

# Export Competitiveness of Indian Tea Industry

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**Abstract - India has always been famous as an agriculture-oriented country and the Tea has been one of the oldest and important items of Indian agricultural exports. It has been found that Indian tea is demanded in almost every corner of the world but at the same time, it is experiencing a tough competition in recent years from its major competitors: China, Sri Lanka, and Kenya. Although the export and export competitiveness of Indian tea was found to have declined against China, Sri Lanka, and Kenya; and facing the additional possibility of upcoming competition from a few other countries like Nepal, Vietnam, Indonesia, and Africa which have recently entered the tea export market. Thus the present study attempts to analyze the export competitiveness of the Indian tea industry using varied models of revealed comparative advantage and the results of the study indicate that the Indian tea industry still has great potential for growth.**

**Keywords: Balassa index, Export, Export Competitiveness, Indian Tea, Normalized Revealed Comparative Advantage, Revealed Comparative Advantage, Tea.**

## I. INTRODUCTION

India has been a leading exporter of almost all the agricultural commodities to various parts of the world and tea is one of an imperative exported commodity of the country's agricultural basket. The tea industry is one of the oldest organized industries in India and has borne many ups and downs in recent years. The main reasons causing the situation have been the proportional decline in cultivation area, production and export of tea, backed with the substantial increase in domestic consumption resulting in the increased tea imports. Recently the Indian tea has also lost its leading position against its competitors namely, Sri Lanka, Kenya and China; but still, Indian tea industry has a wide scope of expansion and improvements.

To verify this study focus on various parameters in the present scenario of tea industry: tea acreage, production, domestic consumption, quantity and value of imports and exports and prices at both the domestic and international level have been analyzed for the period 1991-2013. Thus the present study attempts to analyze the export competitiveness of Indian tea industry using varied revealed comparative advantage indices.

## II. REVIEW OF LITERATURE

Numerous studies have been considered related to the export competitiveness of Indian tea in the global market and have been summarized under selected parameters highlighting the major reasons of rising and declining share in the following table:

**Table 1: Summary of Literature Reviewed**

Author (s)	Findings and Suggestions
<b>Area</b>	
Hudson & Muraleedaran (2002); Upendranadh (2010); Darvishi &	<b>Rising trend:</b> <ul style="list-style-type: none"> <li>Area under tea plantation was noted to have increased at a constant rate</li> <li>Annual growth rate of 1.6 percent during the post-liberalization period as compared</li> </ul>

Indira (2013a); Dhekale et al. (2014); Misra (1986); Narzary (2016);	to only 0.8 percent in pre-liberalization. <ul style="list-style-type: none"> <li>Extent of the difference between the realized and expected prices</li> </ul>
Rasaily (2013)	<b>Declining trend:</b> <ul style="list-style-type: none"> <li>shift of tea area to other non-plantation purposes during the period 2001-09</li> <li>Shutting down of few tea estates.</li> </ul>
<b>Production</b>	
Misra (1986); Mitra (1993); Kadavil (2010); Roy (2011); Darvishi and Indra (2013b); Das (2014); Krishnan (1996); Agarwal et al. (2001); Dekhale et. al.; Patra et al. (2013); Dutta et al. (2012); Nath & Dutta (2015); Reddy (1991)	<b>Rising trend:</b> <ul style="list-style-type: none"> <li>Tea Board has implemented various schemes including inputs optimization, enhanced agricultural practices, irrigation and drainage renewal, pruning, replanting and extension of planting for increasing tea production;</li> <li>Indian tea industry needs to modernize by transforming the plantation technique, electronic tea auction, managerial superiority and establishment of "special purpose tea fund" as the encouraging medium for the growth of Indian tea industry;</li> <li>Financial support from different corners was suggested to be an important factor for increasing tea production;</li> </ul>
Asopa (2007); Jain (2011); Saravankumar and Chinnasamy (2013)	<b>Declining trend:</b> <ul style="list-style-type: none"> <li>lacks organised production system</li> <li>major causes: the unskilled labour, aged bushes, high input costs, lack of infrastructure, low price realization, outdated machinery and a number of legal problems.</li> </ul>
<b>Domestic Consumption</b>	
Mitra (1993); Sivanesan (2013); Wagh (2014); amrah (2016); Basu, Bera and Rajan (2012); Gopal et al. (2011); Barua & Mazumder (2012);	<b>Rising trend:</b> <ul style="list-style-type: none"> <li>Influence of Tea Board's promotional programmes projecting tea as health drink</li> <li>demand for new flavours</li> <li>Craze for imported flavours of tea</li> </ul>

Sivanesan (2013); Krishnan (1996); Kadavil (2010); Basu, Bera and Rajan (2012); Joshi (2010)	<p><b>Rising trend:</b></p> <ul style="list-style-type: none"> <li>Indo-Sri Lanka Free trade Agreement there had been and tremendous increase in trade between India and Sri Lanka;</li> <li>Tea import from the other tea producing countries for re-exporting in order to maintain the balance the rising domestic demand and global markets.</li> </ul>
<b>Exports</b>	
Shah (2013); Sivanesan (2013); Hicks (2009); Manoharan (1974);	<p><b>Rising trend:</b></p> <ul style="list-style-type: none"> <li>Indian tea experiencing stagnant position in tea exports because of the cheap and good quality tea from Kenya and Sri Lanka;</li> <li>The increase in domestic demand adversely affected export;</li> <li>Emergence of Kenya as a major exporter of tea had adversely affected India's market share;</li> <li>Suggested policy changes : reducing costs as well as tax rationalization;</li> </ul>
Bordoloi 2012; Wagh (2014); Bhowmik (1990); Kumar (2000); Kadavil (2010); Krishna (1995); Chakraborty and Acharya (1998); Barua & Mazumder (2012)	<p><b>Declining trend:</b></p> <ul style="list-style-type: none"> <li>Causes: higher domestic consumption; Liberalisation of imports and crisis in Russian economy and lack of quality control</li> <li>Suggestion: health benefits of tea consumption should be used broadly promoted in tea producing and importing countries;</li> </ul>
<b>Price</b>	
Misra (1986); Saravankumar and Chinnasamy (2013); Dalnya (2002); Krishnarani (2013);	<p><b>Rising trend:</b></p> <p>Decrease in production in the first three months of 2009;</p> <p>The challenge before the tea industry is to get better price, improve quality and ensure that tea is available at the affordable price to the domestic consumers;</p> <p>Efforts should be made for better price realization by way of quality improvement</p>
Manoharan (1974); Devaraj (2003); Chakraborty (1997);	<p><b>Declining trend:</b></p> <p>unfavorable auction prices some 54 tea gardens got closed during 1998-2003;</p> <p>After India's independence and Sri Lanka the British interest shifted to African countries especially to Kenya and as a result of this the auction price in India slumped;</p>
<b>Competitiveness</b>	
Shah (2013); Kumar (2013); Asha (1993);	<p><b>Rising trend:</b></p> <p>Indian tea industry has a great potential in domestic and international markets and the country can look into organic tea segment as a root to come into competition</p>
Asopa (2007); Jain (2011); Hazarika (2011); Nagoor (2009); Arya (2013); Barua & Mazumder (2012); Nagoor (2012); Sahoo, Mukherjee and Roy (2012); Sarkar (1972); Raman (1991);	<p><b>Declining trend:</b></p> <ul style="list-style-type: none"> <li>Indian tea has lost all global markets as it is traded as a commodity with the limited value addition;</li> <li>India has lost its leadership position against Kenya due to lower labour cost in Kenya and reduced its competitiveness against Kenya and Sri Lanka due to less value addition and failing to meet the demands and expectations of the market.</li> <li>Other causes: Relatively high prices, poor quality, tough competition from substitutes in domestic market, rising domestic demand, slow increase in yield, slow expansion of area under tea cultivation, unable to compete with major tea exporting countries, increase in world supply of tea compared to world demand.</li> <li>Nepal, exhibited remarkable increase in the competitive index and reaped the benefit of the similarity of its tea with India's famous Darjeeling tea;</li> </ul>

<ul style="list-style-type: none"> <li>Indian tea industry need to be competitive in production, marketing, logistics, product forms and access to capital at competitive rates globally, reposition its products and redefining its business strategies, redefining responsibilities of supporting agencies;</li> <li>India should focus on improving its competitiveness, packaging and quality, and to concentrate on its domestic market in order to revamp the demand in the market;</li> </ul>
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### III. INDIAN TEA EXPORT

In the era of globalization, entering and getting established in the international markets is the major aim of any trading country. India has also been following this strategy and has been able to establish itself as a credible player in the world tea market. This strategizing has helped in creating a distinctive niche market for some of the tea brands from India. Darjeeling tea and Nilgiri tea are the well known brands while Kangra tea is also gaining ground in the international market [24]. Furthermore, India had been the largest exporter of many finest qualities of tea classified as black tea, green tea and organic tea. Of this, black tea accounts for 97 per cent of total exports and organic tea only 1 per cent of the total exports as yet [15]. There is a great scope for organic tea production and marketing in the international market. However, over time the country has lost some ground to other countries.

The Indian tea industry has always been an export-oriented industry since the beginning and has constantly faced strong competition from other tea producing countries [18]. The Indian tea exports have been continuously fluctuating and declining since the 1980s; the share has been nearly constant at 21 per cent proximately of the domestic production. India's declining export competitiveness is an outcome of the availability of low-cost tea from European countries and various value-added tea products exported from Vietnam [18] and relatively higher prices of Indian tea in global markets [1].

There has been a 211.7 per cent increase in world exports during the period 1961-2013; that is in absolute terms from 592 thousand tonnes in 1961 to 1845 thousand tonnes in 2013. This is a huge increase indicating the importance of tea as an export item for the major tea producing countries. Also, this increase further indicates the trend of increasing demand for tea globally. Compared to this global increase in tea exports, India's tea exports on the other hand, increased only by about 24 per cent during this period. Further, India's overall share in the world exports declined from 34.6 to 13.8 per cent during the same period as also reported by [19], [5], [6].

### IV. GLOBAL COMPETITIVENESS

Competitiveness refers to the relative position of a country with regard to its performance in international trade for a given commodity and its share in the competitive market. With the changing trade patterns, it is imperative for the countries to determine their competitiveness in the global market as the growing competition is influencing their terms of trade. Plentiful of methods are adopted in numerous studies to determine competitiveness like competitive index & competitiveness scoreboard, manufactured export competitiveness index, technology index, relative unit labour cost, revealed comparative

advantage, revealed technological advantage, trade entropy index, and many more to compare the rank(s).

The revealed comparative advantage (RCA) is a pragmatic analysis tool used to determine the competitiveness of Indian tea among all the tea producing countries. For the purpose of competitiveness analysis in this study export and import value of tea and total agriculture are used as the competitiveness also refers to the ability of nations to generate wealth and this will help in analysing the monetary returns from trade. Revealed comparative advantage index is calculated through a number of methods and in the study six representations RCA1: Balassa Index (BI), RCA2: Trade Balance Index (TBI), RCA3: Revealed Competitiveness (RC), RCA4: Revealed Symmetric Comparative Advantage (RSCA), RCA5: Additive Revealed Comparative Advantage (ARCA) and RCA6: Normalized Revealed Comparative Advantage (NRCA) has been used. Balassa index, propounded by Balassa in 1965 and termed here as RCA1, intend to measure the comparative advantages of various commodities among different countries. He suggested that the comparative advantage of a country is revealed by observing its trade pattern [26]. This index is used only to identify whether countries have a revealed comparative advantage or disadvantage rather than to determine the sources of advantage or disadvantage by a country [2].

$$RCA_{1it} = \frac{\left(\frac{X_{it}}{X_{ia}}\right)}{\left(\frac{X_{wt}}{X_{wa}}\right)} * 100$$

Where,

**RCA<sub>1it</sub> = Balassa Revealed Comparative Advantage**

X<sub>it</sub> = Value of Indian tea exports

X<sub>ia</sub> = Value of Indian agricultural exports

X<sub>wt</sub> = Value of world tea exports

X<sub>wa</sub> = Value of world agricultural exports

Decision criterion of this measure is that if the RCA<sub>it1</sub> > 1, the country is said to have a revealed comparative advantage and comparative disadvantage if RCA<sub>it1</sub> < 1.

$$RCA_{2it} = \frac{X_{it} - M_{it}}{X_{it} + M_{it}}$$

Where,

**RCA<sub>2it</sub> = Trade Balance Index**

X<sub>it</sub> = Export of Indian tea

M<sub>it</sub> = Import of Indian tea

The decision criterion for this measure is that if RCA<sub>it2</sub> < 0, the country has a comparative disadvantage or can be referred to as a net importer of the commodity. Vollrath three alternate measures (i) of relative trade advantage, (ii) logarithm of relative export advantage and (iii) the revealed competitiveness to evaluate the country's RCA [27]. This approach used both the exports and imports to reduce the double-counting problem. Logarithmic transformation was done to normalize the original index to get a symmetric distribution [20]. In this study revealed competitiveness index, referred to as RCA<sub>it3</sub>, has also been used the

comparative advantage. The positive value of RCA<sub>it3</sub> indicates comparative advantage and vice-versa.

$$RCA_{3it} = \ln RXA - \ln RMA$$

Where,

**RCA<sub>it3</sub> = Revealed Competitiveness**

ln RXA (revealed export advantage) = Log of RCA<sub>1it</sub>

ln RMA (revealed import advantage) = Log of

$$\left(\frac{M_{it}}{M_{ia}}\right) / \left(\frac{M_{wt}}{M_{wa}}\right)$$

It has been found that Indian tea is demanded in almost every corner of the world but at the same time, it is experiencing a tough competition. The export and export competitiveness of Indian tea was found to have declined against China, Sri Lanka, and Kenya. However, the study also indicates that the Indian tea industry still has great potential for growth. Besides the major competitors like China, Sri Lanka and Kenya in world tea markets, the analysis also suggests the additional possibility of upcoming competition from a few other countries like Nepal, Vietnam, Indonesia, and Africa which have recently entered the tea export market.

The revealed comparative advantage indices for India and major tea growing countries were calculated and on the basis of the average values of different indices, the tea producing countries have been ranked as shown in table 2 for the top ten countries. It is seen that on this basis Sri Lanka ranks number one with the highest score. This suggests that Sri Lanka has enjoyed revealed comparative advantage in tea exports for the past 23 years of the time period under consideration in this study. Sri Lanka is followed by Kenya, Bangladesh, Nepal, India, and China respectively. These top-scoring countries have always experienced a revealed comparative advantage as indicated by the Balassa index of value greater than one for these countries during the period under consideration; with Nepal as an exception whose competitiveness score started to increase from the year 2003 only and surprisingly attained the fourth rank on this basis.

Among these top scoring ten tea-producing countries the competitiveness score of India in its total agricultural exports was noted to be declining during the period 1992-2013. Similar results were also found by Barua & Majumder where they also noted the decline in India's competitiveness in the export of tea [17]. Africa, China, Nepal, Vietnam experienced continuous competitiveness in the tea exports and on the contrary, Sri Lanka and Bangladesh, the new entrants in the world tea market have experienced a dramatic increase in their RCA1 index. Nepal showing a constant increase in its competitiveness score and is believed to have reaped the benefits of similarity of its tea flavor with that of India's famous Darjeeling tea [17]. An overall analysis of the trade balance index (RCA2) of all the tea producing countries shows that none of the tea producing country is a net exporter of tea. The analysis further indicates that out of 22 tea producing countries only 13 have a comparative advantage in tea exports as the average value of TBI of these countries is greater than "0". Out of these 13 countries, Sri Lanka is again the first rank holder and has been the net exporter of tea for almost 21 years (1991-2011) followed by Vietnam with a marginal

difference. Indonesia and South America are the two new entrants in this list as compared to the countries ranked on the basis of RCA1. On the contrary, India has enjoyed a comparative advantage in tea exports but has not been the net exporter of tea; as since 1991 due to increasing in domestic consumption and declining tea production the country started importing tea.

The third measure of revealed competitiveness is expressed as a difference of logarithms of relative export advantage and the logarithmic value of relative import advantage. The positive average score of 14 countries out of the total 22 tea producing countries shows their comparative advantage in tea exports. Bangladesh shows the highest revealed competitiveness with an average of 5.18 during the period under consideration (1991 to 2013) followed by Sri Lanka, Vietnam, China, Nepal, Papua New Guinea, Kenya, and India at the seventh position followed by other countries. Papua New Guinea is the small producer and exporter of tea also enjoys revealed competitiveness in comparison to the leading exporters of tea in the world as it shows a relative import disadvantage. Falling domestic demand for tea, reduced prices and different flavors may be the reason for higher revealed competitiveness of the country.

The earlier version of RCA poses a problem of asymmetry as it is not comparable on both sides of unity. The index ranges from “0” to “1” for no specialization and “1” to infinity for specialization [23]. Laursen, Dalum and many other authors proposed revealed symmetric comparative advantage (RSCA) index to provide symmetry in this calculation of revealed competitiveness [16], [7]. The result of this index varies from -1 to +1 and is free from the problem of skewness. A country is supposed to have a comparative advantage for a particular commodity if the index is positive and vice-versa.

$$RCA_{4it} = \frac{RCA_{1it} - 1}{RCA_{1it} + 1}$$

Where,

**RCA<sub>4it</sub> = Revealed Symmetric Comparative Advantage**

RCA<sub>1it</sub> = Balassa index

Decision The criterion for this analysis is that if  $RCA_4 < 0$  the country will have Comparative Disadvantage and will have Comparative advantage for  $RCA_4 > 0$ .

The revealed symmetric comparative advantage calculated on the basis of the Balassa index shows that Sri Lanka has the highest symmetric advantage followed by Kenya, Bangladesh, Nepal, India, China, and others. All these countries, along with Africa, Vietnam and Papua New Guinea were found to have a comparative advantage in tea exports in all the years from 1991 to 2013, as confirmed from positive revealed symmetric comparative advantage score. Further, Japan, CIS, Indonesia, and Iran showing the positive average score for 23 years also indicate the scope of competition from these countries. Sri Lanka has experienced a constant revealed symmetric comparative advantage (RSCA) over time whereas India’s RSCA score appeared to be declining gradually as also noted by Shinoj & Mathur from 0.92 in 1991 to only 0.56 in 2013. Therefore, Sri Lanka, Kenya, Bangladesh and Nepal with the higher RSCA scores are relatively highly competitive

than India in global tea trade [23]; thereby impacting the status of Indian tea in global markets. India’s declining RSCA in tea exports is possible because of the falling demand of Indian tea due to the higher export price of Indian tea, some loss on quality front mainly because of poor quality fake Indian tea entering the market in the name of Darjeeling tea [8], [9]

However, Balassa’s RCA is static in nature and not comparable in the long run [22]. This index has dichotomous properties and also lacks a property of symmetry [13], [23]. Another problem with the index as presented by Vollrath is of the double-counting where country I’s exports of a commodity (say tea) are not excluded from the world total exports [27]. In order to avoid these problems, researchers introduced the normalization of the Balassa’s RCA index [4].

The cross-sectional mean method is used to fix the varying mean and was used to normalize the Balassa’s RCA by Proudman and Redding who computed additive revealed comparative advantage (ARCA) and recently Hoen and Oosterhaven and Run et al. introduced an advanced normalized revealed comparative advantage (NRCA) with a fixed mean across countries [21], [14], [22]. Here in this study ARCA and NRCA are referred to as RCA5 and RCA6 respectively.

$$RCA_{5it} = \left( \frac{X_{it}}{X_{ia}} \right) - \left( \frac{X_{wt}}{X_{wa}} \right)$$

$$RCA_{6it} = RCA_{5it} * \left( \frac{X_{ia}}{X_{wa}} \right) * 10000$$

Where,

**RCA<sub>5it</sub> = Additive Revealed Comparative Advantage**

**RCA<sub>6it</sub> = Normalized Revealed Comparative Advantage**

X<sub>it</sub> = Value of tea exports from India

X<sub>wt</sub> = Value of tea exports in world

X<sub>ia</sub> = Value of Indian agricultural exports

X<sub>wa</sub> = Value of world agricultural exports

The greater (or lower) the RCA<sub>it6</sub> value, the stronger the comparative advantage (disadvantage) would be. The distribution of the scores of this index is symmetrical, that is, it ranges between -1/4 and +1/4 with zero as the neutral point. In order to get the clear picture of this index one needs to multiply the outcome of this index by 10,000 as the value of NRCA index is very small. The NRCA allows the comparison of the degree of comparative advantage. Also, being sensitive to the size of country’s economy this method enables the dynamic comparison of comparative advantage. Thus, the NRCA index is applied in this study to study the time trend analysis to identify whether Indian tea [20] has statistically significant trend in gaining or losing its comparative advantage during the period under study.

The positive NRCA values of all the countries indicate that the actual tea exports of all the countries is higher than the comparative advantage neutral level i.e. ‘0’. Sri Lanka with the higher average score of 5997.26 indicates the strongest comparative advantage in tea exports followed by Kenya, Bangladesh, India, Nepal, China and other competing countries. A thorough analysis of all the

countries showed that the NRCA score over the period of time is reducing for most of the tea producing countries. Specifically, for India and Bangladesh where the NRCA score declined drastically from 1752.84 in 1991 to 191.25 in 2013 for India and 2953.97 in 1991 to only 35.54 in 2013 for Bangladesh. For all the other countries also the declining trend was significant. On the other hand seven countries namely, Nepal, Turkey, Japan, Iran, Thailand, Republic of Korea and Montenegro showed an increasing trend in NRCA over the period of time but on an average only Nepal and Japan showed a positive NRCA, indicating these countries hold a comparative advantage in tea exports and as pointed out earlier can provide competition to the other countries in long run.

Analysis indicates that the leading tea producing countries can improve their position and maintained their competitiveness in world market by reducing the gap between its minimum and maximum values. CIS, Malaysia, Myanmar, Iran, Thailand and Montenegro showed scope for a high competitiveness by reducing the gap between negative minimum values to the positive maximum value. Besides this, as indicated earlier, Nepal can give competition in the global markets to the other tea producers. The coefficient of variation of Sri Lanka being close to zero indicates comparative advantage of the country stays stable, followed by China, Kenya, Africa, Vietnam and others. India's coefficient of variation is comparably high at 0.59 indicating an unstable position of the country in competitiveness in export value of tea; which may be because of fluctuating prices of tea in India. Whereas the countries like Africa, Vietnam, Papua New Guinea, Portugal, Republic of Korea and CIS unlike India have tried to maintain the stability in their tea prices over the period of time.

The ranks analyzed on the basis of these analyses suggest that Sri Lanka leads other countries so far as the competitive advantage is concerned. Sri Lanka is followed by Kenya, China, India and Africa with the second, third, fourth and fifth ranks respectively. The table 2 lists the top ten countries in this respect and the results show that countries like Japan, Vietnam and the CIS countries can also pose competition in tea trade.

**Table 2: Competitive Index and country ranking on the basis of different indices for tea exports**

Rank	BI	TBI	RC	RSCA	NRCA
I	Sri Lanka (104.72)	Sri Lanka (0.97)	Bangladesh (5.18)	Sri Lanka (0.98)	Sri Lanka (11.16)
II	Kenya (33.06)	Vietnam (0.96)	Sri Lanka (4.10)	Kenya (0.94)	Kenya (7.40)
III	Bangladesh (17.06)	Papua New Guinea (0.94)	Vietnam (3.98)	Bangladesh (0.89)	China (6.64)
IV	Nepal (8.80)	Kenya (0.93)	China (3.45)	Nepal (0.8)	India (2.38)
V	India (7.16)	India (0.92)	Nepal (3.27)	India (0.75)	Africa (0.27)
VI	China (4.40)	Indonesia (0.88)	Papua New Guinea (3.17)	China (0.63)	Japan (0.51)
VII	Africa (4.04)	China (0.87)	Kenya (3.12)	Africa (0.6)	Vietnam (0.44)
VIII	Vietnam (3.53)	S. America (0.84)	India (2.75)	Vietnam (0.56)	CIS (0.27)

IX	Papua New Guinea (2.37)	Bangladesh (0.83)	Indonesia (2.28)	Papua New Guinea (0.41)	Nepal (0.15)
X	Japan (1.91)	Nepal (0.74)	Africa (1.32)	Japan (0.31)	Papua New Guinea (0.00)

## V. CONCLUSION

The application of various competitive models confirms the prominent competitive position of Indian tea in the global tea trade in comparison to agricultural trade and presents that India still continues to retain its position as the major tea producer, exporter in the world. The analysis shows that India has managed to retain its position in the top four tea producing nations and there exist a lot of potentials in the Indian tea industry; Gaining and retaining competitiveness in the world tea market by providing varied flavours of quality tea is an important option.

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