Research Article

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# Export competitiveness of Indian plantation crops in EU and NAFTA

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## Abstract

The proliferation of multilateral trade agreements has opened plethora of trade opportunities and increased market access for Indian plantation crops. At the same time, the emergence of low-cost producers in Latin America, Asia and Africa as well as the Non-Tariff Barriers poses as a threat for the competitiveness of India's plantation exports. In the given context, this study attempts to assess the export potentials of the selected plantation crops to two major trade blocs i.e., European Union (EU) and NAFTA (North American Free Trade Area). The three crops analyzed in the study are tea, coffee and pepper. The export competitiveness is analysed using the Revealed Comparative Advantage Index and Trade Complementary Index, each of which reveals the competitiveness and export potentials respectively. The study reveals a strong complementary trading structure for all the three selected crops, indicating high trading potentials and gains from trade with NAFTA. Moderate competitiveness along with a high degree of complementary trading structures is observed in the case of tea exports to NAFTA and pepper exports to the European Union. The coffee exports exhibit low to nil competitive strength in both trading blocs; however, the degree of trading complementarities range from medium to high with respect to coffee trade between EU and NAFTA respectively. The study reveals that the EU is the major export destination for Indian Tea and NAFTA for Pepper and India is losing competitiveness in Coffee exports globally as well as in the concerned destinations and EU.

***Key Words*:** Plantation exports, Revealed Comparative Advantage and Trade Complementarity, JEL Classification:F10, F14 and F19.

## Introduction

The plantation sector holds a significant place in India's agricultural exports and this sector's importance for the Indian economy as whole is not derived from its share in total exports, but from its spill-overs in overall development. Apart from being a major foreign exchange earner, it is considered as a key sector from the perspectives of employment generation, poverty alleviation, and regional andbalanced development. In terms of employment generation, the tea industry is second to Indian railways. By ensuring employment generation, it also ensures income flow to the population of the respective regions. From the point of view of regional economies, this sector employs marginal and small farmers and women workers on a large scale. The plantation sector has been viewed as the instrument of modernization as it helps to open up the underdeveloped regions and also create social overhead capital in these regions. In India, the plantation sector is concentrated to a large extent in few states such as Kerala, Tamil Nadu, Karnataka and North Eastern states. The North Eastern states are the ones that are lagging behind in the production of plantation crops compared to other states in India. Hence, any strategy towards development of the plantation sector is bound to have positive influence in overall development of these regions thereby a step towards balanced regional development (Joseph, 2009).

Post-independence, as in the most underdeveloped economies, the agricultural sector received great attention. Thus, by default, the plantation economy, being one of the major foreign exchange earners, received its due importance. This manifested in a number of institutional innovations in the sphere of production, marketing and export that gave the plantation sector a major boost. Some of the important steps taken in this direction were the setting up of Commodity Boards under the Ministry of Commerce of the union government

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and legislations empowering these boards to undertake various activities needed for plantation development. The first of such kind was, the setting up of the Coffee Board in 1942, Rubber Board in 1947, Tea Board in 1954 and Cardamom Board in 1964 which was later amalgamated into the Spice Board in 1986. In addition, research institutes have been established under the respective commodity boards for undertaking R and D on all aspects of the crops of their concern along with an elaborate extension network for the dissemination of R and D outcomes among the growers (Joseph, 2010). The externalities and the spread effects from plantation economy are innumerable and perhaps even higher than most other primary sector activities. It is for this reason several economists have interpreted the establishment of plantation economy in the underdeveloped economies as the mark of beginning of industrialization. Economist Benjamin Higgins, called the plantation sector as the modern sector of the dual economy.

In recent years, the world has witnessed the emergence of several new age plantation exporters, which have posed a serious competition to Indian plantation exports.Exporters such as Vietnam, Indonesia, Kenya, Sri Lanka, Malawi and various Latin American nations such as Brazil, Guatemala, Costa Rica etc. are emerging as strong exporters due to their younger, more productive plantations and smaller domestic markets compared to older, established producers like India. This has helped them to achieve higher yields and potentially gain a competitive edge in global markets (Bastine et.al., 2004 and Sarkar, 2019).

In order to improve the competitiveness of agricultural exports, India has entered into various Free Trade Agreements (FTA). While the proliferation of multi-lateral trade agreements has resulted in trade liberalization and increased access to markets, the Non-Tariff Barriers (NTBs) pose limits to this expansion on several grounds. Although NTBs comprise a wide range of measures, of particular concern are Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS) Agreement. The growing protectionism using the non- tariff measures such as SPS and TBT increasingly cause hindrances in the competitiveness of the exports.

Considering the importance of the plantation sector in India's economic growth, various academic policy debates have explored the role of FTAs in improving the competitiveness and market access of India's plantation. A review of these studies would provide insights into the effect of the changing dynamics of such FTA agreement on plantation exports. According to Gulati and Narayanan (2003) and Chand et.al. (2015), the gains of FTAs are not always positive, and it has resulted in mixed responses for Indian plantation exports because of their strong sensitivity to tariff and non-tariff barriers. Nagoor (2010) analysed the effect of FTAs on the direction of plantation exports and it was found that India experienced a decreased market share for tea exports from Egypt to Kenya due to the establishment of Common Market of Eastern and Southern Africa (COMESA) in 1993. India also lost its markets to the Russian Federation for most of its traditional products, especially in the plantation exports. Even though the FTA between India and ASEAN reduced tariffs, it has adversely affected tea exports as India faced stiff competition from Kenya and Sri Lanka. These two countries enjoyed low production costs and stronger branding Mukherjee and this posed a threat to Indian tea exports (Mukherjee, and Ghose, 2016). The FTA between India and ASEAN would lead to an increase of imports of plantation crops, especially coffee, tea and pepper from ASEAN countries due to trade creation rather than trade diversion as these countries have lower prices compared to India. The study suggested strong policy intervention to plantation exporters as they may face a strong displacement due to increased competition from imports (Veeramani and Saini, 2010). Along the similar lines, Deepika (2017) argued that the plantation crop exports experienced a decline in the percentage share in the overall agricultural exports as well as total exports. In the case of coffee exports, India has a minimal share and this is an indication that India couldn't capture the world market. On the contrary, Kumareswaran et.al (2022) found a positive growth rate for the plantation crop exports in terms of export quantity and export unit value for the period 1987-2019. However, the study noted fluctuations in the growth rate throughout the study period. With reference to spice exports, the study highlighted that India's spice exports have benefited moderately from FTAs, particularly in ASEAN markets. (Nagoor and Kumar, 2010) were skeptical with regard to

the FTA between India and ASEAN and he argued that the entry of cheaper Chinese tea into India through the lenient rules of origin may adversely affect the Indian tea industry.

Given the changing trade structures and composition, existing literature has focused upon the effect of FTA between India and ASEAN. In the given background, this study makes an attempt to analyze the export performance of three major plantation crops i.e. tea, coffee and pepper from India to two major trade blocs of EU and NAFTA. These three crops have been chosen based on their major share in the total plantation crops exports.

**Materials and Methods**

The study is based on secondary data collected from trademap published by the International Trade Centre. The data represents the exports and imports of the three selected commodities i.e., tea, coffee and pepper by India and its rival countries to the European Union and NAFTA. Data for the EU is pertaining to data of 28 countries which collectively form European Union. Data pertaining to NAFTA is aggregated data of three countries i.e., USA, Canada and Mexico, which together form NAFTA.

There are two indices which are computed on a yearly basis for a period of 22 years from 2001-22, Revealed Comparative Advantage (RCA) and Trade Complementary Index (TCI), each capturing a specific aspect of competitiveness. The first index RCA, is used to assess a country's competitive strength in international trade by analysing the export patterns. In this study, we have used two versions of this index, viz, International RCA (IRCA) and Bilateral RCA (BRCA). The computation technique has been derived from the UNESCAP handbook. The IRCA measures the comparative advantage of a country's sector or product with respect to total global exports, i.e. not with respect to any specific country partner but by considering the world as a partner. The latter is with respect to a certain partner country or a destination as opposed to world or global exports. In cases of IRCA and BRCA, a value of above unity indicates the presence of comparative advantage, whereas below one indicates comparative disadvantage. When a country has RCA>1, it is inferred to be a competitive producer and exporter of that product relative to a country producing and exporting that good at or below the world average (UNCTAD.org). The values of these indices range from zero to infinity, with the strength of comparative advantage increasing with the absolute value of the index.

The formulae of both these indices can be written as:

$$IRCA = \left( \frac{X^k_{iw} / X_{iw}}{X^k_w / X_w} \right)$$

*where*

$X$ : exports

*subscripts –*

$i$ : exporter country

$j$ : destination country / region

$w$ : world

$k$ : good / commodity / product

$$BRCA = \left( \frac{X^k_{ij} / X_{ij}}{X^k_{iw} / X_{iw}} \right)$$

*where*

$X$ : exports

*subscripts –*

$i$ : exporter country

$j$ : destination country / region

$w$ : world

$k$ : good / commodity / product

The second index used in the study is the Trade Complementary Index (TCI). Trade complementary indicates the extent to which the export profile of a country matches, or complements, the import profile of its partner country. The computation of TCI has been obtained from the UNESCAP (United Nations, Economic & Social Commission for Asia and the Pacific) handbook. The index value ranges from 0 to 100. A score of 100 indicates ideal trading partners; a score of 0 indicates that the two countries are perfect competitors. The formula for computation is as follows;

$$100 * \left[ 1 - \sum_k \left| \frac{m_{jk}}{M_j} - \frac{x_{ik}}{X_i} \right| \right]$$

$x_{ik}$: value of exports of product k from reporter country i

$X_i$ : value of country i's total exports.

$m_{jk}$ : value of imports of product k to the partner country

$M_j$: value of country j's total imports.

**Results**

The results of the International RCA have been presented in Table 1. The International Revealed Comparative Advantage Index measures the share of the particular industry in the country's total exports relative to the industry's share in global exports of manufactures (Yeats, 1985).

**Table 1. International RCA of selected indian plantation crops**

| Year | Tea | Coffee | Pepper |
|---|---|---|---|
| 2001 | 19.91 | 3.65 | 14.04 |
| 2002 | 16.42 | 2.80 | 13.18 |
| 2003 | 13.26 | 2.61 | 11.73 |
| 2004 | 13.53 | 2.03 | 13.32 |
| 2005 | 10.94 | 1.97 | 11.30 |
| 2006 | 9.81 | 2.11 | 14.20 |
| 2007 | 8.98 | 1.57 | 19.54 |
| 2008 | 8.96 | 1.57 | 14.34 |
| 2009 | 6.97 | 0.92 | 11.84 |
| 2010 | 7.35 | 1.08 | 12.75 |
| 2011 | 7.32 | 1.14 | 12.36 |
| 2012 | 6.04 | 1.18 | 11.78 |
| 2013 | 5.70 | 1.13 | 8.15 |
| 2014 | 5.00 | 1.01 | 9.75 |
| 2015 | 5.73 | 1.10 | 10.75 |
| 2016 | 5.40 | 1.10 | 10.45 |
| 2017 | 5.70 | 1.19 | 12.30 |
| 2018 | 5.83 | 1.02 | 12.49 |
| 2019 | 5.73 | 1.06 | 12.38 |
| 2020 | 5.39 | 0.98 | 14.44 |
| 2021 | 4.47 | 0.96 | 18.37 |
| 2022 | 4.82 | 0.89 | 14.69 |

***Source***: Authors calculations based on TradeMap.org data

The IRCA values of tea are significantly above unity for all the corresponding years, andthis indicates that the Indian tea exports are globally competitive. However, it is to be noted that its competitive strength has diminished significantly from nearly 19.91 to 4.8 over the span of 22 years (Table 1). In the case of coffee, the IRCA values are greater than one except for 2009 and for the period from 2020-2022. Compared to tea and coffee, the IRCA values are relatively higher for pepper for all the years under consideration and it can be concluded that among the plantation crop exports, the highest IRCA is for pepper exports. Since all the selected crops are showing export competitiveness, it is important to analyse the Bilateral RCA (BRCA) of these crops in two selected destinations, viz, EU and NAFTA. It is evident from Table 2 that tea exports revealthe presence of export competitiveness (as BRCA is greater than one) in the EU. However, the degree of competitive strength is decreasing as is evident from the declined BRCA of Tea in the European Union from approximately 35.72 in 2001 to approximately 8.86 in 2022. Although coffee exports possess a comparative advantage in the European Union, its share is very less. The BRCA values of coffee range from 6.62 to 1.73 during the study period implying an insignificant share in EU's coffee imports. Pepper export results also reveal to be competitive enough, as the BRCA values of Pepper are significantly higher than Unity. The BRCA values of Pepper export also depict a continued declining trend. The BRCA of Pepper in the EU has declined from 11.75 in 2001 to 5.03 in 2022. Comparison of BRCA values of all the selected three crops reveal that amongst the three crops, tea enjoys the most prominent share in EU, followed by pepper and least share is that of coffee. However, all the three crops depict declining RCA values, which is a matter of concern. The declining share of these exports is also an indication of several export patterns, which would be discussed in the subsequent sections.

**Table 2.Bilateral RCA of selected Indian plantation crops to EU**

| Year | Tea | Coffee | Pepper |
|---|---|---|---|
| 2001 | 35.72 | 6.62 | 11.75 |
| 2002 | 22.50 | 6.04 | 11.76 |
| 2003 | 21.97 | 6.02 | 9.04 |
| 2004 | 24.39 | 4.82 | 9.93 |
| 2005 | 20.07 | 4.46 | 8.84 |
| 2006 | 19.13 | 5.29 | 10.28 |
| 2007 | 19.17 | 3.83 | 12.38 |
| 2008 | 17.28 | 3.72 | 9.98 |
| 2009 | 11.94 | 2.04 | 6.93 |
| 2010 | 14.40 | 2.66 | 6.57 |
| 2011 | 18.80 | 2.95 | 7.44 |
| 2012 | 12.20 | 3.03 | 6.51 |
| 2013 | 10.36 | 2.85 | 6.14 |
| 2014 | 11.10 | 2.66 | 7.71 |
| 2015 | 11.94 | 2.69 | 9.83 |
| 2016 | 11.28 | 2.81 | 6.95 |
| 2017 | 11.43 | 2.76 | 6.41 |
| 2018 | 11.27 | 2.24 | 6.60 |
| 2019 | 10.93 | 2.32 | 6.10 |
| 2020 | 11.73 | 2.20 | 6.67 |
| 2021 | 10.53 | 1.99 | 6.40 |
| 2022 | 8.86 | 1.73 | 5.03 |

***Source***: Authors calculations based on Trademap.org data

The second export destination analyzed in the study is NAFTA (USA, Canada and Mexico). Being one of the largest trading blocs in terms of area as well as GDP, NAFTA is considered to be one of the largest and lucrative trading partners for India. The export competitiveness of Indian plantation crops in NAFTA is computed and assessed in a similar manner as that of EU i.e., by computing RCA index values. The results of Bilateral Revealed Comparative Advantage of Indian plantation crops in NAFTA for a period of 22 years are presented in Table 3.

**Table 3.Bilateral RCA of the selected Indian plantation crops to NAFTA**

| Year | Tea | Coffee | Pepper |
|---|---|---|---|
| 2001 | 13.86 | 1.28 | 23.72 |
| 2002 | 9.66 | 0.39 | 17.53 |
| 2003 | 10.93 | 0.28 | 12.85 |
| 2004 | 11.47 | 0.36 | 13.81 |
| 2005 | 9.98 | 0.20 | 13.20 |
| 2006 | 8.03 | 0.29 | 15.22 |
| 2007 | 8.18 | 0.22 | 23.44 |
| 2008 | 10.19 | 0.16 | 17.20 |
| 2009 | 9.40 | 0.14 | 14.03 |
| 2010 | 10.26 | 0.17 | 15.83 |
| 2011 | 9.16 | 0.14 | 18.73 |
| 2012 | 6.78 | 0.10 | 14.04 |
| 2013 | 7.24 | 0.12 | 10.14 |
| 2014 | 6.69 | 0.09 | 11.16 |
| 2015 | 7.17 | 0.08 | 12.27 |
| 2016 | 6.56 | 0.08 | 9.84 |
| 2017 | 6.40 | 0.17 | 9.47 |
| 2018 | 5.44 | 0.07 | 7.62 |
| 2019 | 5.50 | 0.08 | 7.82 |
| 2020 | 7.09 | 0.08 | 8.71 |
| 2021 | 6.11 | 0.06 | 8.18 |
| 2022 | 5.26 | 0.05 | 6. 2 |

***Source***: Authors calculations based on Trademap.org data

From Table 3, it is evident that India enjoys competitiveness for tea and pepper exports with NAFTA as RCA is greater than one. Higher export competitiveness is seen in the case of pepper as the BRCA of pepper is higher compared to tea. It is also to be noted that the competitiveness of these two crops are decreasing during the analysis period. . For tea exports, BRCA has decreased from 13.86 in 2001 to 5.26 in 2022. In the case of pepper also we can see a decreasing BRCA (23.72 in 2001 to 6.2 in 2022). Compared to tea and pepper, India does not have BRCA in coffee with NAFTA. Except for the year 2001, coffee exports experienced a decrease in competitiveness as the BRCA is lower than one.

The second tool of analysis deployed in the study is the Trade Complementary Index (TCI). TCI does not serve as a measure of competitiveness; but is useful in identifying the countries with complementary trading structures. At the sector level, the TCI values are computed by matching the export supply of the source country with that import demand of the destination country.

**Table 4.TCI between India-EU for the selected plantation crops (in %)**

| Year | Tea | Coffee | Pepper |
|---|---|---|---|
| 2001 | 93.98 | 69.43 | 94.55 |
| 2002 | 93.72 | 66.91 | 94.62 |
| 2003 | 93.30 | 64.36 | 95.16 |
| 2004 | 93.63 | 65.79 | 96.45 |
| 2005 | 93.20 | 65.46 | 94.99 |
| 2006 | 93.37 | 64.33 | 96.72 |
| 2007 | 91.82 | 64.90 | 98.54 |
| 2008 | 92.24 | 64.75 | 97.82 |
| 2009 | 94.46 | 66.97 | 98.59 |
| 2010 | 94.02 | 65.75 | 99.24 |
| 2011 | 91.21 | 65.50 | 99.10 |
| 2012 | 95.54 | 65.71 | 99.39 |
| 2013 | 95.37 | 65.02 | 97.22 |
| 2014 | 94.78 | 66.03 | 98.44 |
| 2015 | 94.81 | 66.96 | 98.18 |
| 2016 | 95.09 | 65.97 | 99.17 |
| 2017 | 95.63 | 68.72 | 99.89 |
| 2018 | 94.94 | 68.01 | 99.48 |
| 2019 | 95.96 | 67.50 | 99.74 |
| 2020 | 94.93 | 69.34 | 99.31 |
| 2021 | 94.12 | 72.33 | 99.43 |
| 2022 | 95.42 | 72.60 | 99.9 |

***Source***: Authors calculationbased on Trademap.org data.

Table 4, reveals the trade complementarities between India and EU for the respective plantation crops. TCI score near to 100 indicates perfect complementary trading structures between the two, as opposed to a near to zero score indicates perfect competitors and no scope of trade between the two. The TCI values for tea between India and EU ranged from 91.21 percent to 95.63 percent in the span of 17 years, indicating strong complementarities and abundance scope for mutual benefit from the tea trade. The mean TCI for Tea trade over the given years is 93.89 percent, which indicates the export supply of Indian tea greatly matches the import demand for Indian tea. With regard to coffee, the TCI values between India and EU have ranged from 64.33 percent to 72.60 percent. The mean TCI over the years stands at 66.03 percent. The moderate TCI scores for coffee trade between the two indicate limited scope of trade and mutual benefit. The

TCI values for pepper also indicate a high scope for trade and mutual benefit for both India and the European Union. The TCI values for pepper trade ranged from 94.55 percent to 99.9 percent, with the mean value being 97.53 percent. In the European Union Trade bloc, the highest scope of mutual benefit is derived from the trade of pepper exports, followed by tea and coffee export.

The analysis of complementarities in trading structures between India and NAFTA with respect to the selected plantation crops is depictedin Table 5.

**Table 5. TCI between India and NAFTA for the selected plantation crops**

| Year | Tea | Coffee | Pepper |
|---|---|---|---|
| 2001 | 98.75 | 96.26 | 86.41 |
| 2002 | 98.76 | 98.26 | 88.66 |
| 2003 | 98.67 | 98.73 | 91.71 |
| 2004 | 98.96 | 98.00 | 93.61 |
| 2005 | 98.78 | 98.96 | 91.72 |
| 2006 | 98.20 | 98.72 | 95.54 |
| 2007 | 99.38 | 98.77 | 98.81 |
| 2008 | 99.05 | 99.24 | 96.19 |
| 2009 | 98.33 | 98.87 | 96.52 |
| 2010 | 97.94 | 98.85 | 97.86 |
| 2011 | 97.37 | 98.99 | 95.22 |
| 2012 | 98.10 | 99.25 | 98.26 |
| 2013 | 98.64 | 99.09 | 95.31 |
| 2014 | 98.83 | 99.20 | 97.01 |
| 2015 | 98.71 | 99.25 | 96.20 |
| 2016 | 99.09 | 99.30 | 97.94 |
| 2017 | 98.33 | 98.49 | 99.39 |
| 2018 | 99. 28 | 99.16 | 99.61 |
| 2019 | 98.94 | 99.00 | 99.13 |
| 2020 | 99. 23 | 98.94 | 97.73 |
| 2021 | 99.94 | 99.13 | 98.49 |
| 2022 | 99.71 | 99. 22 | 99.65 |

***Source***: Authors calculations based on Trademap.org

The TCI between India and NAFTA reveal an optimistic picture of tremendous trading potential with respect to all three crops. The TCI values for tea range from 97.37 percent to 99.94 percent implying India and NAFTA to be Natural Trading Partners for the tea trade. The mean TCI for coffee is 98.72 percent and it ranges from 96.26 percent to 99.3 percent, indicating NAFTA to be a potential export destination for Indian Coffee. The TCI result for pepper trade also shows an optimistic trend with NAFTA. TCI values for pepper ranged from 86.4 percent to 99.65 percent, with the mean value being 95.08. High TCI values for all three crops in NAFTA trade bloc indicate that FTA between India and NAFTA have accrued higher economic gains to the Indianplantation sector.

**Discussion**

This section compiles the results of the analysis of RCA and TCA for the selected plantation crops. The matrix given in Table 6 provides the summarized view of the findings and policy implications arising from the results.

**Table 6.Compilations of the results of RCA and TCI**

| Crops / Trading Blocs | Tea | Coffee | Pepper |
|---|---|---|---|
| European Union | **High CA & High TCI** | Low CA & Medium TCI | Medium CA & High TCI |
| NAFTA High TCI | Medium CA & High TCI | No CA & **High TCI** | **High CA &** |

***Source***: Authors compilation based on the results

High comparative advantage along with high trading complementarity is observed in the case of tea exports to the European Union and pepper exports to NAFTA. Compared to tea and pepper, comparative advantage is low for coffee in EU and in NAFTA which indicates that Indian coffee exports do not possess comparative advantage. However, in the case of coffee, medium to high levels of trade complementarities are observed in EU and NAFTA respectively. India's tea exports to NAFTA are moderately competitive with the mean value of 8.9 in the 22 years, whereas India's Pepper exports to EU have exhibited moderate competitive strength with average RCA value being 8.7 over the period analyzed in the study. It can be inferred from the given matrix that India's tea exports have high competitiveness and high trade complementarity in the European Union, whereas pepper exports exhibit competitiveness and complementarities in NAFTA. Also, moderate competitiveness along with a high degree of complementary trading structures is observed in the cases of tea exports to NAFTA and pepper exports to the European Union. The coffee exports exhibit low to nil competitive strength in both trading blocs; however, the degree of trading complementarities range from medium to high with respect to coffee trade between EU and NAFTA respectively. It can also be noted that, despite the high degree of trade complementarities in coffee exports in NAFTA and moderate levels in EU, India's coffee exports have not gained competitiveness in the two trading blocs. An enquiry into the literature provides two reasons for the same. In the case of coffee exports to NAFTA, which are characterized by high TCI values and comparative disadvantage, several Latin American countries (Costa Rica, Brazil etc), being heavy coffee exporters, may be preferred over India as the source of coffee importers by NAFTA. The preference for Latin American countries may be due to several reasons, one of which being proximity and lower transportation costs. This implies distance to be one of the significant determinants of bilateral trade flows, the point established in the several prior studies. The coffee exports to the EU are characterized by low comparative advantage and moderate levels of TCI. Despite not having their own plantation economy, several EU countries such as Belgium, Netherlands, Germany have turned to the suppliers of plantation crops such as tea and coffee by making value addition and re-exporting them, especially in the EU area (Nagoor, 2010). This leads to low realization of Indian exports to EU countries despite the presence of complementary trading structures. The major finding is that the Trade Agreement with EU, with tariff free or liberalized access to tea imports from India, will accrue greater economic outcomes for India as well as EU. This is because the Indian tea sector enjoys comparative advantage in India and the EU's import demand for tea matches India's export supply to EU to a great extent. Similarly, tariff free or liberalized access to Indian pepper in the NAFTA bloc would greatly benefit the Indian pepper sector as it is highly competitive and complementary to NAFTA's import structure.

The measures of analysis also reveal that Indian coffee exports do not possess competitive strength in either of the two trade blocs.

Stringent rules by developed economies like EU, North-Americancountries with regard to quality standards, labellingand packaging, residual limits, ethical practices etc., have posed significant threat to the Indian exports. As per the FAO statistics from 2002-2013, total numbers of rejections for the imports of herbs and spices category (where all thethreecrops belong) faced by India, in the EU market were 817. In the US markets, the numbers of rejections faced by India for the herbs and spices imports were 4794 and are highest among the other major exporters for the same product category. Table 7 and 8depicts the reason wise rejections of herbs and spices exports of India along with its rivals in EU and US markets.

**Table 7.Reason wise rejections of herb and spice imports to the EU Market 2002- 2013**

| Exporter | Additives | Mycotoxins | PR | BC | Others | Total |
|---|---|---|---|---|---|---|
| India | 134 | 299 | 305 | 48 | 26 | 817 |
| China | 34 | 15 | 0 | 12 | 36 | 97 |
| Sri-Lanka | 4 | 9 | 1 | 5 | 1 | 20 |
| Vietnam | 16 | 2 | 2 | 74 | 21 | 115 |
| Indonesia | 0 | 34 | 3 | 8 | 0 | 45 |

***Source***: Adapted from Lei (2017) *PR- Pesticide residues; BC- Bacterial contamination

**Table 8.Reason-wise rejections of herb and spice imports to US market, 2002–2013**

| Exporter | Additives | PR | BC | AM | Labeling | Others | Total |
|---|---|---|---|---|---|---|---|
| India | 273 | 656 | 2358 | 85 | 729 | 693 | 4794 |
| China | 3 | 27 | 38 | 18 | 58 | 101 | 245 |
| Sri-Lanka | 0 | - | 58 | 17 | 30 | 29 | 134 |
| Vietnam | 6 | 12 | 116 | 4 | 51 | 31 | 220 |
| Indonesia | 6 | 0 | 48 | 185 | 41 | 10 | 290 |

***Source***: Adapted from Lei (2017) *PR- Pesticide residues; BC- Bacterial contamination; AM- Adulteration/ missing documents

It is clearly evident that India tops the list among its rivals in the number of export rejections faced due to failure to meet quality standards. This remains the major hindrance in realizing the competitiveness of the Indian plantation exports. Strengthening and monitoring of the institutions engaging in processing, quality testing, packaging, labelling etc., would assist in addressing these non-tariff barriers faced by the Indian Plantation sector.

**Conclusion**

This study attempted to assess the export potentials of the plantation sector to two major trade blocs i.e., European Union and NAFTA (North American Free Trade Area) in terms of

three crops, viz, tea, coffee and pepper. The study reveals the lack of competitiveness of Indian Coffee exports; globally as well as in the concerned destinations. The trend signals the erosion of competitiveness over the years. This implies the need for state initiation in various forms leading to revival of the sector and export promotion. The analysis also suggests that the EU is the optimal export destination for Indian Tea and NAFTA for Pepper. India exports approximately 24 percent of its total tea exports to EU and 26 percent of its total pepper exports to NAFTA. Given this generous share, it is clear that losing the market share in these destinations is likely to endanger the sectors. Given the removal of India's GSP status in Canada in 2015 and revocation of GSP benefits on over several Indian products by US, India's stand in NAFTA seems to be precarious. Under such circumstances, it would be pertinent to initiate steps such as sector specific trade talks and over all diplomatic trade policy, with the consideration of the potential impact on primary and labor-intensive sectors such as plantation. The NTBs remain a major threat, as is evident from the rejections faced by Indian exports in EU and US markets on various grounds. The monitoring and strengthening of institutions that handle the supply chain functions and certifications will sufficiently bring down the non-tariff barrier faced in the form of large number of rejections of the imports. Finally, it is pertinent to analyze destination specific import policies in order to optimize the export volumes and direction.

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