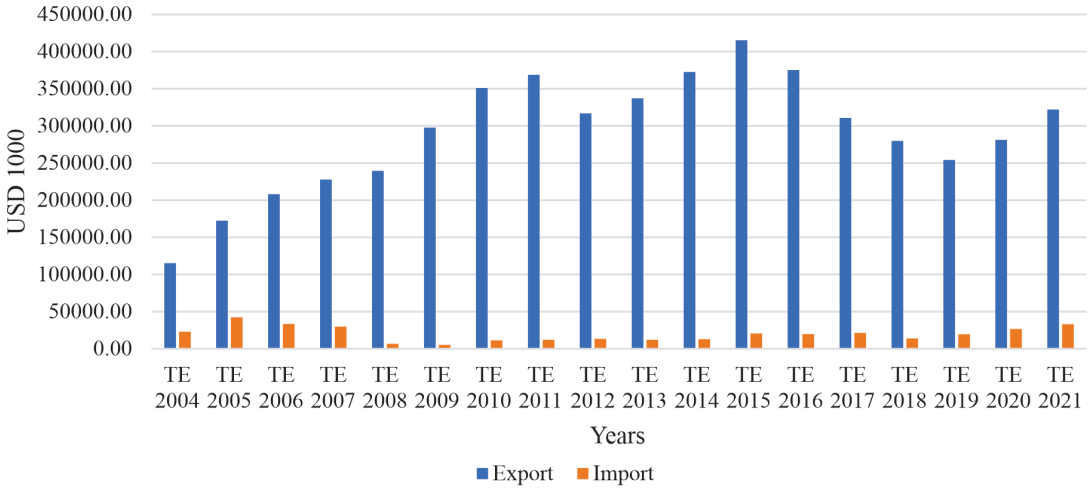

Fig. 1. Trends of India's Vegetables (HS code 07) trade with South-Asia, TE 2004 to TE 2021

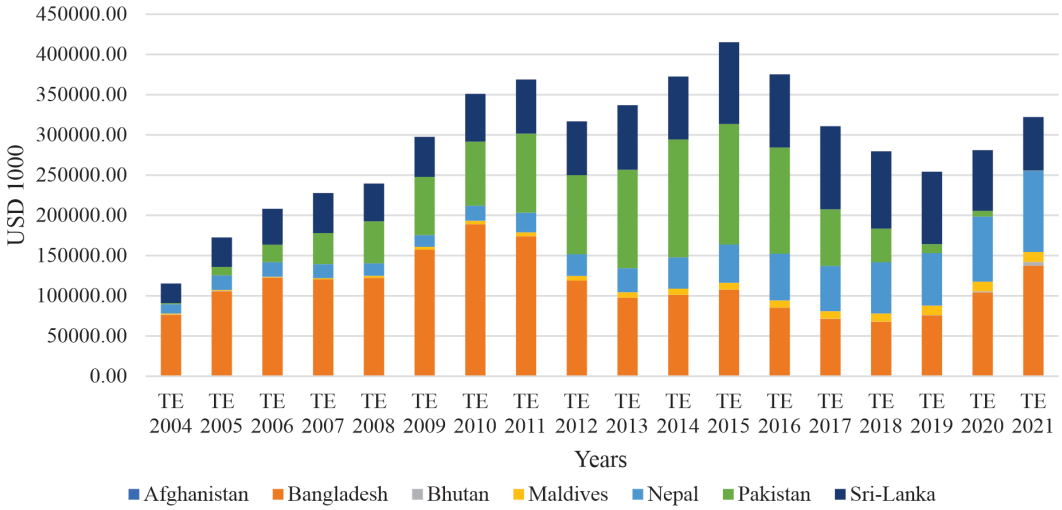

Fig 2: Country wise composition of India's Vegetables (HS code 07) export to South Asia, TE 2004 to TE 2021

Growth and Instability in Trade of Vegetables (HS code 07) to South Asian Countries

The growth and instability in India's export of vegetables (HS code 07) to South Asian countries is presented in Table 1. India's export of vegetables to South Asian countries showed an increasing trend except for Pakistan with a decreasing at a compound annual rate of 7.94 per cent per annum. These findings are inconsonance with the results of the study conducted by Dastagiri (2014).

The instability analysis revealed that the export in the HS-Code 07 indicated the highest instability with Bhutan (205.91 %), followed by Afghanistan (146.66 %). In contrast, India's export of vegetables (HS Code 07) was found most stable with the Maldives with Cuddy-Della Velle Index (CDVI) of only 10.91 per cent. India's vegetables export to Maldives, Nepal, and Sri Lanka was increased with a compound annual growth rate of 15 per cent, 16.91 per cent, and 6.45 per cent per annum respectively and was found significant at 1 per cent level of significance.

India's import of vegetables (HS code 07) from Afghanistan was found more promising as compared to other South-Asian Countries, where the CDVI value for vegetables import was 46.93 per cent. Indian import of vegetables (HS code 07) was more unstable from Maldives followed by Bangladesh, Pakistan, and Bhutan with CDVI values of 394.71, 273.40, 270.84, and 203.65 per cent respectively.

India's vegetables import was significantly decreased from Pakistan with negative growth of 39.20 per cent per annum, followed by Nepal (-13.66 per cent). While import from Bangladesh (-7.17 per cent), Bhutan (-4.47 per cent) and Maldives (-2.62 per cent) decreased insignificantly. The overall value of CDVI for import of vegetables from South

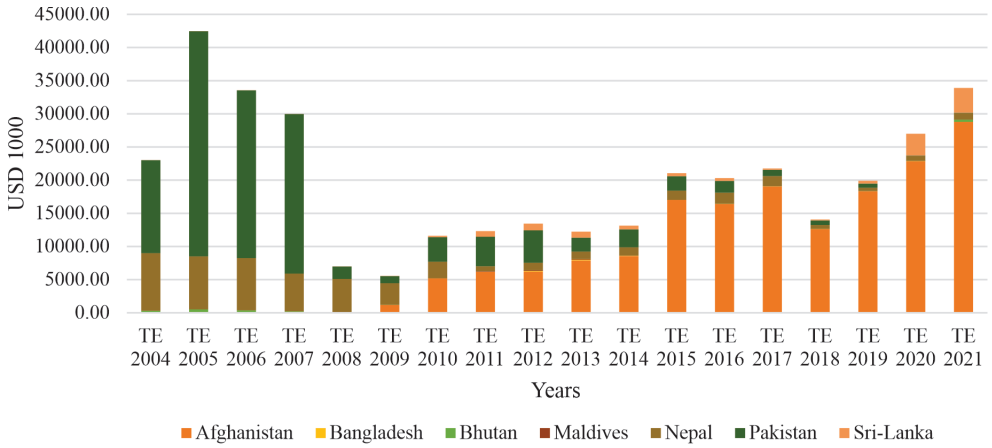

Fig 3: Country wise composition of India's Vegetables (HS code 07) import from South Asia, TE 2004 to TE 2021

Table 1. Growth rates and Cuddy-Della Valle Indices (CDVI) of Trade of Vegetables from India to South-Asian Countries, 2002 to 2021

Countries	Vegetables (HS code 07) Export		Vegetables (HS code 07) Import	
	CDVI (%)	CAGR (%)	CDVI (%)	CAGR (%)
Afghanistan	146.66	29.74**	46.93	86.00***
Bangladesh	42.32	0.48	273.40	-7.17
Bhutan	205.91	61.95*	203.65	-4.47
Maldives	10.91	15.00***	394.71	-2.62
Nepal	25.88	16.91***	140.01	-13.66***
Pakistan	95.95	-7.94	270.84	-39.20***
Sri-Lanka	24.58	6.45***	177.97	70.76***
South Asia	23.07	5.06***	78.95	2.14

Source: Authors' computation based on Trade Map data
*Note: ***, **, and * indicates significance at 1 per cent, 5 per cent, and 10 per cent level, respectively*

Asia indicates India's unstable market with all South-Asian Countries (with CDVI of 78.95). The decreasing trend of India's import of vegetables with most of the South Asian countries depicts that India's import is decreasing.

Commodity wise Trade of Vegetables (HS code 07) to South-Asian Countries, TE 2004 to TE 2021

The result showed that, Nepal and Bangladesh as the major importer of Indian vegetables for the study period (Figure 4a to j). While Bhutan had the least share in Indian vegetables

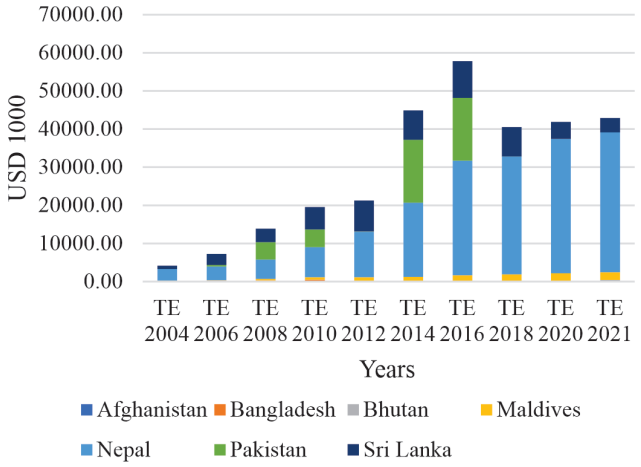

Figure 4(a): HS code 0701

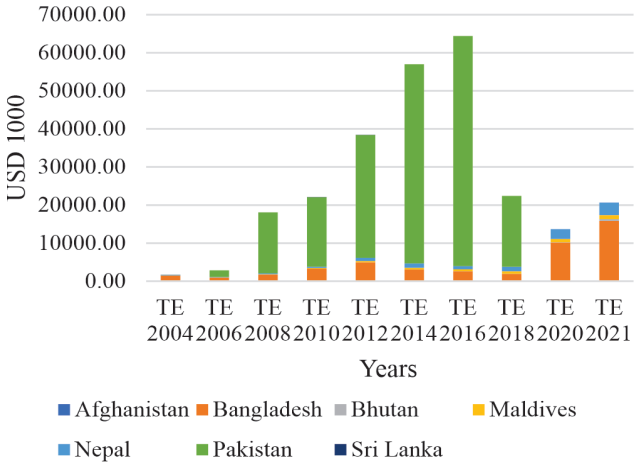

Figure 4(b): HS code 0702

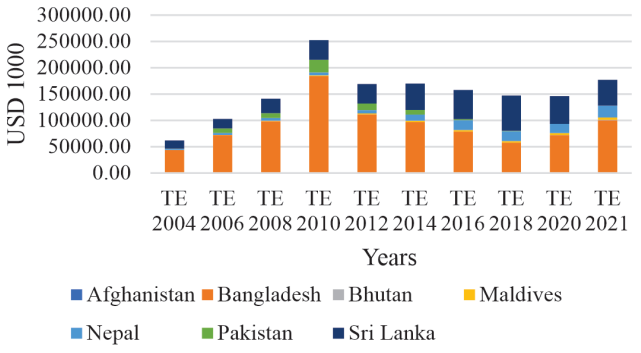

Figure 4(c): HS code 0703

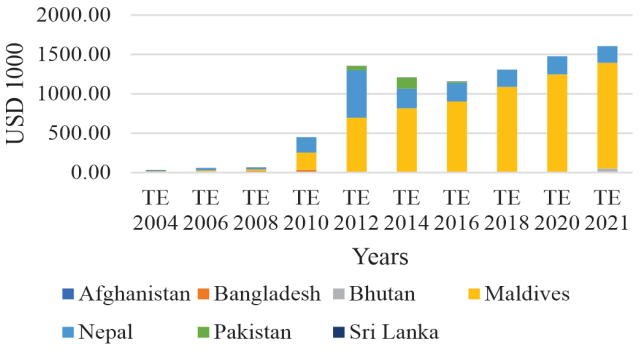

Figure 4(d): HS code 0704

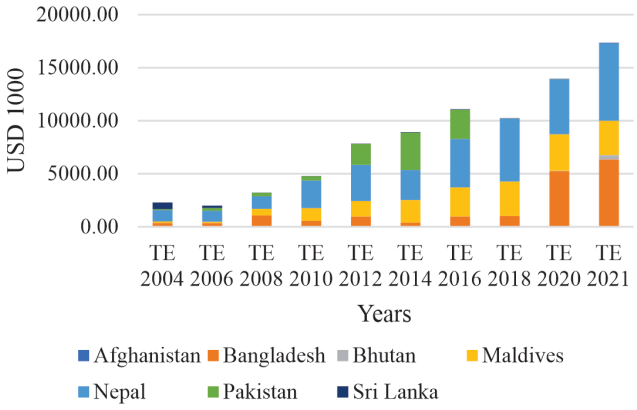

Figure 4(e): HS code 0709

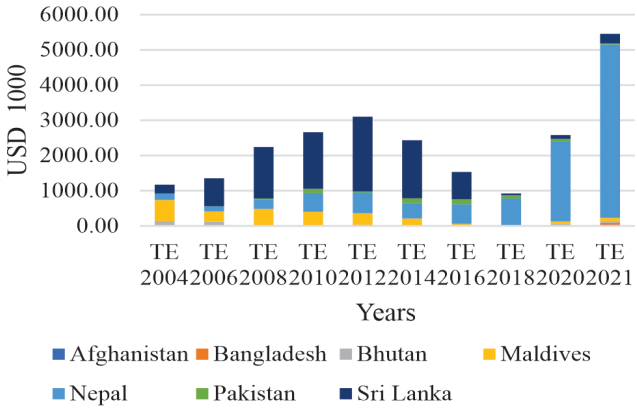

Figure 4(f): HS code 0710

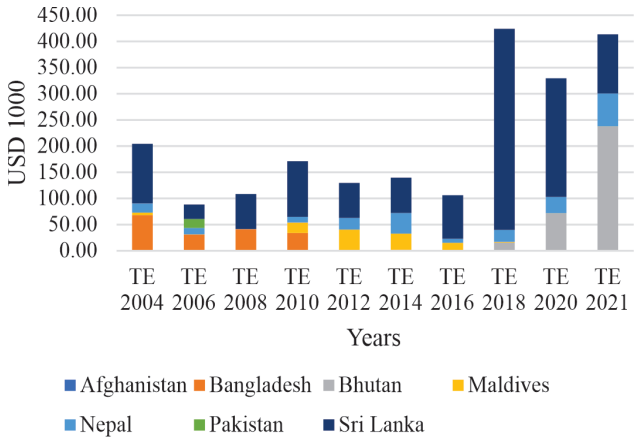

Figure 4(g): HS code 0711

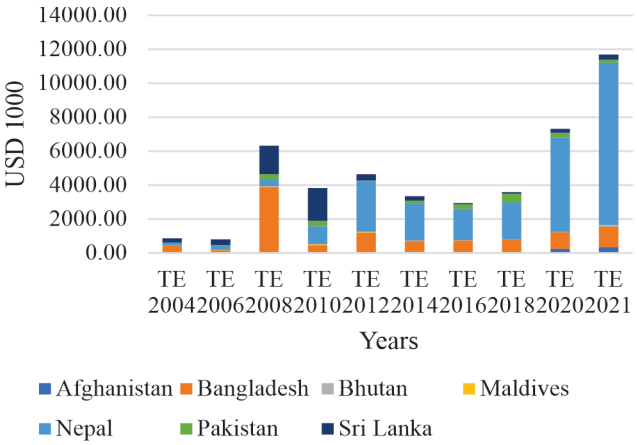

Figure 4(h): HS code 0712

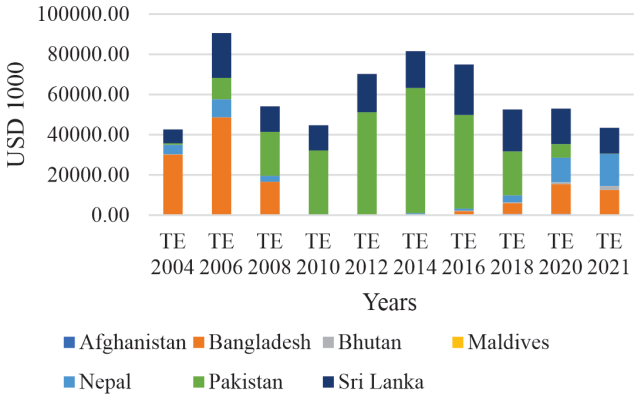

Figure 4(i): HS code 0713

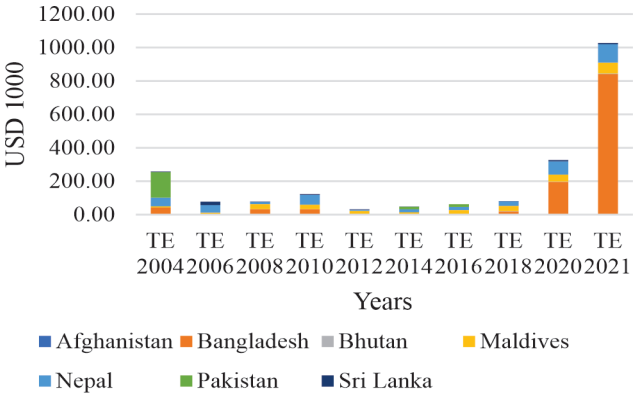

Figure 4(j): HS code 0714

Figure 4 (a to j): Commodity wise Export of Vegetables (HS code 07) from South-Asian countries, TE 2004 to TE 2021

Note: HS code 0701- potatoes, fresh or chilled; 0702- tomatoes, fresh or chilled; 0703- onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled; 0704- cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, fresh or chilled; 0709- other vegetables, fresh or chilled (excluding potatoes, tomatoes, alliaceous vegetables); 0710- vegetables, uncooked or cooked by steaming or boiling in water, frozen; 0711- vegetables provisionally preserved, e.g. by sulphur dioxide gas, in brine, in sulphur water; 0712- dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared; 0713- dried leguminous vegetables, shelled, whether or not skinned or split; 0714- roots and tubers of manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar.

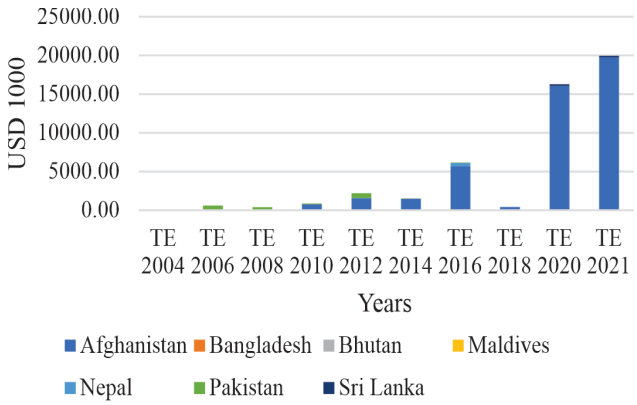

Figure 5(a): HS code 0703

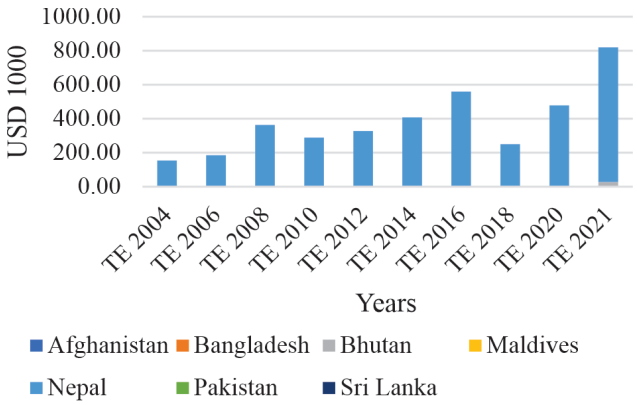

Figure 5(b): HS code 0704

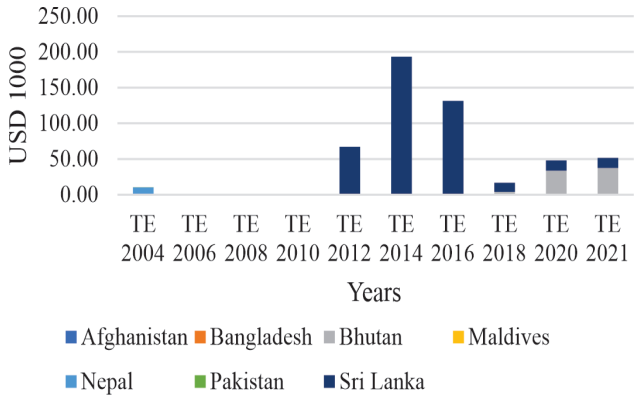

Figure 5(c). HS code 0711

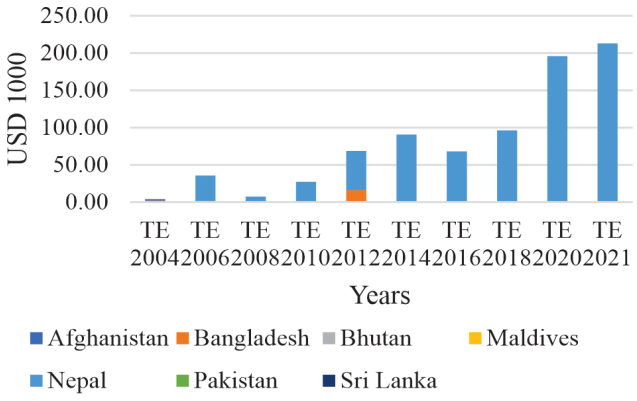

Figure 5(d). HS code 0712

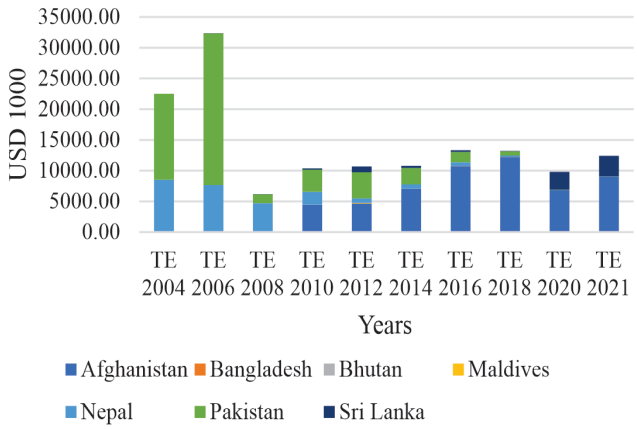

Figure 5(e): HS code 0713

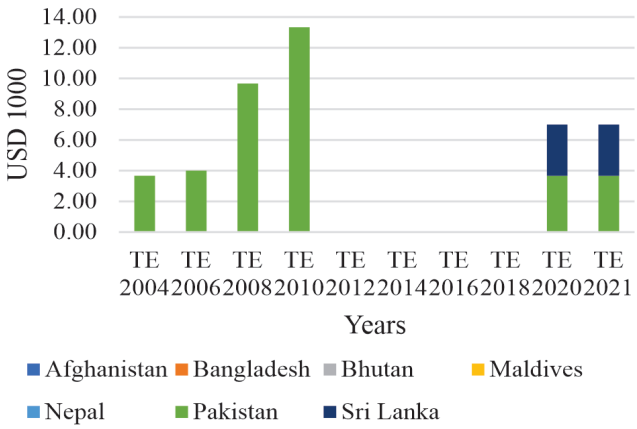

Figure 5(f): HS code 0714

Figure 5 (a to f): Commodity wise Import of Vegetables (HS code 07) from South-Asian countries, TE 2004 to TE 2021

Note: HS code 0703- onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled; 0704- cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, fresh or chilled; 0711- vegetables provisionally preserved, e.g. by sulphur dioxide gas, in brine, in sulphur water; 0712- dried vegetables, whole, cut, sliced, broken or in powder, but not further prepared; 0713- dried leguminous vegetables, shelled, whether or not skinned or split; 0714- roots and tubers of manioc, arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar.

export, as the country has taken strict action on import of vegetables from India because of high pesticide content (Acharya N 2016; Choudhury and Kumar 2019). India largely exports vegetables in fresh or chilled form potatoes, tomatoes, onions, shallots, garlic, leeks and other alliaceous vegetables and dried leguminous vegetables, shelled, whether or not skinned or split to South Asian countries. Vegetables in fresh or chilled form like cabbages, cauliflowers, kohlrabi, kale and similar edible brassicas, lettuce and chicory, carrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, cucumbers and gherkins, were exported in negligible amounts to Nepal and Maldives. Overall, India export of vegetables to South-Asian countries showed great improvements over the study period and was growing at a compound annual growth rate of 3.63 per cent per annum.

India barely imported vegetables (HS code 07) from South Asian countries during the study period (Fig 5 a to f). India had registered no import of vegetables like tomatoes, fresh or chilled (HS code 0702), lettuce and chicory, fresh or chilled (HS code 0705), arrots, turnips, salad beetroot, salsify, celeriac, radishes and similar edible roots, fresh or chilled (HS code 0706), cucumbers and gherkins, fresh or chilled (HS code 0707), leguminous vegetables, shelled or unshelled, fresh or chilled (HS code 0708) and vegetables, uncooked or cooked by steaming or boiling in water, frozen (HS code 0710) from South Asia for the whole study period which suggest India's low dependency on South Asia. However, India does import vegetables from countries like USA, China and UAE (World Bank 2020). So, India should focus on doing trade with its neighboring countries and lower its dependency on countries like USA and UAE. The study revealed that India was mainly importing vegetables from Nepal during the study period.

Direction of India's Export of Vegetables (HS Code 07) to South Asian Countries

Changes in direction of India's vegetable (HS-Code 07) export were estimated by obtaining a transitional probability matrix for the period TE 2004 to TE 2021 as shown in Table 2. The main objective is to identify the probability of transition of trade from one country to another. Diagonals in the transitional probability matrix indicates the loyalty of the importing country, horizontal represents the losers in market while vertical shows the gain in the market share.

The importers i.e. South Asian countries viz. Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka were considered for the analysis. The results of the transitional probability matrix revealed that Nepal, Pakistan, and Bangladesh had a stable market for Indian vegetable export. Nepal was having the highest probability retention of 98.12 per cent, followed by Pakistan (90.96 per cent) and Bangladesh (87.34 per cent). Nepal gained from Afghanistan's market share of 52.78 per cent and 34.67 per cent share of Maldives's market but there was no tendency to lose its market to any South Asian country except for 1.52 per cent of its share to the Maldives and 0.36 per cent to Bhutan. Pakistan had the probability retention of 90.96 per cent and have tendency to lose 8.80 per cent of its market share to Sri Lanka while it gained 8.04 per cent from Bangladesh's market share. Bangladesh had retained 87.34 per cent of its market share; it had tendency to lose 8 per cent of its market share to Pakistan and 4.62 per cent to Sri Lanka. It gained 88.3 per cent of Bhutan's total market share and 11.79 per cent of Sri Lanka's market share. The Maldives retained 65.33 per cent of its market share, whereas it lost 34.67 of its market share to Nepal. Afghanistan had the probability of retention of 47.2 per cent of its market but tended to lose 52.78 per cent of its market share to Nepal. In the study period, Bhutan had no stable market. It had lost 88.3 per cent of its share to Bangladesh while did not tend to gain from other markets.

Direction of India's Import of Vegetables (HS Code 07) from South Asian Countries from TE 2004 to TE 2021

The changes in direction of India's vegetable (HS-Code 07) import as obtained from the transitional probability matrix from TE 2004 to TE 2021 is shown in Table 3. Afghanistan

Table 2. Transitional Probability Matrix for India's Export of Vegetables (HS-Code 07) to South Asia, TE 2004 to TE 2021

Countries	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Sri Lanka
Afghanistan	**0.4722**	0.0000	0.0000	0.0000	0.5278	0.0000	0.0000
Bangladesh	0.0000	**0.8734**	0.0000	0.0000	0.0000	0.0804	0.0462
Bhutan	0.0000	0.8830	**0.1170**	0.0000	0.0000	0.0000	0.0000
Maldives	0.0000	0.0000	0.0000	**0.6533**	0.3467	0.0000	0.0000
Nepal	0.0000	0.0000	0.0036	0.0152	**0.9812**	0.0000	0.0000
Pakistan	0.0000	0.0000	0.0000	0.0024	0.0000	**0.9096**	0.0880
Sri Lanka	0.0005	0.1179	0.0000	0.0243	0.0456	0.0000	**0.8117**

Source: Authors' computation based on Trade Map data

Table 3: Transitional Probability Matrix for India's Import of Vegetables (HS-Code 07) from South Asia, TE 2004 to TE 2021

Countries	Afghanistan	Bangladesh	Bhutan	Maldives	Nepal	Pakistan	Sri Lanka
Afghanistan	**0.9930**	0.0005	0.0000	0.0000	0.0043	0.0000	0.0022
Bangladesh	0.9771	**0.0229**	0.0000	0.0000	0.0000	0.0000	0.0000
Bhutan	0.0000	0.0000	**0.6323**	0.0000	0.0000	0.3677	0.0000
Maldives	0.0000	0.8888	0.0000	**0.1112**	0.0000	0.0000	0.0000
Nepal	0.2866	0.0005	0.0006	0.0000	**0.4443**	0.2592	0.0087
Pakistan	0.0000	0.0000	0.0000	0.0000	0.1240	**0.8764**	0.0000
Sri Lanka	0.0000	0.0009	0.0000	0.0000	0.1173	0.0000	**0.8818**

Source: Authors' computation based on Trade Map data

had the highest probability retention of 99.3 per cent. It gained 97.71 per cent market share of Bangladesh, and 28.66 per cent of Nepal's market share, and there was no tendency to lose its market to other South Asian countries. Sri Lanka had the second highest retention of 88.18 per cent but tended to lose 11.73 per cent of its market share to Nepal. Pakistan, on the other hand, had a market retention of 87.64 per cent. It gained 36.77 per cent of Bhutan's market share and 25.92 per cent of Nepal's market share.

Bangladesh had the most unstable market, with probability retention of just 2.29 per cent. It gained 88.88 per cent of the Maldives market share but also tended to lose 97.71 per cent of its market share to Afghanistan. The Maldives also had market retention of 11.12 per cent but tended to lose 88.88 per cent of its market share to Bangladesh. From the various literature reviewed, it is found that, tariff and para-tariff barriers (Kathuria 2018), protectionist policies (Sinha and Sareen 2020), disproportionate high cost of trade (De and Iyengar 2014; Kathuria 2018; Arvis et al 2013), lack of political will and trust deficits were the major impediments to trade with South Asia.

Conclusions and Policy Implications

The results revealed that India's export to vegetables with South Asian countries increased with a positive trend except for Pakistan where the export trend was decreasing at a compound annual rate of 7.94 per cent per annum. The instability analysis indicated India's export of vegetables was highly unstable with Bhutan and Afghanistan in contrast to highly stable with Maldives and Nepal markets.

However, India's import of vegetables from South Asian countries decreased except for Afghanistan and Sri Lanka for which higher compound annual growth rate during the study period was observed. Afghanistan was the most stable market for Indian vegetables import. While Nepal and Pakistan are the most unstable market for India's import of vegetables and CAGR were also decreasing rapidly. India's imports of vegetables from South Asia were also showing positive growth with a compound annual growth rate of 2.14 per cent.

The results of Markov Chain Analysis revealed that Nepal had the highest probability retention of 98.12 per cent of Indian vegetable export, followed by Pakistan (90.96 per cent) and Bangladesh (87.34 per cent). Nepal gained from Afghanistan's vegetable market share (52.78 per cent) and 34.67 per cent of Maldives's market share but there was no tendency to lose its market to any South Asian country. During the study period, Bhutan had no stable market for Indian vegetable export. It had lost 88.3 per cent of its vegetable market share to Bangladesh, while did not tend to gain any market share from other countries. So, South Asian nations must take action to get rid of para-tariffs and NTBs and major improvements in transportation facilities, trade facilitation and logistics performance are required to flourish the trade between South Asian countries. The potential and benefit of trade must be realized by countries in the region to ensure mutual economic gains. Regional cooperation needs to be prioritized for effective trade integration internationally and intra-nationally.

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