

COMPETITIVENESS OF SRI LANKAN TEA IN THE INTERNATIONAL MARKET: A TRADE FLOW ANALYSIS

Tharindu Udayanga Kamburawala¹ and Dilmini Hasintha Abeyrathne²

Department of Economics, University of Sri Jayewardenepura¹,

Lakshman Kadirgamar Institute,²

ABSTRACT

For more than 150 years, Sri Lanka has had a significant influence on the world market for tea. Sri Lanka is one of the world's top producers and exporters of tea. However, Sri Lanka's tea industry encounters a number of challenges due to internal and external market conditions, including governmental regulations, rising labour costs, and supply chain disruptions. These challenges can affect the competitiveness of Sri Lanka's tea exports in the global market. Therefore, it is important to understand how the competitiveness of Sri Lankan tea exports in the global tea market changed over time. The specific objectives of the study were to examine the relative contribution of Sri Lanka's tea exports to the international market and to assess the level of competitiveness of Sri Lanka's tea exports. Based on the positivist research philosophy and quantitative approach, this study adopted four indexes to assess the level of competition. These indices include export market share (MS), export unit price (EUP), revealed comparative advantage (RCA), and revealed trade advantage (RTA). The study's findings demonstrated that while the export unit price exhibited an upward trend, Sri Lanka's market share in the world tea market has decreased over time. According to the findings of the RCA and RTA indices, Sri Lanka's competitiveness in terms of international tea exports has continuously decreased. Kenya, on the other hand, has witnessed a rise in tea export competition, while China and India have seen a decline in tea export competition. This study emphasizes the need for implementing efficient production methods in order to provide Sri Lankan tea to the global market at a lower price. Additionally, government policies ought to focus on offering technical assistance to boost productivity in the Sri Lankan tea industry.

KEYWORDS: Competitiveness of Sri Lankan Tea, Trade Flow Analysis, Revealed Comparative Advantage, Revealed Trade Advantage

Corresponding Author: Tharindu Udayanga Kamburawala, Email: kktudayanga@sjp.ac.lk



<https://orcid.org/0000-0001-6810-4453>



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1. INTRODUCTION

Since its inception in 1867, Sri Lanka's tea business has been significant in terms of its contribution to national output, employment, and net foreign exchange earnings. Over the past 150 years, the sector has undergone a variety of changes. Large-scale tea plantations that were privately owned at this time have given way to nationalized plantations run by the government, which are now regional plantation enterprises controlled by private companies (Arunatilake, Wijayasiri, & Kelegama, 2018). The smallholder segment of the tea business has expanded recently, surpassing tea estates as the primary source of tea production in the nation. Many other aspects of the industry are also evolving quickly, including the rise of the small holder tea sector, labour concerns, automation, shifts in consumer demand, climate change, and proliferation of quality requirements. (Arunatilake, Wijayasiri, & Kelegama, 2018).

Along with the constraints of the domestic market, recent changes on the global market have made it more difficult for Sri Lanka to produce tea. International tea prices fell to USD 2.44 per kg in 2021 as trading was hampered by logistical problems brought on by the pandemic. Prices began to improve in the final quarter of 2021, averaging USD 2.62 per kg (FAO, 2022). The increase was brought on by significant increases in the Colombo auction market, which followed tighter supply coming from Sri Lanka as a result of the country's economic difficulties and high global demand. The Russia-Ukraine conflict, however, had a negative effect on tea prices and trade because the Russian Federation is the second-largest importer of Indian tea, the third-largest importer of Sri Lankan tea, and the fifth-largest importer of Kenyan tea. Since the Russian Federation is a key provider of fertilizers, their scarce supply and/or rising costs could result in poorer yields and lower tea quality.

Based on these internal and external issues, there is tremendous uncertainty about how Sri Lankan tea's competitiveness may change in the global market. The literature that is currently available on Sri Lankan tea production does not fully support the analysis of how Sri Lankan tea's competitiveness has changed over time in the international market.

Literature confirms that even though there are a number of studies that examine Sri Lanka's tea sector, the studies that examine how Sri Lanka's tea sector's competitiveness changed over time are narrow and limited.

Therefore, the purpose of this study is to conduct a descriptive trade flow analysis in order to assess how competitive Sri Lankan tea is on the international market. This study is significant in filling the literature gap regarding the changes in Sri Lanka's competitiveness in tea exports to the international market. Such knowledge is essential for the effective formulation of policies that will advance the Sri Lankan tea industry. However, as a limitation, this study does not examine the impact of the COVID-19 pandemic, the Russia-Ukraine war, or Sri Lanka's economic crisis on tea exports and its competitiveness since it covers only the period spanning from 2002 to 2021.

2. LITERATURE REVIEW

The tea plantation has been restricted to five unique places in the world due to the unique conditions of the soil and environment. The majority of tea-producing nations are found in the Asian continent. The leading producers on the continent are China, India, and Sri Lanka. The African nations that produce the most of their tea include Kenya, Tanzania, Malawi, and Uganda, which are all located in tropical climates (Kithsiri, V.S. Jayamanna, & Abewickrama, 2020). Kenya, China, India, Sri Lanka, Vietnam, and Malawi are the very active nations that compete with one another in the ferocious tea industry environment. These countries are the leading producers and exporters of tea in the world (Kasturiratne, 2008). When it comes to the current rankings of tea exporting nations, China is in the first place as the biggest exporter, followed by Kenya and Sri Lanka in second and third places, respectively. India and Poland round out the top five (Cybex, 2022). Therefore, this study selected China, Kenya, Sri Lanka, and India to compare their levels of market competition.

The tea business must maintain sustained competition with other global producers and exporting nations in order to benefit the nation's economy. By forging a

stable position in the tea market and effectively navigating the competitive process, Sri Lanka should outline its plan for competitiveness in the global tea market (Herath & Silva, 2011). Vithunan and Wijethunga (2021) examined the competitiveness of Sri Lankan tea by using a policy analysis matrix approach. However, the primary objective of this study was to conduct a thorough examination of the policy assistance for tea production in Sri Lanka from 2006 to 2019. The study's conclusions showed that policy initiatives are not protecting Sri Lanka's tea production (Vithunan & Wijethunga, 2021). However, this study makes no inferences regarding how Sri Lankan tea's competitiveness has evolved in the international market. The competitiveness of Sri Lankan tea on the global market has been assessed by Kithsiri, Jayamanna, and Abewickrama (2020). The constant market share model was used in this study to examine competitiveness and test the viability of applying the model for such purposes. The market growth effect, residual effect, and composition effect that affect the overall change in exported quantity to a particular country have received particular attention. According to the study's findings, Ceylon tea is found to be competitive in countries like Russia, Kuwait, Japan, Turkey, Germany, Australia, the United States, and India. Additionally, Azerbaijan, Iran, the United Kingdom, and Libya are discovered to have the potential to be competitors for Ceylon Tea (Kithsiri, Jayamanna, & Abewickrama, 2020). According to the findings of this study, it is very clear that Sri Lanka's tea exports have competitiveness in the markets mentioned above, such as Russia, Japan, and the United States. But this study has not examined how the competitiveness of Sri Lanka's tea exports changed over the periods of the identified export markets. Therefore, the findings of the study conducted by Kithsiri, Jayamanna, and Abewickrama also reveal the existing research gap in identifying the changes in Sri Lanka's competitiveness in tea exports in the world market.

The majority of studies on Sri Lanka's tea industry have concentrated on problems specific to the tea industry. Mujahid Hilal (2020) investigated the problems and tactics in the Sri Lankan tea industry. 53 interviews were performed for the study in Sri Lanka

and India, and it was discovered that in order to maintain the sustainability of the Sri Lankan tea sector, it is essential to produce value-added tea products, support local brands on the international market, and advertise the goods abroad (Hilal, 2020). Even while the study identified a few elements that the Sri Lankan tea industry must contend with to remain competitive, it did not indicate how the sector's degree of competition has evolved.

In 2000, Ganewatta and Edward also investigated Sri Lanka's tea industry's economic problems and governmental initiatives. This study made clear that government policies for the tea sector must be consistent with the remedy of market failures if efficiency is to increase and international competitiveness is to be achieved (Ganewatta & Edwards, 2000). However, the study did not determine how competitive Sri Lankan tea is on the global market. Accordingly, there is a research shortage about the shift of Sri Lankan tea's competitiveness in the global market based on the volume of literature currently accessible on the Sri Lankan tea industry. By examining the competitiveness of Sri Lankan tea on the global market, this study seeks to narrow that gap.

Several publications have been evaluated in order to determine the best analytical techniques for assessing the competitiveness of Sri Lankan tea on the global market. The constant market share model used by Kithsiri, Jayamanna, and Abewickrama (2020) is appropriate for concentrating on the market growth effect, composition effect, and residual effect; nevertheless, it does not reflect how competitiveness has changed over time. Irshad and Arshad (2018) looked at Pakistani rice's ability to compete on the world market and its potential for export. This study is the first empirical attempt to identify prospective export destinations for Pakistani rice to 144 countries between 2003 and 2016 utilizing a panel-gravity approach and the PPML technique (Irshad, Xin, & Arshad, 2018). This study employed the Revealed Comparative Advantage (RCA) competitive index developed by Balasa (1965) and Vollrath (1991) to assess the export competitiveness of 10 significant rice exporters in the worldwide market.

The competitiveness of Knowledge Intensive Business Services (KIBS) in Singapore and Hong Kong was studied by Deng (2016). To quantify the competitiveness of particular industries, this study's approach included the use of three indices: export market share, disclosed comparative advantage, and revealed comparative advantage (Deng, 2016). The Revealed Comparative Advantage (RCA) competitive index was thus emphasized in the literature review as a useful tool for assessing the competitiveness of Sri Lankan tea on the global market.

According to Jackman, Lorde, Lowe, and Alleyne, the theory of comparative advantage is undoubtedly one of the most crucial ideas in the study of international trade, and it is frequently used to assess trade and export specialization patterns (Jackman, Lorde, Lowe, & Alleyne, 2011). The Heckscher-Olin (HO) theory and the Ricardian theory are two significant conventional trade theories that address comparative advantage. According to the Ricardian theory, countries with different relative production costs have a competitive advantage over one another. Instead, the HO hypothesis postulates that country advantages result from variations in factor pricing between nations. According to the HO theory, a country's comparative advantage is determined by its relative factor scarcity, meaning a country will export products that use its abundant and inexpensive element(s) of production and import products that use its scarce factor(s) of production to obtain comparative advantage.

Overall, the Ricardian Theory, proposed by David Ricardo, suggests that countries should specialize in producing goods in which they have a comparative advantage, even if they can produce all goods more efficiently than other countries. The comparative advantage theory, a refinement of the Ricardian theory, states that countries should specialize in producing goods where they have the lowest opportunity cost. The Heckscher-Ohlin Theory emphasizes the role of factor endowments, particularly labour and capital, in determining comparative advantage. According to this theory, countries will export goods that intensively use their abundant factors of production and import goods that use their scarce factors of production. Literature confirms that Sri Lanka has favourable geographical conditions, such as a suitable climate, altitude, and soil

for tea cultivation. In the case of Sri Lanka's tea, based on its comparative advantage, Sri Lanka should focus on producing tea because it can produce it at a lower opportunity cost compared to other countries. Furthermore, Sri Lanka has a relatively abundant labour force compared to capital, which aligns with the labour-intensive nature of tea cultivation and processing. In summary, these economic theories collectively suggest that Sri Lanka's tea industry benefits from its comparative advantage, driven by factors such as favourable geography, historical expertise, and factor endowments. By specializing in tea production, Sri Lanka can enhance its competitiveness in the global market and capitalize on its strengths in the tea industry.

Literature shows that measuring comparative advantage is currently receiving significant attention from international experts. Because it is impossible to see relative pricing under an autarky, academics have created indices to gauge comparative advantage. The two main indexes that are being used are the Export Market Share (MS) and the Revealed Comparative Advantage (RCA). Since it was first suggested by Balassa (Balassa, 1965), RCA has been regularly used to assess comparative advantage, despite several drawbacks.

According to Greenaway & Milner, one problem is that the Balassa index of revealed comparative advantage is biased from the perspective that it just takes into account exports and ignores the influence of imports and, as such, implies possible over or underestimation of any underlying comparative advantage or disadvantage (Greenaway & Milner, 1993). In addition, there is an asymmetry problem. Since the 1980s, RCA index has been expanded and changed by various academics, including Balassa, in order to provide a more thorough and objective measuring approach. For instance, Relative Trade Advantage index - RTA (Vollrath, 1991), Net Export Revealed Comparative Advantage index - NXRCA (Balassa, B., 1989), and Revealed Export Advantage index - RXA (Esterhuizen & Rooyen, 2010) can be found. According to Kang, RTA appeared to be symmetrical and objective, making it more valid and acceptable for determining comparative advantage (Kang, 2014).

Thus, this research intends to utilize Market Share, RCA, and RTA indices when analyzing the competitiveness of Sri Lankan tea in the global market.

3. METHODOLOGY

This study is aimed at exploring the competitiveness of Sri Lanka's tea exports in the international market over time. Furthermore, the present study specifically attempts to achieve the following specific objectives:

To examine the relative contribution of Sri Lanka's tea exports to the international market.

To identify the changes of the average price of Sri Lanka's tea in the international market.

To assess the level of competitiveness of Sri Lanka's tea in the international market.

This research is based on secondary data for the time period spanning from 2002 to 2021. Data were extracted from TRADE MAP database that includes trade statistics for international business development. This study utilized data for the HS codes of headings 0902; Tea, whether or not flavoured. Table 01 projects the variables for which data were extracted.

HS Code	Variable	Scale	Time Period
0902: Tea, whether or flavoured	Exported Quantity	Tons	2002 – 2021
0902: Tea, whether or flavoured	Exported Value	US Dollar Thousands	2002 – 2021
Total All Products	Exported Value	US Dollar Thousands	2002 – 2021

It is important to note that this study covers only the period from 2002 to 2021. When deciding the time period for the study, the availability of data was a concern. This time period encompasses nearly two decades, allowing for a comprehensive analysis of trends, fluctuations, and long-term patterns in the Sri Lankan tea industry. Furthermore, the selected time periods cover the global financial crisis (2007–2009)

and the European sovereign debt crisis (2010–2012), which can influence the patterns of global tea exports. However, the selected time period is not enough to provide implications for the changes in the competitiveness of Sri Lankan tea due to the COVID-19 pandemic and the Russia-Ukraine war since it limits itself to the 2002–2021 period.

The review of the literature explored the possible techniques to assess the changes in the competitiveness of Sri Lanka's tea exports. This study has calculated market share (MS) to examine the relative contribution of a country's tea exports to the overall volume or value of tea traded internationally within a specified period. Furthermore, it projects how Sri Lanka's market share for tea exports has changed over time.

To identify the changes in the average price of Sri Lanka's tea in the international market, this study has calculated the export unit price (EUP). Monitoring changes in the tea export unit price over time can provide insights into market dynamics, such as fluctuations in demand, changes in consumer preferences, shifts in production costs, currency exchange rate movements, and variations in quality and grades of tea being traded. Additionally, the unit price can vary depending on factors such as the type of tea, its origin, its quality, and market conditions in importing countries.

Furthermore, this study has calculated the Revealed Comparative Advantage (RCA) and Relative Trade Advantage (RTA) indexes to assess the level of competitiveness of Sri Lanka's tea exports in the international market. Both RCA and RTA indexes provide valuable insights into a country's export specialization and comparative advantage, helping policymakers, researchers, and businesses understand patterns of trade and identify opportunities for growth and diversification in international trade. The content below provides an overview of the formulas utilized for calculating MS, EUP, RCA, and RTA.

Export Market Share (MS) monitors a country's export performance compared with the total world's exports. The index for country *i* commodity *j* is calculated as follows.

$$MS_{ij} = \frac{X_{ij}}{X_{wj}} \quad (1)$$

Where: X_{ij} - country i's exports of commodity j; X_{wj} - world exports of commodity j; MS_{ij} - export market share of country i in commodity j. The greater value of the index indicates stronger competitiveness of country i in the commodity j. The value of MS ranges from 0 to 1.

The export unit price is measured using the total export value divided by the total quantity of exports. The export unit price for country i commodity j is calculated as follows;

$$EUP_{ij} = \frac{X_{ijt}}{QX_{ijt}} \quad (2)$$

Where, EUP_{ij} - country i's export unit price of commodity j; X_{ijt} - country i's export value of commodity j at time t; QX_{ijt} - country i's export quantity of commodity j at time t.

RCA index, which is measured by the product's share in the country's exports in relation to its share in the world trade. The index for country i commodity j is calculated as:

$$RCA_{ijt} = \frac{(X_{ijt})/(\sum_i X_{ijt})}{(\sum_j X_{ijt})/(\sum_i \sum_j X_{ijt})} \quad (3)$$

Where, RCA_{ijt} - country i's revealed comparative advantage of commodity j at time t, and i, j, and t refer to country i, product j, and time t, respectively. According to Hinloopen and Marrewijk (2001), the RCA value can be classified into four classes. Class 1: $0 < RCA_{ij} \leq 1$ are countries without a comparative advantage; Class 2: $1 < RCA_{ij} \leq 2$ are countries with a weak comparative advantage; Class 3: $2 < RCA_{ij} \leq 4$ are countries with a medium comparative advantage; and Class 4: $RCA_{ij} > 4$ are countries with a strong comparative advantage (Hinloopen & Marrewijk, 2001).

Relative Trade Advantage (RTA) index, which can be defined as the differences between RCA and the Revealed Import Advantage (RIA), is used to address the issue of asymmetry.

$$RTA_{ijt} = \frac{(X_{ijt})/(\sum_i X_{ijt})}{(\sum_j X_{ijt})/(\sum_i \sum_j X_{ijt})} - \frac{(M_{ijt})/(\sum_i M_{ijt})}{(\sum_j M_{ijt})/(\sum_i \sum_j M_{ijt})} \quad (4)$$

where variables are as defined in Equations (1) and (3), but M represents imports. Under this approach, positive values indicate a comparative advantage whereas negative values indicate comparative disadvantage.

Overall, this study examines how the competitiveness of Sri Lanka's tea exports changes in the international market. However, it does not provide an in-depth analysis of external factors, such as consumer preferences, trade policies, and global conditions, that can influence these changes in competitiveness. This can be identified as a limitation of the study.

4. RESULTS AND DISCUSSION

In the first stage of the analysis, the market share index (MS) was calculated for China, Sri Lanka, Kenya, and India. Figure 01 projects the results of MS index for the period 2002 -2021.

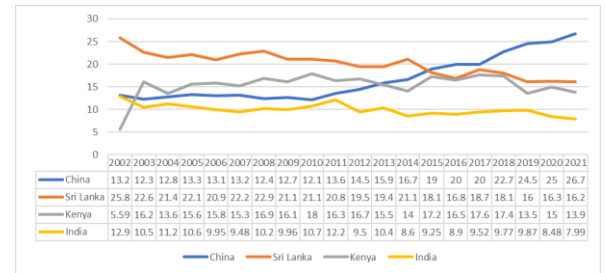


Figure 01: Values of MS Index for tea (%)

Source: Author's calculations

The largest market share for global tea exports in 2002 was held by Sri Lanka, with a 25.79 percent share. Sri Lanka's market share in the world's export of tea decreased significantly between 2002 and 2021, falling to 16.16%. As a result, Sri Lanka's once-dominant position in the world tea market has declined. There could be two factors influencing the market share losses for Sri Lanka. On the one hand, Sri Lanka saw a fall in its exports of tea to the international market. Additionally, there is a difference in the rate of growth between Sri Lankan and global tea exports. These two factors could lead to a decline in the relative position on a worldwide scale.

On the other hand, Kenya and China, two of the top exporters of tea, have seen a huge growth in market share. With a rise in market share from 13.15 to 26.7 percent, China now holds the greatest market share in the worldwide tea market. Kenya's market share increased significantly from 5.58 percent to 13.85 percent. India's market share has decreased from 12.86 percent to 7.989 percent; thus, it does not anticipate a consistent increase in that percentage.

Secondly, the fluctuation of the Sri Lankan tea export unit price is computed. The results of the variation in the export unit price of Sri Lankan tea on the global market between 2002 and 2021 are demonstrated in figure 02.

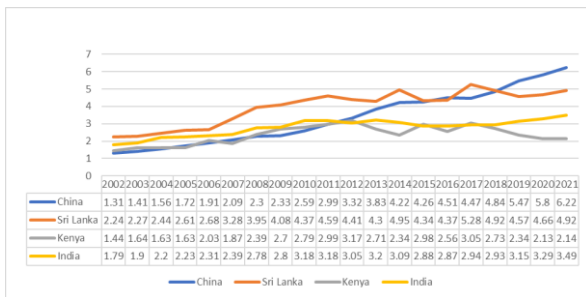


Figure 02: Fluctuations of the unit price of tea export
Source: Author's calculations

The highest unit price for tea exported to the international market in 2002 was obtained by Sri Lanka. The unit price of Sri Lankan tea has steadily increased since 2006, following a sluggish increase from 2002 to 2006. The export unit price's upward tendency, which was previously mentioned, could be influenced by a number of factors. 2009's unfavourable weather contributed to the rise in tea prices (United Nations, 2009). Although Sri Lankan tea's reputation and high quality helped to create higher global demand, the financial crisis of 2009/2008, and the Covid-19 pandemic had a detrimental influence on the tea market. Some of the government policies have also contributed to this unit price increase. The ban of glyphosate in the Sri Lankan tea sector is one of the major factors that might have contributed to this trend. Glyphosate had been used for weed control in Sri Lanka for a number of years, including on tea plantations. However, glyphosate was immediately banned in June 2015 as a

result of a gazette notification. The yield has decreased by five to ten percent as a result of this decision (Bayer, 2022).

Although the price of a unit of tea exported from Sri Lanka has changed throughout time, the price of a unit of tea exported from China has dramatically increased. China had the lowest unit price for tea exports among the major competitors in 2002, but the highest unit price in 2021. The unit prices for tea exported from Kenya and India have varied greatly, but the unit price for Indian tea exports indicates a consistent upward tendency.

In the third stage, this study utilized Balassa's 1965 Revealed Comparative Advantage (RCA) technique to assess the competitiveness of Sri Lankan tea on the global market. The RCA index results are projected in figure 3.

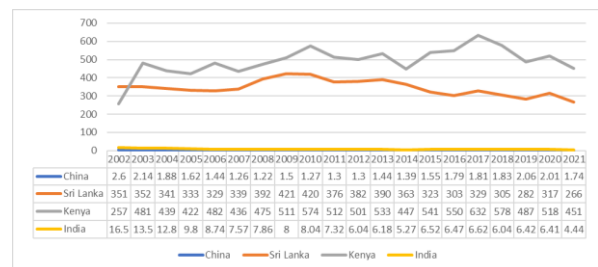


Figure 03: Values of RCA Index for Tea Exports
Source: Author's calculations

In accordance with Hinloopen and Marrewijk's (2001) classification of the RCA index, Sri Lanka can be categorized as a highly competitive tea exporting nation to the global market. Sri Lanka recorded 351 RCA values in 2002, making it the most competitive exporter on the global tea market. But over time, Sri Lanka has seen a decline in its level of competition in the global tea market. As a result, Sri Lanka's RCA value fell from 351 in 2002 to 266 in 2021. Numerous domestic factors could have contributed to this downward trend. Sri Lankan tea industry is mainly reliant on manual labour and uses extremely basic technologies. As a result, the industry deals with a number of problems with the availability and cost of labour. Furthermore, it has previously been demonstrated that Sri Lanka's tea industry has low productivity (Thushara, 2015). Additionally,

government initiatives like the prohibition of glyphosates and chemical fertilizers may have contributed to this decline in competitiveness.

Kenya can also be categorized into the highly competitive tea exporting category, and it has become the world highest competitive tea exporting country in the world surpassing Sri Lanka. Even though India is a competitive tea exporter, India does not project a considerable improvement of RCA value. Most interestingly, China can be categorized as a low competitive tea exporter in the world market in terms of the RCA index.

In the final step of the analysis, this study calculated the Revealed Trade Advantage (RTA) in order to determine if the chosen tea exporting countries have a comparative advantage or disadvantage for tea exports. Figure 04 projects the RTA index's outcomes.

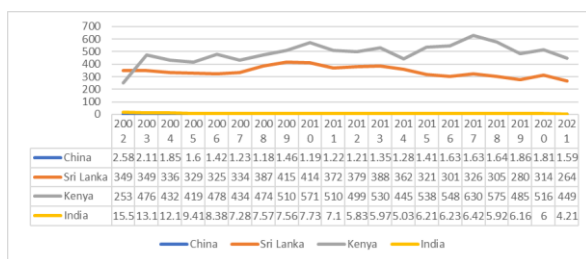


Figure 04: Values of the RTA Index

Source: Author's calculations

The country has a comparative disadvantage for exporting tea if the RTA values are negative. For the entire period, Sri Lanka projected a comparative advantage for tea exports. Sri Lanka had the highest RTA value in 2002, but since then, it has been on the decline. This highlights how Sri Lankan tea exports are losing ground in terms of competitiveness. The RTA levels have, however, significantly improved in Kenya. However, beyond 2020, RTA shows a falling trend in both Kenya and Sri Lanka. This weakening competitiveness may have been caused by the Covid-19 epidemic. India and China have a comparative advantage when it comes to exporting tea, but they are not very competitive in the world market.

5. CONCLUSIONS

This study intended to determine the level of Sri Lankan tea exports' competitiveness on the global market. The three nations with the highest global tea exports—China, Kenya, and India—were chosen for this study for the sake of a straightforward comparison. In order to assess the competitiveness of tea exports on the global market, this study utilized four indices, including Export Market Share (MS), Export Unit Price (EUP), Revealed Comparative Advantage (RCA), and Revealed Trade Advantage (RTA).

Based on the findings of the study, it can be concluded that both the competitiveness and comparative advantage of Sri Lanka's tea exports have declined considerably over time. The negative changes in market share, revealed comparative advantage, and revealed trade advantage indices support this conclusion. Comparatively cheaper than Sri Lanka, Kenya supplies its exports of tea on the world market. As a result, Sri Lanka can eventually see a decline in market demand. Despite having strong performances in the global tea market, China and India's competitiveness and comparative advantage for exporting tea are diminishing. Kenya, however, is achieving great competitiveness in the global tea market while maintaining a lower export unit price. Furthermore, both the RCA and RTA indices have provided consistent results.

Based on these conclusions, this study comes up with certain policy implications. Cost-effective production techniques should be carefully considered by Sri Lankan tea producers in order to reduce the selling price relative to competing suppliers on the global market. Additionally, the government can help the local tea industry become more productive by offering some technical aid.

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