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Analysis of the Competitiveness and Complementarity of China's Tea Exports to Malaysia

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Abstract

Using trade data on China-Malaysia tea trade from 2015 to 2024, this study employs four key quantitative indices: the Market Share Index (MSI), Revealed Comparative Advantage Index (RCA), Trade Complementarity Index (TCI), and Trade Intensity Index (TII), to evaluate the competitiveness and complementarity of China's tea exports to Malaysia. The findings indicate that although the competitiveness of China's tea exports increased with some fluctuations between 2015 and 2022, it experienced a relative decline from 2023 to 2024. In parallel, trade complementarity demonstrated a steady upward trend, indicating a continuously improving alignment in bilateral tea trade. Based on these outcomes, the study proposes policy recommendations focused on areas such as promoting supply-side reforms, improving distribution channels, enhancing brand image, and fostering cultural

communication.

Keywords: Malaysia, Tea exports, Competitiveness, Complementarity

1. Introduction

China is the birthplace of tea and today stands as the world's largest producer, grower, and consumer of tea. In 2024, China ranked first globally in tea export value and second in export volume, exerting a significant influence on the development of the international tea market. China and Malaysia, friendly neighbors separated by the sea, have enjoyed steadily deepening economic and trade relations since the normalization of diplomatic ties in 1974 (Cao et al., 2024). By 2024, bilateral trade between the two countries had reached USD 212 billion, representing an 11.4% year-on-year increase. China has remained Malaysia's largest trading partner for 16 consecutive years, while Malaysia continues to be China's second-largest trading partner within ASEAN and its largest source of imports.

The signing of the Regional Comprehensive Economic Partnership (RCEP) agreement in November 2020 further boosted tea trade exchanges between China and Malaysia, creating new opportunities for deepening cooperation in this sector (Tang & Li, 2023). From 2015 to 2022, both the volume and value of China's tea exports to Malaysia grew rapidly overall. Between 2021 and 2023, China's tea export value to Malaysia exceeded USD 200 million for three consecutive years. Throughout this period, Malaysia consistently ranked as China's largest tea export destination, holding a strategically important position in the country's tea export landscape (Zhao et al., 2023).

However, since 2023, China's tea exports to Malaysia have witnessed a marked downturn. In 2023, the export value fell to USD 209 million, down 26.7% year-on-year; export volume declined to 8,208.27 tons, a decrease of 11.4%; and the average export price dropped to USD 25.44 per kilogram, down 17.2%. The downward trend accelerated in 2024, with export value plunging to USD 105 million, a sharp 49.92% year-on-year fall, while export volume dropped to 4,528.77 tons (down 44.83%) and the average price fell to USD 23.09 per kilogram (down 9.23%). This consecutive two-year decline in both volume and price warrants serious concern. Based on data from 2015 to 2024, this paper examines the characteristics and challenges of China's tea exports to Malaysia. The study has two primary objectives: first, to conduct a comprehensive analysis of the competitiveness and complementarity of China's tea exports to Malaysia during this period; second, to propose strategic recommendations for enhancing trade relations between the two countries. Specifically, the research seeks to quantify evolving trade patterns, explore measures to strengthen complementary trade relationships, thereby fostering sustainable and resilient tea trade between China and Malaysia. Furthermore, it aims to investigate how China can leverage its advantages and adjust its trade strategies to reverse the current downward trend and enhance the competitiveness of Chinese tea products in the Malaysian market.

To achieve these objectives, the study addresses the following research questions:

i. How has the competitiveness of China's tea exports evolved in the Malaysian market?
ii. What are the specific characteristics and developmental trajectory of trade

complementarity in the tea industry between China and Malaysia from 2015 to 2024?

iii. What policy recommendations and business strategies could be proposed to enhance the synergy between competitiveness and complementarity, thereby ensuring the long-term stability and growth of China's tea exports to Malaysia?

1.1 Characteristics of Tea Trade between China and Malaysia

China and Southeast Asia have maintained long-standing economic and cultural exchanges, with tea culture playing a central role in their historical connection (Lu, 2021). Guangdong and Fujian provinces, due to their proximity to the South China Sea and Southeast Asia, have been important hubs for tea dissemination (Sheng, 2017). Chinese migrants brought tea-drinking traditions to the region, embedding them into local dietary culture and creating a lasting cultural influence (Zhang, 2021). Malaysia is one of the world's major tea-importing and tea-consuming countries. Its tea consumption grew from 22.3 million kilograms in 2012 to 35.9 million kilograms in 2022, an increase of 61% over a decade, with per capita consumption stable at around 1 kilogram. Imports account for over 90% of domestic demand, and even during the COVID-19 pandemic, consumption levels remained largely unaffected (Zhao et al., 2023).

In 2023, the General Administration of Customs of China revised the tea HS codes (Table 1), aligning them with international standards and enhancing trade facilitation. Under the RCEP framework, the new codes will be implemented with ASEAN countries from 2024 to 2026, with global adoption in the World Customs Harmonized System expected in 2028. This initiative is anticipated to strengthen the competitiveness of Chinese tea in the international market and improve regulatory clarity (Zhao & Guo, 2025).

Table 1. Classification of Current HS Codes for Tea in China

HS Code	Tea Classification	Category	Notes
9022090 9021090	Green tea, net weight per inner packaging > 3Kg Green tea, net weight per inner packaging ≤ 3Kg	Green tea	Including Pu er tea
9024090 9023090	Black tea and other partially fermented teas (excluding oolong tea and black tea), net weight per inner packaging > 3Kg Black tea and other partially fermented teas (excluding oolong tea and black tea), net weight per inner packaging ≤ 3Kg	Black tea	
9024010 9023010	Oolong tea, net weight per inner packaging > 3Kg Oolong tea, net weight per inner packaging ≤ 3Kg	oolong tea	
9024031 9023031	Pu erh tea (ripe tea), net weight per inner packaging > 3Kg Pu erh tea (ripe tea), net weight per inner packaging ≤ 3Kg	Dark Tea	Newly added categories in 2021
9024039 9023039	Dark Tea (excluding ripe Pu erh tea), net weight per inner packaging > 3Kg Dark Tea (excluding ripe Pu erh tea), net weight per inner packaging ≤ 3Kg	Dark Tea	Newly added categories in 2021, Excluding Pu erh raw tea
9022020 9021020	White Tea, net weight per inner packaging > 3Kg White Tea, net weight per inner packaging ≤ 3Kg	White Tea	Newly added categories in 2023
9022019 9021019	Scented Tea, net weight per inner packaging > 3Kg Scented Tea, net weight per inner packaging ≤ 3Kg	Scented Tea	Newly added categories in 2023
9022011 9021011	Jasmine Tea, net weight per inner packaging > 3Kg Jasmine Tea, net weight per inner packaging ≤ 3Kg	Scented Tea	Newly added categories in 2023

Source: General Administration of Customs of the People's Republic of China (GAC).

1.1.1 China's Tea Export Value and Volume

Since 2015, China's tea exports to Malaysia have experienced rapid growth. In 2022, both export volume and value reached their highest levels in recent years, with exports totaling 9,300 tons (a year-on-year increase of 27.93%) and an export value of USD 284.71 million, up 10.94% from the previous year. These figures reflect the dynamism and strong potential of Malaysia's tea consumption market.

However, in 2023, China's tea exports to Malaysia declined sharply, with export value dropping to USD 209 million (down 26.7% year-on-year), export volume falling to 8,208.27 tons (down 11.4%), and the average export price decreasing to USD 25.44 per kilogram (down 17.2%). The downturn deepened in 2024, as export value fell to USD 105 million (down 49.92%), export volume decreased to 4,528.77 tons (down 44.83%), and the average price slipped to USD 23.09 per kilogram (down 9.23%). This "simultaneous decline in both volume and price" has persisted for two consecutive years, with the magnitude of the drop expanding further in 2024.

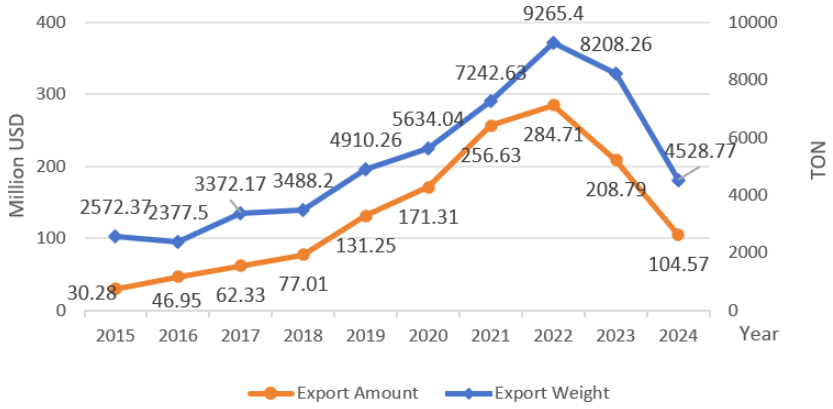

Figure1. The situation of Chinese tea exports to Malaysia from 2015 to 2024

Source: UN Comtrade database.

1.1.2 Product Structure of China's Tea Exports

From 2015 to 2024, the structure of China's tea exports to Malaysia gradually shifted from being dominated by green tea to being led by black tea. In terms of export volume, black tea was China's largest tea export category to Malaysia in 2024, totaling 1,980.80 tons and accounting for 59.19% of total exports. Oolong tea ranked second, with an export volume of 1,182.02 tons (35.32%), followed by green tea at 801.33 tons (23.94%).

In terms of export value, black tea recorded USD 54.2033 million, representing 66.38% of total tea export value; Oolong tea reached USD 22.9137 million (28.06%); green tea amounted to USD 21.3552 million (26.15%); and jasmine tea recorded USD 3.2913 million (4.03%).

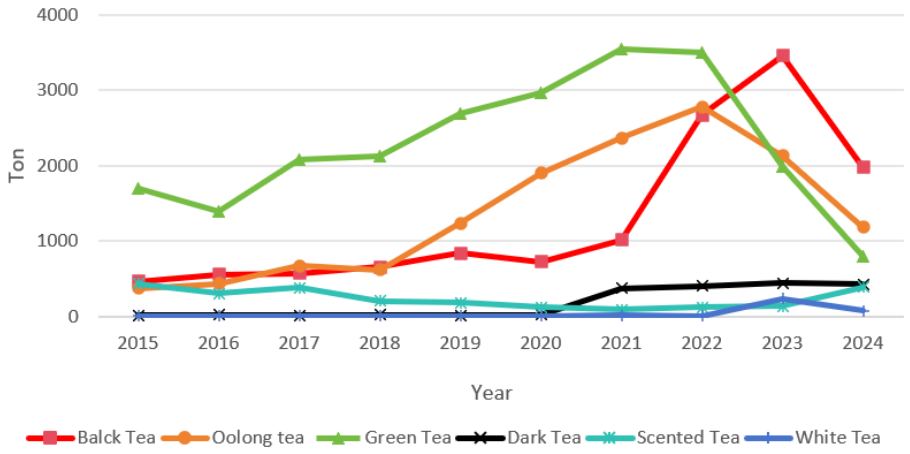

Figure 2. Annual Trends in China's Tea Export Quantities to Malaysia, by Tea Type (2015-2024)

Source: UN Comtrade database.

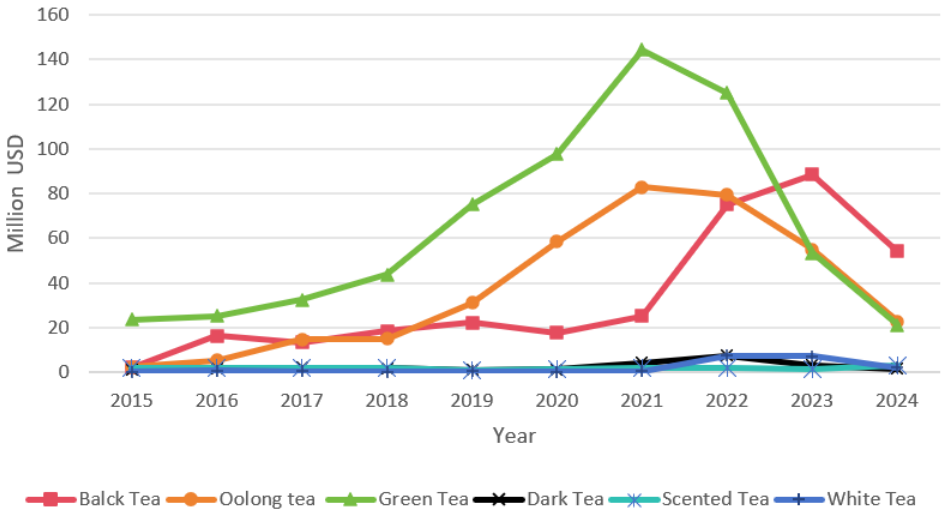

Figure 3. Annual Trends in China's Tea Export Value to Malaysia, by Tea Type (2015-2024)

Source: UN Comtrade database.

1.2 Research Issues

Since 2023, China's tea exports to Malaysia have seen a sharp decline, suggesting that Chinese tea may be facing severe challenges from other exporting countries in the Malaysian market, and that the trade complementarity between China and Malaysia in tea may have changed. Based on the above, a systematic analysis of the spatiotemporal evolution of the tea trade between China and Malaysia, simultaneously assess the competitiveness and trade complementarity of Chinese tea exports to the Malaysia, will provide valuable insights for optimizing China's tea export structure and cultivating new international competitive advantages. This analysis will help China adjust its tea export strategy in a timely manner, promote the steady development of regional economic trade, and build a more balanced and sustainable regional value chain strategic approach.

2. Literature Review

Numerous scholars have examined China's tea export trade from perspectives such as export structure, competitiveness analysis, and trade potential. Wang and Pan (2004) analyzed China's tea export competitiveness from 1986 to 2000 by measuring key indicators, including the Revealed Comparative Advantage index (RCA), Trade Complementarity Index (TCI), and Export Price Elasticity. Their findings revealed a significant decline in China's tea export competitiveness during this period. Li (2023) analyzed China's tea export competitiveness using the TCI, RCA index, and International Market Share Index (MSI), RCA and TCI to find that China's tea export competitiveness has been gradually declining. Zhang (2018) utilized data from the International Trade Centre to analyze the export structure of China's tea industry. Using three indicators - International Market Share, the TCI, and the RCA index - the study assessed the export competitiveness of various tea types and packaging specifications from 2001 to 2016. The results indicate a downward trend in China's tea export competitiveness. The study suggests that focusing on developing green tea, stabilizing black tea, and promoting specialty tea exports are key strategies to strengthen and enhance China's international market competitiveness in tea.

Li (2007) empirically analyzed the comparative advantage of China's tea industry using the RCA index. The results indicate that while China's tea industry has a certain comparative advantage, it has been gradually declining. Based on these findings, policy recommendations are made to improve the competitiveness of China's tea industry. Guan (2010) analyzed the export unit price, international market share, TCI, and RCA index for various types of tea in China. The study found that among China's tea exports, large-packaged green tea has the strongest comparative advantage, while large-packaged fermented tea has the weakest. Small-packaged green tea and small-packaged fermented tea have shown the most rapid increase in comparative advantage. Measures to enhance China's tea export competitiveness include strengthening tea exports with unique advantages, restructuring the export product portfolio, and optimizing the export market structure.

Wang (2020) explored China's international tea trade competitiveness by applying the Intra-Industry Trade Index and the RCA index. The findings indicate that tea remains a product with a comparative advantage for China. Li (2022) analyzed China's tea trade with other RCEP member countries from 2011 to 2020, using trade data to examine import and export trends. By calculating key trade indices, including the RCA index, TCI, and TII, the study assessed the competitiveness and complementarity of bilateral tea trade. The findings indicate that China has maintained a long-term comparative advantage in tea exports, with notable competition from Vietnam and Indonesia, while exhibiting strong trade complementarity with countries such as New Zealand, Brunei, and Australia.

Yang et al. (2019) analyzed the characteristics and trends of China's tea trade with ASEAN countries from 2001 to 2017. The study found that China's tea exports to ASEAN were primarily concentrated in Thailand, Malaysia, Myanmar, Vietnam, and Singapore, with export volume consistently accounting for over 64% of the ASEAN market. Additionally, China's tea exports to Thailand, Vietnam, and Malaysia experienced rapid growth, with Vietnam

showing the fastest growth in export value.

Regarding research methods, scholars have primarily employed common measurement indicators, including the MSI, RCA index, TCI, and TII for analysis. Regarding research subjects, target markets often focus on global markets or regions such as the European Union and ASEAN, with less research on Malaysia. Based on the above, the present study uses the MSI and RCA index to measure the competitiveness of Chinese tea in the Malaysia market to determine whether there is an export advantage. The study combines the TCI and TII to analyze the degree of demand matching between Chinese tea exports and Malaysia, assessing the trade cooperation complementarity and potential. The aim is to predict the competitiveness and development direction of China's tea trade under the new situation and provide targeted policy recommendations.

3. Research Methodology

This study employs a quantitative approach to assess the competitiveness and trade complementarity of China's tea exports in the Malaysian market from 2015 to 2024. Four key indices are calculated to provide a comprehensive understanding of trade dynamics: the Market Share Index (MSI), Revealed Comparative Advantage Index (RCA), Trade Complementarity Index (TCI), and Trade Intensity Index (TII). Each of these indicators is widely recognized in international trade analysis and offers unique insights into different facets of bilateral trade performance.

3.1 Competitiveness Indicators

3.1.1 Market Share Index

The Market Share Index (MSI) reflects changes in the overall competitiveness and competitive position of a specific product from a country in the international market. In this study, the Market Share Index is presented as the ratio of the total value of tea imported by Malaysia from China to the total value of tea imported by Malaysia from the global market (Shi, 2024).

The calculation formula for the Market Share Index is expressed as follows:

$$MSI_a = \frac{X_a}{X_b} * 100\% \quad (1)$$

Where Xa represents the total value of tea imported by Malaysia from China, and Xb represents the total value of tea imported by Malaysia from the global market. The larger the MS, the stronger the export competitiveness of the product.

3.1.2 Revealed Comparative Advantage Index

The Revealed Comparative Advantage Index (RCA), first proposed by Balassa, measures the proportion of a specific product's export value in a country's total exports relative to the proportion of that product's trade in total world trade. This index serves as an effective measure of the international competitiveness of a country's industry (Hao,2020). The calculation formula is as follows:

$$RCA_{ij}^{k} = \frac{(X_{ij}^{k}/X_{i}^{k})}{(X_{wj}^{k}/X_{w}^{k})} \quad (2)$$

Where represents the export value of product i by country j in year t; represents the total export value of country j in year t; represents the export value of product i worldwide in year t; and represents the total export value worldwide in year t.

The RCA value range is classified as follows: RCA < 0.8, 0.8 ≤ RCA < 1.25, 1.25 ≤ RCA < 2.5, and RCA ≥ 2.5, which correspond to very weak, weak, strong, and very strong international competitiveness, respectively. The larger the RCA value, the stronger the competitiveness (Miankhel et al., 2014).

3.2 Complementarity Indicators

3.2.1 Trade Complementarity Index

The Trade Complementarity Index (TCI) was first proposed by Japanese scholar Kojima Kiyoshi and later refined by Glick, Rose, and others. The TCI is used to measure the degree of complementarity between a country's exports of a certain product and another country's imports of the same product, reflecting the matching degree of the two countries' import and export structures (Rong & Yang, 2006). The specific calculation formula is as follows:

$$TCI_{\mathrm{ij}}^{k} = RCA_{\mathrm{xj}}^{k} \times RCA_{\mathrm{mj}}^{k} \quad (3)$$

Here, TCI^{k}_{ij} represents the trade complementarity index of product k between countries *i* and *j*. RCA^{k}_{xj} represents the export comparative advantage of product *k* for exporting country *i*; a larger value indicates that the exporting country has a greater advantage in producing product *k*. RCA^{k}_{mj} represents the import comparative advantage of product *k* for importing country *j*; a larger value indicates that the importing country has a greater disadvantage in producing product *k*.

If the Trade Complementarity Index is greater than 1, it indicates strong trade complementarity between the two countries for that product, and the larger the value, the stronger the complementarity. Conversely, a value less than 1 indicates weak trade complementarity. The more closely the range of export products of one country matches the range of import products of another country, the larger the Trade Complementarity Index will be, indicating more evident trade complementarity between the two countries (Lu et al., 2019).

3.2.2 Trade Intensity Index

The Trade Intensity Index (TII), proposed by Brown, is a comprehensive indicator used to measure the degree of mutual dependence between two countries in bilateral trade (Xiang & Tang, 2016). The formula is as follows:

$$TII_{\mathrm{ij}} = (X_{\mathrm{xj}}/X_{\mathrm{iw}})/(M_{j}/M_{w}) \quad (4)$$

Where X_{ij} represents the value of tea exports from country *i* to country *j*; X_{iw} represents the total value of tea exports from country *i* to all countries worldwide; M_j represents the total value of tea imports by country *j*; and M_w represents the total value of tea imports worldwide.

When the Trade Intensity Index is greater than 1, it indicates that tea trade relations between the two countries are close; conversely, a value less than 1 indicates that the trade relationship is weak. In general, the stronger the trade complementarity between the two countries, the larger the TII value (Ma & Qiu, 2022).

4. Results and Analysis

4.1 Competitiveness Analysis

4.1.1 Results and Analysis of the Market Share Index

Table 2. Rankings and Shares of Malaysia's Tea Import Sources, 2015-2024

Year	Rank-1		Rank-2		Rank-3		Rank-4		Rank-5	
2015	Indonesia	36.60%	Viet Nam	13.60%	India	13.20%	China	11.70%	Kenya	9.60%
2016	Indonesia	33.40%	Viet Nam	16.30%	India	15.00%	China	11.00%	Kenya	7.40%
2017	Indonesia	37.30%	Viet Nam	14.50%	India	13.50%	China	12.00%	Kenya	6.20%
2018	Indonesia	34.90%	Viet Nam	15.70%	India	13.80%	China	12.50%	Argentina	4.80%
2019	Indonesia	29.80%	China	17.80%	Viet Nam	13.60%	India	10.50%	Kenya	6.20%
2020	Indonesia	26.80%	China	25.00%	Viet Nam	13.90%	Kenya	9.10%	India	6.80%
2021	Indonesia	28.80%	China	28.10%	Viet Nam	13.40%	Kenya	8.40%	India	5.20%
2022	Indonesia	27.30%	China	24.10%	Viet Nam	16.00%	Kenya	8.80%	India	7.70%
2023	Indonesia	27.10%	China	25.90%	Viet Nam	13.70%	India	7.00%	Kenya	6.10%
2024	Indonesia	27.98%	Viet Nam	17.15%	China	16.13%	Kenya	10.06%	India	7.90%
Cont.	Rank-6		Rank-7		Rank-8		Rank-9			Total
2015	Sri Lanka	3.80%	Singapore	1.60%						90.20%
2016	Argentina	2.60%	Sri Lanka	2.40%	Australia	1.50%	Papua New	1.40%		90.90%
2017	Argentina	2.40%	Sri Lanka	2.00%	Mozambique	1.80%	Australia	1.50%		91.10%
2018	Singapore	2.90%	Kenya	2.70%	Sri Lanka	1.50%	Other Asia,	1.40%		90.10%
2019	Argentina	6.20%	Other Asia,	2.40%	Sri Lanka	2.00%	Singapore	1.90%		90.40%
2020	Argentina	5.60%	Other Asia,	1.80%	Sri Lanka	1.50%				90.40%
2021	Argentina	3.10%	Other Asia,	2.10%	Japan	1.60%				90.50%
2022	Argentina	2.40%	Other Asia,	2.20%	Singapore	1.70%				90.10%
2023	Singapore	4.50%	Argentina	2.40%	Malawi	2.10%	Sri Lanka	1.70%		90.50%
2024	Singapore	5.32%	Argentina	2.75%	United Arab Emirates	2.24%	Japan	1.80%		91.33%

Source: UN Comtrade database.

Table 2 indicate that between 2015 and 2024, the ranking and market share of Malaysia's tea import sources underwent substantial changes. Indonesia consistently ranked first; however, its market shares gradually declined from 43% to 27.98%, weakening its dominant position. Vietnam rose to second place, with its share fluctuating between 13% and 17%, indicating relative stability. India and Kenya alternated between the fourth and fifth positions, with both countries recording an increase in overall share in 2024. Argentina's market shares gradually declined after 2016 but regained seventh place in 2023. In 2024, the United Arab Emirates ranked eighth, accounting for 2.24% of Malaysia's tea imports.

It is particularly noteworthy that in 2024, Malaysia's tea imports from Kenya, Vietnam, and India all increased significantly: Kenya's exports surged by 64.6%, Vietnam's by 25.18%, and India's by 12.86%. These countries, leveraging their long-standing competitive advantages in the mid- to low-end black tea segment, have gradually encroached upon market share once held by China (Zou, 2020). Their export prices are significantly lower than those of Chinese tea, making them particularly suitable for blended tea applications, such as Malaysia's popular milk tea and tea bags, which align well with local consumption preferences. By contrast, Chinese tea exports are still dominated by traditional single-brew types such as black tea, green tea, and oolong tea (Liang, 2019), which do not align with the prevailing blending trend.

Furthermore, many competing countries have increasingly mature bilateral trade arrangements with Malaysia, with more favorable and stable customs procedures and tariff policies, thereby reducing import costs and transaction risks. Some countries have accelerated their penetration into the Southeast Asian market through free trade agreements or regional cooperation mechanisms, offering lower prices, more localized channels, and greater flexibility (Singh,2022). In contrast, China continues to face certain challenges in tea trade with Malaysia, including compliance with standards, halal certification, and logistics efficiency. With China's export prices rising and its supply structure lacking flexibility, Malaysia has been proactively implementing a diversification strategy for its import sources to reduce reliance on a single supplier. This trend has provided other tea-exporting countries with a window of opportunity to capture market share rapidly, intensifying the substitutive competition against Chinese tea.

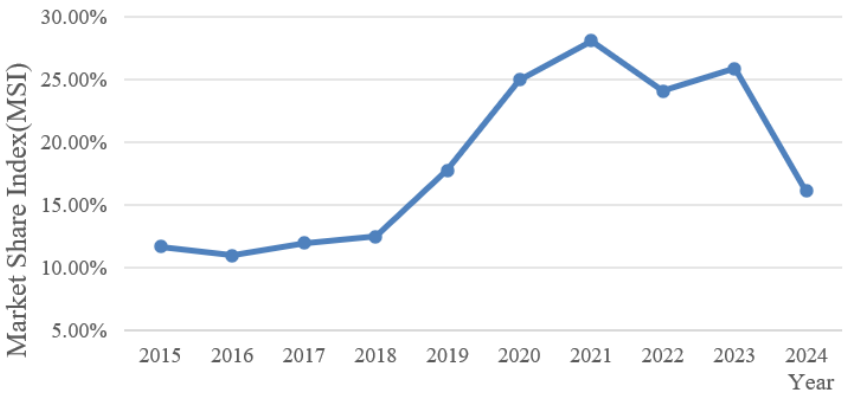

Figure 5. Market share index of Chinese tea exports to Malaysia (2015-2024)

Source: UN Comtrade database.

Figure 5 indicate that China's market share remained relatively stable between 2015 and 2017, within the range of 11% to 12%. From 2018 onwards, a notable upward trend emerged, with particularly significant increases in 2019 and 2020, reaching 17.8% and 25.0%, respectively. This reflects a marked enhancement in the influence and competitiveness of Chinese tea in the Malaysian market. The share peaked at 28.1% in 2021, followed by a slight decline to 24.1% in 2022 and 25.9% in 2023, indicating a certain consumer base for Chinese tea in

Malaysia. However, in 2024, the market share dropped sharply to 16.13%, returning to a level close to that of 2018, suggesting a dramatic weakening of competitiveness.

The fluctuation in China's market share, particularly the sharp decline in 2024, may be attributed to several factors. The initial growth between 2018 and 2021 likely reflects the positive impact of trade facilitation policies, such as the Regional Comprehensive Economic Partnership (RCEP), as well as increasing consumer recognition of Chinese tea varieties. However, the subsequent decline could indicate growing competition from other tea-exporting countries, changes in Malaysian import regulations or tariffs, shifting consumer preferences, or macroeconomic factors such as currency fluctuations and supply chain disruptions.

The notable drop in 2024 warrants particular attention. It may signal structural challenges such as increased production costs in China, the emergence of alternative suppliers (e.g., India, Sri Lanka, or Kenya), or a lack of adaptability to new market demands, such as the growing preference for organic, sustainable, or premium-branded tea products. Additionally, this decline might reflect a broader adjustment in bilateral trade dynamics beyond the tea sector.

These findings underscore the need for China to reassess its export strategy and enhance the value proposition of its tea products in the Malaysian market. Improving quality standards, strengthening distribution channels, and developing targeted marketing strategies that emphasize cultural and qualitative attributes could help restore competitiveness.

Overall, while Indonesia has maintained first place in market share over the long term, its share has declined. China's share rose initially but experienced a sharp drop in 2024. Vietnam, Kenya, and India have seen fluctuating yet upward trends in their shares. These developments indicate that Malaysia's tea import market is becoming increasingly diversified, with competition growing more intense.

4.1.2 Revealed Comparative Advantage Index

The top five countries of origin for Malaysia's tea imports-Indonesia, Vietnam, China, Kenya, and India-are selected, and the Revealed Comparative Advantage Index (RCA) for tea exports from each country is calculated.

Table 3. RCA of Malaysia's top five tea import sources (2015-2024)

Country	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
China	1.41	1.57	1.54	1.99	1.83	1.67	1.76	1.61	1.58	1.29
Indonesia	1.94	1.74	1.46	1.68	1.24	1.25	0.98	0.85	0.82	0.85
Kenya	490.85	478.53	534.77	631.76	430.93	431.34	447.56	520.73	577.13	553.65
Vietnam	3.04	2.83	2.27	2.40	1.97	1.50	1.54	1.67	1.58	2.05
India	5.94	5.64	5.63	6.63	5.69	5.33	4.41	4.60	5.03	6.00

Source: UN Comtrade database.

As shown in Table 3, although Indonesia holds the largest share of Malaysia's tea import market, its RCA index declined from 1.94 in 2015 to 0.85 in 2024, falling below the critical

threshold of 1.0, indicating a loss of comparative advantage. This further suggests that Indonesia's share advantage stems primarily from geographical proximity, low transportation costs, and long-standing trade relations, rather than genuine international competitiveness, thereby creating a clear substitution opportunity for Chinese tea.

Vietnam has maintained a significant comparative advantage over the years, though with a downward trend, as its RCA index declined from around 3 to approximately 1.5, with a slight rebound in 2024. While Vietnam still retains a competitive edge, it also faces increasing challenges. Kenya's RCA index has consistently exceeded 400, demonstrating an extremely strong comparative advantage, while India's has remained stable at around 5-6. However, the comparative advantages of both Kenya and India are concentrated in bulk black tea (particularly CTC black tea), mainly supplying the global blending market as well as traditional markets in Europe and the Middle East.

China's RCA index fluctuated between 1.3 and 2.0, indicating a moderate comparative advantage. After peaking at 1.99 in 2018, the index showed a general downward trend, reaching its lowest point of 1.29 in 2024. This suggests that, despite being both a major tea producer and consumer, China's export comparative advantage is not particularly strong relative to its overall trade scale. The recent decline may reflect rising domestic production costs, intensified international market competition-particularly from Kenya, India, and Sri Lanka in the black tea segment-and adjustments in export structure, such as a shift towards high-end markets or specific tea categories.

In summary, for Malaysia, China remains an important supplier; however, among the top five countries by market share, its comparative advantage is relatively weaker and shows signs of further erosion.

4.2 Complementarity Analysis

4.2.1 Results and Analysis of the Trade Complementarity Index

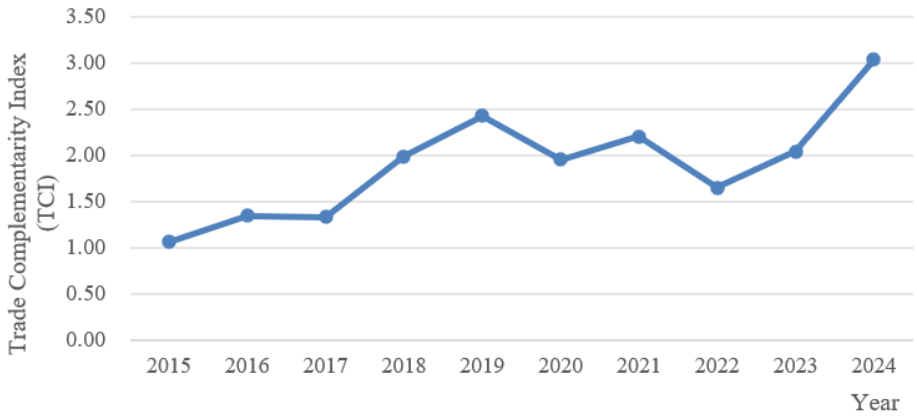

Figure 6. TCI of Chinese Tea Exports to Malaysia (2015-2024)

The Trade Complementarity Index (TCI) for China's tea exports to Malaysia rose from 1.06

in 2015 to 3.04 in 2024, representing a 187% increase over the decade, with a year-on-year surge of 49% in 2024, reaching a historical peak. Although the global competitiveness of Chinese tea (as reflected by the RCA index) weakened to 1.29, this strong upward trend highlights the structural complementarity in China-Malaysia tea trade. Such an advantage may stem from cultural affinity between the two countries and differentiated product offerings. Overall, the TCI for China's tea exports to Malaysia has remained consistently above 1 and has generally strengthened over time, indicating a deep alignment between Chinese tea supply and Malaysian market demand.

4.2.2 Results and Analysis of the Trade Intensity Index

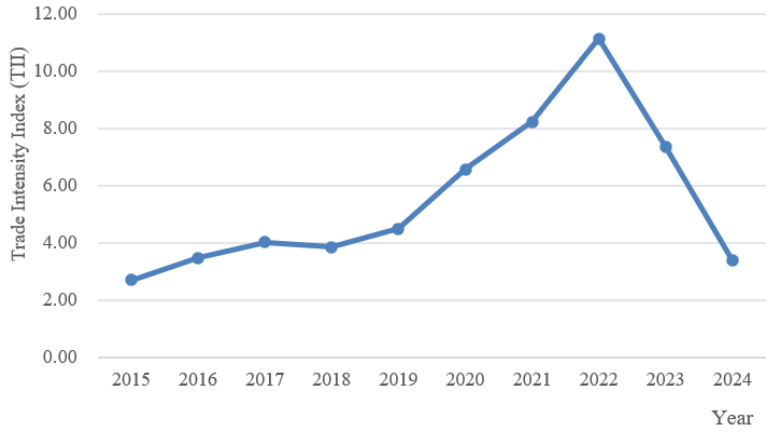

Figure 7. TII of Chinese Tea Exports to Malaysia (2015-2024)

From 2015 to 2024, the Trade Intensity Index (TII) for China's tea exports to Malaysia followed a roller-coaster trajectory: rising steadily from 2.69 in 2015 to 4.48 in 2019, then surging to 11.12 in 2022 during the COVID-19 pandemic, possibly due to passive reliance under the global logistics disruptions caused by the pandemic. From 2023 to 2024, it sharply declined to 3.40, which still represents a 26.4% increase compared to 2015, indicating that after excluding pandemic-related disturbances, the China-Malaysia tea trade link has undergone substantive strengthening and remains in a state of close and steadily intensifying connection.

5. Conclusion

5.1 Conclusion

Based on trade data from 2015 to 2024, this study conducted an in-depth analysis of the competitiveness and complementarity of China's tea exports to Malaysia, yielding the following conclusions:

i) The market shares initially expanded and then fluctuated sharply, while the RCA index exhibited volatility with an overall downward trend. China's tea exports to Malaysia experienced a period of high growth from 2015 to 2022, followed by a steep decline in 2023-2024. This indicates that China's tea export competitiveness strengthened amid

fluctuations during 2015-2022, but relatively weakened in 2023-2024.

ii) The trade complementarity index demonstrated an overall upward trajectory, while the trade integration index rose steadily from 2015 to 2022 before declining in 2023 and 2024. Nevertheless, it remained within the stage of strong complementarity throughout the past decade, suggesting that the China-Malaysia tea trade maintained a close relationship, with strong complementarity and a continuously improving bilateral trade match.

5.2 Recommendations

5.2.1 Promote Supply-Side Reform and Restructure the Export Composition

In the face of the structural challenges behind the accelerating loss of China's tea market share in Malaysia, it is essential to undertake systematic optimization in areas such as export structure, product adaptation, and cost-efficiency enhancement.

First, the export product structure should be redesigned to establish a three-tier system of premium + ready-to-drink (RTD) + blended teas. This approach would preserve the cultural and gift-oriented value of traditional premium teas in the high-end segment, while introducing mid- and low-priced products to meet everyday demand for RTD tea bags and blended teas. This would close the price gap and enhance overall market coverage (Zhang, 2012).

Second, in response to Malaysian consumers' preference for richly flavored beverages such as milk tea and blended tea, exporters should develop products with stronger local adaptation, tailoring taste, flavor profile, packaging language, and convenience to better meet local needs.

Third, in terms of cost control, it is necessary to further improve tea production technologies and supply chain efficiency. Measures could include refining tea plantation management to create conditions favorable for mechanized and automated operations, developing innovative tea-harvesting machinery to improve picking efficiency, and promoting automated tea-processing equipment to reduce labor costs (Xiong, 2021).

Finally, a market monitoring and rapid-response mechanism should be established to dynamically track competitor strategies, consumption trends, and policy changes (Guo, 2021). This would provide the data support and decision-making foundation necessary to stabilize China's market share and restore competitiveness in the Southeast Asian tea market.

5.2.2 Strengthening Channel Development to Align with Market Demand

In the face of intensifying competition from countries such as Indonesia, Vietnam, and Kenya, China's tea industry must proactively adjust its strategies in the Malaysian market to counter the increasingly pronounced substitution effect. First, building on the optimization of the product structure, China should introduce more cost-effective mid- to low-priced tea products, with a particular focus on segments such as black tea, tea blends for mixed beverages, and bulk-blended teas. These products can better meet Malaysia's mainstream demand for ingredients used in milk tea and other high-frequency consumption products, while mitigating

the market resistance associated with the "high price-high end" perception of Chinese tea (Sadia & Song, 2021).

Second, greater localization efforts are essential. This involves conducting in-depth research into consumer preferences across different ethnic groups-Malay, Chinese, and Indian-and developing flavor profiles that better align with each group's tastes. Packaging design should be improved to incorporate Malay and English labeling, halal certification, and other compliance adaptations to penetrate mainstream retail channels such as supermarkets, e-commerce platforms, and convenience stores.

At the channel level, China should strengthen its market presence by forging close partnerships with local importers, retailers, and new-style tea beverage brands. This could include custom raw material supply, and joint marketing initiatives to enhance brand exposure and deepen channel penetration. In addition, pricing strategies must become more flexible and market sensitive. This can be achieved by optimizing raw material sourcing, reducing logistics costs, and leveraging economies of scale to control export costs, thereby improving price competitiveness while maintaining quality.

Finally, a continuous monitoring mechanism should be established to track competitors' dynamics, paying close attention to price fluctuations, product portfolio adjustments, and channel strategies of countries like Kenya and India. Timely adaptation of response plans is crucial to avoid a passive market position. Through such multi-dimensional, coordinated efforts, Chinese tea can gradually slow the trend of market substitution and regain both its influence and market share in Malaysia's consumer market.

5.2.3 Building Brand Image and Promoting Cultural Communication

To address the challenge of insufficient brand influence of Chinese tea in the Malaysian market, efforts should be made across multiple dimensions, including national image building, enterprise brand development, and localized cultural communication. First, at the national level, a "Unified Export Brand Image for Chinese Tea" should be established, drawing on successful examples such as Ceylon Tea from Sri Lanka or Matcha from Japan. By implementing national-level brand endorsement, unified logos, and quality certification systems, China can enhance the overall recognition and credibility of its tea in overseas markets.

Second, leading enterprises should be encouraged to accelerate the development of "global brands." Support should be provided to tea companies with strong capabilities in product R&D, brand operation, and international market expansion, enabling them to cultivate enterprise brands with high international recognition and consumer loyalty (Liu, 2022).

At the same time, localized brand operations and cultural promotion in the Malaysian market should be strengthened. This can be achieved by establishing overseas brand exhibition centers, participating in local tea expos and cultural festivals, and engaging in cross-industry collaborations to integrate "tea culture + brand storytelling" into the local context. Packaging design, promotional language, and brand narratives should consciously incorporate local cultural elements to enhance brand affinity and foster emotional connections with consumers

(Chen & Zeng, 2020).

In terms of digital communication, mainstream e-commerce platforms such as Shopee and Lazada, as well as social media, should be fully utilized for targeted marketing-particularly to engage younger consumer groups and build localized brand influence. Finally, partnerships can be formed with government agencies, embassies, universities, and cultural institutions to organize tea culture promotion activities. By shifting Chinese tea from merely a commercial export to a cultural export, a dual-driven approach combining brand building and cultural dissemination can be established, thereby enhancing the long-term influence and consumer loyalty of Chinese tea in overseas markets.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

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The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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