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EXPORT POTENTIAL OF INDIAN TEA INDUSTRY – AN ANALYSIS

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ABSTRACT

The study aims to assess the performance and competitiveness in the global market of India's tea industry and tries to understand the export potential to identify opportunities for India to strengthen its role in the global tea trade. This study relies entirely on secondary data collected for the period 2018-2023 from various sources, including the WITS data base ITC Trade Map, CEPII database, and FAOSTAT. The various statistical analyses such as Compound Annual Growth Rate, Revealed Comparative Advantage Model and Export Potential Value were calculated to study the performance, competitiveness and export potential of tea exports from India to global market.The findings of the study revealed downward tendency in the annual growth rate and comparative disadvantage in exports of tea industry in India. The study, thus also highlights challenges faced by the tea industry leading to the downward trend in the annual growth rate.

Keywords: Compound Annual Growth Rate,Export Potential, Foreign Exchange Earnings, Revealed Comparative Advantage Model.

INTRODUCTION

Tea is one of the most widely consumed beverages in the world after water. It has a rich cultural and economic significance across nations. The origin of tea cultivation was in China but later its cultivation spread globally in diverse climatic regions ranging from the misty highlands of Sri Lanka, India and Kenya. India exported a total volume of 254.67 Million Kg of tea with value realization of NR7111.43 Corers during the calendar year 2024 (January-December, 2024), moving up from the fourth to the third position in world tea exports scenario during the calendar year 2024 (ITC Annual Bulletin of statistics,2023).

During 2024, North India exported 154.81 Million Kg with value realization of INR 4833.12 Crores while South India exported 99.86 Million Kg with value realization of INR 2278.31 Corers. North India's contributions stood at 60.79% in quantity terms and 67.96% in value terms; whereas South India's contributions stood at 39.21% in quantity terms and 32.04% in value terms (Jagadeesh *et al*., 2024).The price of the tea leaves of north India more than the southern region tea leaves. There is a lack of quality in thesouthern region tea leaves.The climate change not only change the quality ofthe tea but also quantity of the tea production (Vadivel and Suriyakanth, 2022).The paper intend to study the performance and competitiveness in the global market of India's tea industry ,India's tea export potential to identify opportunities for India to strengthen its role in the global tea trade and suggest policy measures to mitigate the industry's current challenges.

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MATERIAL AND METHODS

This study relies entirely on secondary data collected for the period 2018-2023 from various sources, including the WITS data base, ITC Trade Map, CEPII database, and FAOSTAT. The various statistical tools such as compound annual growth rate, revealed comparative advantage model and export potential value were calculated to study the performance, competitiveness and export potential of tea exports from India to global market.

Compound Annual Growth Rate (CAGR)

To study the performance of tea industry in India among the world, CAGR was calculated for the study period and also calculated Revealed Comparative Advantage (RCA) method to study the trade competitiveness of the major tea exports.RCA method is a widely recognized method developed by Balassa for assessing international trade competitiveness. The RCA measures a product's competitiveness by comparing India's share in a country's exports with its share in global trade. A high RCA value indicates a competitive product with strong export potential to countries with lower RCA values. The RCA method is computed by Equation:

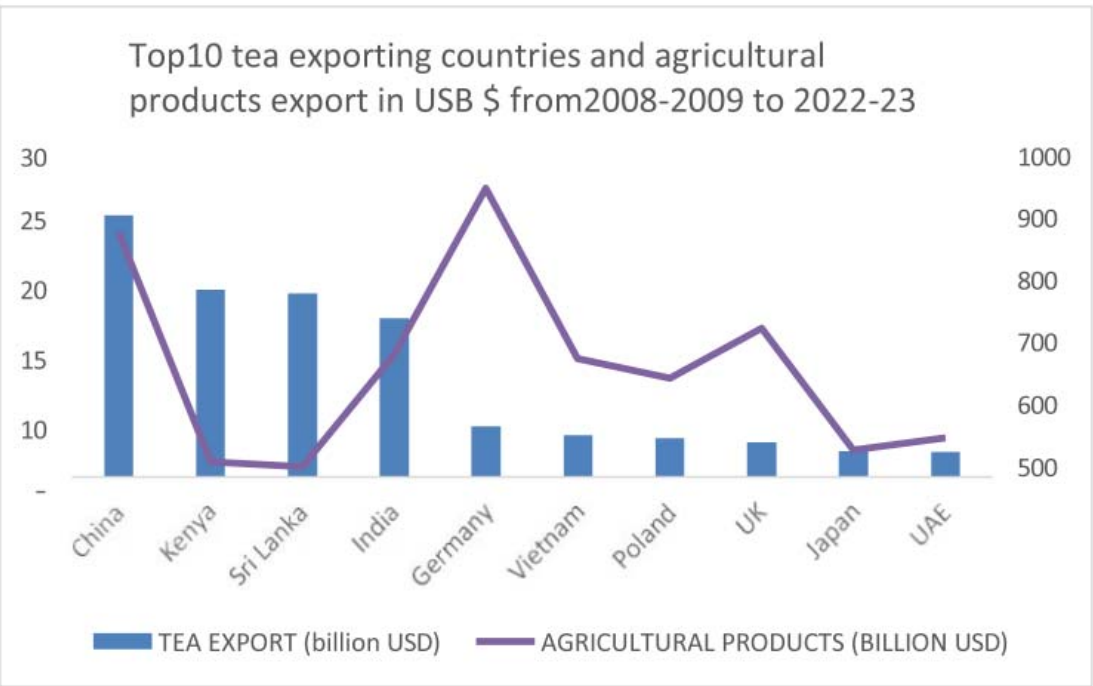
$$RCA=Xij/Xik \div Xnj/Xnk$$

Where,

Xij/ Xik = total tea exports of India/total exports of India (where 'i' denotes India, 'j' denotes tea exports and 'k' denotes total exports of agricultural products in India)

Xnj/Xnk = world export of tea/total exports of the world (where 'n' denotes major tea exporting countries in the world and 'k' denotes the total exports of agricultural products in the world).

Export potential was calculated by using total production and assumed consumption of the tea



Source:www.fao.organdwww.wto.org.

Fig. 1. Top 10 tea exporting countries and agricultural products export from 2008-2009 to 2022-2023

Table 1. Compound Annual Growth Rate (Qty in M.Kg)

Country	2018	2019	2020	2021	2022	2023	CAGR
Kenya	474.86	496.76	518.92	558.93	456.00	531.00	8.36
China	364.71	366.55	348.82	369.36	375.23	374.00	0.55
SriLanka	271.78	289.59	262.73	282.84	247.15	243.00	-5.80
India	256.06	252.15	209.72	196.54	226.98	235.00	-4.51
Vietnam	130.00	134.91	130.00	145.00	140.00	92.00	-7.33
Argentina	72.62	75.32	65.98	64.20	71.00	51.00	-4.60
Others	297.34	294.06	295.04	307.23	314.61	374.00	11.78
Total	**1867.37**	**1909.34**	**1831.21**	**1924.10**	**1830.97**	**1900.00**	4.44

(Source: Supplement to ITC Annual Bulletin of Statistics, 2023 and own computation)

RESULTS AND DISCUSSION

To study the Performance of tea exports of major tea exporting countries, compound annual growth rate and co-efficient of variation were calculated. The export performance of the Indian tea market concerning the world market after economic reform the tea export market is not favorable for the Indian tea market. (Nagoor and Kumar, 2010). Apart from these, trend line also fitted to find the export trend of major ten tea exporting countries.

In the data set in table 1, CAGR has been calculated to analyze the growth of exports from various countries between 2018 and 2023. Kenya shows a strong positive CAGR of 8.36%, indicating steady and significant growth in exports over the study period. This suggests an upward trend in trade performance. In contrast, China exhibits a very modest CAGR of 0.55%, which reflects a relatively stable export volume with minimal growth. On the other hand, countries like Sri Lanka, India, Vietnam, and Argentina show negative CAGR of -5.80%, -4.51%, -7.33%, and -4.60% respectively, signaling a consistent decline in their export volumes during this period. Interestingly, the 'Others' category records the highest CAGR at 11.78%, implying that smaller or emerging exporting countries have experienced rapid growth, potentially gaining a larger share of the market. Despite the decline in some major exporters, the total CAGR across all countries is 4.44%, suggesting that overall, the market has grown steadily from 2018 to 2023. This highlights a positive global trend in export performance, driven largely by growth in Kenya and the 'Others' group.

The table 2 presents the Mean**,** Standard Deviation (Std.Dev**)**, and Coefficient of Variation (CV%) for export values from various countries between 2018 and 2023. These statistical measures help to assess not only the average performance but also the consistency and reliability of export trendsover time. The mean represents the average export value over the six years. Kenya leads with a high mean of 506.75, showing its strong position as a top exporter. China follows with 366.11**,** reflecting stable export levels, while Sri Lanka**,** India and others have relatively lower averages. Vietnam and Argentina have the lowest means, indicating smaller export volumes. The standard deviation shows how much the values deviate from the mean, in other words, how volatile or stable the exports have been. A higher standard deviation means greater fluctuation over years. Kenya (35.13), Sri Lanka (19.92) and India (21.37) experienced moderate volatility, while China (9.28) had the most stable exports among the major exporters. Vietnam and Argentina show higher volatility relative to their lower mean

Table 2. Co-efficient of variation of major tea exporting countries

Country	Mean	Std. Dev	CV(%)
Kenya	506.75	35.13	6.93
China	366.11	9.28	2.53
Sri Lanka	266.68	19.92	7.47
India	229.41	21.37	9.32
Vietnam	128.99	19.10	14.81
Argentina	66.35	9.22	13.90
Others	313.38	33.49	10.69
Total	**1877.83**	**31.01**	**1.65**

Source: Own Computation

values. The coefficient of variation (CV %) is a key metric that compares the standard deviation to the mean, providing a measure of relative variability. A lower CV% indicates more stable and consistent performance. China has the lowest CV at 2.53%**,** confirming it's stable export pattern. In contrast, Vietnam (14.81%) and Argentina (13.90%) have the highest CVs, suggesting significant fluctuations relative to their average export values. India (9.32%) and the 'Others' category (10.69%) also show higher variability. Kenya has a CV of 6.93%**,** indicating a fairly stable performance despite being the top exporter by mean. Over all, the total exports across all countries have a very low CV of 1.65%**,** which implies that while individual countries may experience volatility, the global export market remains relatively stable when aggregated.

To examine the Competitiveness of the tea exports in the global market revealed comparative advantage (RCA) was calculated. RCA indices permit interpretation as cardinal, ordinal and dichotomous measures across industries, countries and time (Bebek, 2011)

The data in the table 3 provides insights into Revealed comparative Advantage value which examine the India's tea export performance from 2018 to 2023, including the value of tea exports, India's total exports, global tea exports, and India's Revealed comparative Advantage (RCA) in tea trade. The Revealed Comparative Advantage is an index that measures a country's relative

Table 3. Revealed Comparative Advantage Value

Years	Tea Export in India (million USD)	Total Export of India (million USD)	World Export of Tea (million USD)	Total Export of World (million USD)	RCA
2018	785.02	322492100.0	2028.12	19547167	0.0235
2019	777.18	323250726.0	2170.32	19007885	0.0211
2020	769.41	275488745.0	2177.35	17647566	0.0226
2021	716.86	394813673.0	2167.8	22289623	0.0187
2022	726.82	452684214.0	2135.06	24904277	0.0187
2023	765.00	467852113.0	2030.26	23885972	0.0192

Source: Own Computation

strength in exporting a specific good compared to the global average. An RCA value above 1 indicates a strong comparative advantage, while a value below 1 suggests a weaker position. India's tea export values have remained relatively stable, ranging between716.86 million USD (2021) and 785.02 million USD (2018), with a slight decline in 2021 and partial recovery thereafter. However, while the tea export figures stayed fairly constant, India's total export value increased substantially from around 322 million USD in 2018 to over 467 million USD in 2023. This sharp rise in total exports, combined with the steady tea export figures, has led to a decline in the share of tea in India's overall export basket. At the same time, global tea exports slightly declined from around 2177 million USD in 2020 to 2030 million USD in 2023, indicating a mildly shrinking international tea market. The RCA values for India have consistently been below 0.025, and have shown a declining trend over the years dropping from 0.0235 in 2018 to 0.0192 in 2023. ln summary, while India's tea exports have been stable in absolute terms, their relative importance in both domestic exports and global trade has declined, reflecting a weakening comparative advantage in this sector. An RCA values are much less than l, indicating India does not have a revealed comparative advantage in tea exports during these years. A value > 1would mean a comparative advantage. The export gap of India in the global market was calculated by using the export potential formula. This was calculated by taking the difference between the domestic production and assumed domestic use from 20l8- 2023.

The data in the table 4 outlines India's tea production, estimated domestic consumption, export potential and actual exports from 2018 to 2023, offering insights into the efficiency and utilization of export capacity in the tea sector. In 2018 and 2019, India produced 1,280 Mkg and 1,300 Mkg of tea respectively. With 80% of production assumed for domestic consumption, the estimated export potential was 256 Mkg in 2018 and 260 Mkg in 2019. In both years, actual exports matched the potential, indicating zero unused export capacity — a sign of optimal export performance, especially in 2018 when exports hit a record high. However, in the subsequent years, this efficiency began to fluctuate. During 2020–21, production was around 1,283 Mkg, and the assumed domestic use ranged between 80% to 86%, leading to a wide range in export potential (180 to 257 Mkg). Actual exports were 200 Mkg, which means there was no shortfall, and potentially even an overshoot of up to 20 Mkg, depending on actual domestic use. This suggests that tea exports remained resilient during this period, despite market disruptions due to the COVID-19 pandemic. In 2021–22, production rose to 1,344.40 Mkg, with 86% assumed for domestic use, resulting in an estimated export potential of 188 Mkg. Yet, exports exceeded this at 201 Mkg, creating a negative unused potential of –13 Mkg. This indicates that either domestic consumption was overestimated, or India managed to stretch beyond its exportable surplus, possibly by dipping into stockpiles or improving logistics. By 2022–23, production climbed further to 1,374.97 Mkg, and the domestic use assumption returned to 80%, raising the export potential to 275 Mkg. However, actual exports dropped to 228.40 Mkg, resulting in a substantial unused potential of 47 Mkg. This marks a significant underutilization of export capacity (the highest in the observed period), pointing to either weakening global demand, increased international competition, or domestic logistical and policy challenges.

CONCLUSION

The findings of the study clearly highlight the contrasting export performances among major tea-exporting countries and point to critical structural issues within India's tea sector after economic reforms. The export performance of the Indian tea market after economic reform showed a decline during 2018-23. Compound annual growth rate was

Table 4. Export potential of India from 2018-2023

Year	Production (Mkg)	Assumed Domestic Use (%)	Estimated Export Potential (Mkg)	Actual Exports (Mkg)	Unused Potential (Mkg)
2017-18	1280	80%	256	256(record high)	0
2018-19	1300	80%	260	260 (est.)	0
2020–21	1283.03	80–86%	180–257	200mkg	0 to +20
2021–22	1344.40	86%	188	201mkg	–13
2022–23	1374.97	80%	275	228.40mkg	47

Source: Own Computation

calculated to understand the growth performance of exports from 2018 to 2023. Kenya showed steady and significant growth in export. China reflected relatively stable export volume which indicates a well-established and competitive export system. This stability can be attributed to consistent production practices, government support, better cost competitiveness and strong market linkages, particularly with the Middle East and Europe. While the other countries like Srilanka,India,Vietnam and Argentina showed negative export volumes. The co-efficient of variation of these countries also indicates same picture ie., low co-efficient of variation in Keyna andChina. Whereas Vietnam,India and Argentina showed higher co-efficient of variation indicating significant fluctuations in export values. India's tea export showed declining trend in domestic exports and global trade reflecting weak revealed comparative advantage value. Therefore, innovative adaptive and mitigate measures like product diversification and new marketing strategies will be needed to increase the export volume of Indian tea industry.

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