

# Production and Export of Value Added tea in India and its Global Competitiveness

Udeshna Talukdar\* and C. Hazarika

Department of Agricultural Economics, Assam Agricultural University, Jorhat, Assam, India

\*Corresponding author: [udeshna\\_talukdar07@yahoo.com](mailto:udeshna_talukdar07@yahoo.com)

## ABSTRACT

The study was conducted for Indian tea based on secondary data pertaining from 1971 to 2016 with the objective to examine the production of bulk tea and value added tea, trends and growth of value added tea and its competitiveness in the world tea market. The data were analysed through tabular as well as quantitative analyses like CAGR, Balassa's Revealed Comparative Advantage and Nominal Protection Coefficient. It was observed that production, export and growth of graded tea increased during the last two decades. Among the value added tea, the export of tea bags was found to increase and the growth of values was higher in the country. Production of tea in Kenya was more advantageous than India and Sri Lanka. South Indian tea had labour and cost advantages while tea produced in North India and Assam gained profit advantages for selling quality tea. Revealed Comparative Advantage indicated that India is still competent in the global tea market and tea is not an efficient export crop as the domestic prices were higher than the world prices. The study concludes that India should go more for graded and value added tea by reducing the costs of production to gain the competitive advantages.

**Keywords:** Production, export, value added, tea, global competitiveness, India

Tea as a plantation crop has been considered as a strong nutraceutical beverage in the world. It is produced in more than 45 countries in the world and it plays an important role in the national economy of the country. Its commercial cultivation in India took a spurt since 1951 (Sahewalla and Barthakur, 1996) and it was confined to the tea companies and the industry was almost in a monopolistic competition. India occupies about 21% of area under tea sharing 22.68% of tea production in the world. The industry employs three million people and contributes 3.22% of GDP in India (Talukdar and Sahewalla, 1997). It is also observed that during the recent years export of tea from India has declined due to higher production by different countries, higher import, availability of substitutes, cost advantages due to vintage of modern technology (Chatterjee, 2005; Arya, 2013), high input cost (Uppal, 1994), high domestic consumption, poor value chains, low quality of production affected tea export. The demand supply gap and its failure to match this gap

price of made tea and its export has been affected. During 1971, export of tea from India was 53.54 which have declined to 17% in 2016. Change of consumers' taste and habits has also affected the grades of exportable tea in the recent years (Hicks, 2009). The industry has arrived at a cross road. It is imperative to examine the production and the export of tea and its comparative advantages for better policy suggestions. An attempt has been made in this study to examine the production and export of value added tea and also to work out the degree of competitiveness of Indian tea in world market.

## Data and Methodology

The present study was conducted based on secondary data for the period 1971 to 2016. Data were collected from different published sources. Both tabular and functional analyses were followed for analysis of the data and logical interpretation of different aspects and results of the study.

The analytical tools and techniques employed in the study for meeting the objectives are given below:

$$CAGR \text{ (per cent)} = \left[ \left( \frac{\text{Ending value}}{\text{Initial value}} \right)^{1/n} - 1 \right] * 100$$

where, n is the number of years

Balassa's Revealed Comparative Advantage (RCA) index can be computed as,

$$R_{ih} = \frac{\frac{X_{in}}{X_{it}}}{\frac{X_{wh}}{X_{wt}}}$$

Where,  $R_{ih}$  = Balassa's index of RCA

$X_{in}$  = Value of India's tea export ( ` in crore)

$X_{it}$  = Total India's merchandised agricultural trade (₹ in crore)

$X_{wh}$  = Value of world's tea trade (\$ billions)

$X_{wt}$  = Total world's merchandised agricultural trade (\$ billions)

If  $RCA > 1$ , then the country has a revealed comparative advantage in that commodity

If  $RCA < 1$ , then the country has a revealed comparative disadvantage in that commodity

$RCA = 1$  shows comparative neutrality

The level of protection given to the commodity has also been studied by estimating the Net Protection Coefficient (NPC) as,

$$NPC_i = P_{id} / P_{ib}$$

Where,

$P_{id}$  = Domestic wholesale price of ith commodity at specified place and time

$P_{ib}$  = Border price (CIF or FOB) of ith commodity at same place and time

The NPC less than 1 means the country is competitive in that commodity.

## RESULTS AND DISCUSSION

Table 1 indicates area, production and productivity of tea in India over the years since 1971 to 2016. There was spurt in increase in area, production and productivity of tea in 2016 due to the development of small tea sector in the country. Area of tea was

356.51 thousand ha in 1971 which increased to 566.66 thousand ha in 2016 at the rate of 1.28% per annum while productivity increased from 1221.56 kg per ha in 1971 to 2186.76 in 2016 at the rate of 1.71% per annum. Similarly there was spurt in production which increased from 435.50 million kgs. to 1239.15 million kgs in 2016 at the rate of 4.10.

**Table 1:** Changes in area, production and productivity of tea in India

Year	Area (Thousand ha)	Production (Million kgs)	Productivity (kg/ha)
1971	356.51	435.50	1221.56
1981	384.24	559.58	1456.32
1991	420.47	754.19	1793.68
2001	509.80	853.92	1675.00
2016	566.66	1239.15	2186.76

In support to this, Table 2 indicates that CGR of area was higher since 1991 to 2015. This was mainly due to the entry of small tea sector which had contributed more towards area and higher productivity obtained from the young bushes.

**Table 2:** Growth of area under tea, production and export of tea in India during 1971 to 2015

Period	Compound growth rate of area under tea (per cent)	Compound growth rate of production under tea (per cent)	Compound growth rate of exports under tea (per cent)
1971-1990	0.77	2.55	0.19
1991-2015	1.20	1.90	0.50
1971-2015	1.03	2.30	0.28

During 1971 to 2015 CGR of production was 2.30% which was higher. Relative to the area and production growth of export of tea was quite slow. It was also observed that the compound growth of export of tea in the country increased from 0.19% in 1971-90 to 0.50% in 1991-2015. During 1971-2015, the growth of export of tea was only 0.28%. This indicates that export of bulk tea in India is quite sluggish over years and a main concern for the tea industry.

Attempt was also made to examine the production and export of graded tea in India and its decadal growth. It was observed from Table 3 that there are four main grades of tea manufactured in India and

**Table 3:** Production of tea in India according to grades (million kilograms)

Year	CTC	Orthodox	Darjeeling	Green	Total	CAGR (per cent)			
						CTC	Orthodox	Darjeeling	Green
1971	240.00 (55.11)	174.70 (40.15)	13.35 (3.06)	7.32 (1.68)	435.50 (100.00)	4.08	1.21	-0.29	-2.50
1981	357.50 (63.80)	183.10 (32.67)	12.20 (2.17)	7.60 (1.36)	560.40 (100.00)	4.40	-1.18	-0.54	3.52
1991	603.60 (80.03)	126.90 (16.83)	13.90 (1.84)	9.80 (1.30)	754.20 (100.00)	2.75	-4.43	-4.51	-3.86
2001	759.50 (88.94)	79.20 (9.29)	9.80 (1.14)	5.40 (0.63)	853.90 (100.00)	1.71	3.71	1.19	14.07
2011	880.00 (89.0)	80.00 (8.20)	12.00 (1.20)	16.00 (1.60)	988.30 (100)				

Figures in parentheses indicate percentage share of total tea.

**Table 4:** Decadal change and growth of export of value added tea in India

Years	Total tea		Value added tea					
			Packet tea		Tea bags		Instant tea	
	Quantity (mkgs)	Value (₹ in '000)	Quantity (mkgs)	Value(Rs in'000)	Quantity (mkgs)	Value (₹ in '000)	Quantity (mkgs)	Value (₹ in '000)
1971-72	214.30	160.90	4.64	4.39	0.04	0.10	0.20	0.76
1981-82	224.20 (0.46)	406.80 (15.28)	20.49 (34.15)	46.82 (96.65)	0.78 (18.50)	3.35 (32.50)	0.83 (31.50)	4.17 (44.88)
1991-92	215.20 (-0.40)	1196.50 (1.93)	78.32 (28.22)	452.09 (86.56)	0.48 (-3.84)	7.14 (11.31)	1.28 (5.42)	15.80 (27.89)
2001-02	190.00 (-1.17)	1695.79 (4.17)	42.72 (-4.55)	521.14 (1.52)	2.54 (43.75)	59.71 (73.62)	2.59 (10.23)	74.20 (36.96)
2011-12	214.35 (0.59)	3304.82 (0.94)	12.07 (-0.71)	307.82 (-0.40)	9.69 (2.81)	328.02 (4.49)	2.34 (-0.096)	92.50 (0.24)
2015-16*	232.92 (2.16)	4493.10 (8.98)	12.59 (1.07)	347.71 (3.23)	10.40 (1.83)	435.24 (8.17)	3.81 (15.70)	187.82 (25.76)
CAGR (per cent)	0.19	7.68	2.24	10.20	13.15	20.46	6.77	13.02

\*Figures in parentheses indicate decadal change except for the year 2015-16 over 2011-12; **Source:** Tea Statistics, Tea Board of India.

these grades are CTC, Orthodox, Darjeeling and Green tea out of which CTC tea shares more than 55% of the total production of tea in the country. Its share was found to increase faster after 1991 and shared 89% in 2011. It was followed by Orthodox tea and its share declined faster after 1991. Share of Darjeeling and Green tea was lower and was found to decline up to 2001 and then tend to increase.

Examination of Compound Annual Growth Rate between decades indicated that it was higher and positive for CTC tea in the year of 1980 and 1990 then it declined fast. It was low for the other grades of tea and it was negative for Orthodox and

Darjeeling tea during the eighties and nineties and all the grades gained faster in the last decade. The annual compound growth rate of production of green tea was the highest during 2001.

Table 4 shows the decadal change of exports of value added tea in India. It was observed that total export of tea was found to decline in the country till 2001 after which it increased faster. It was also observed that the export of packet tea increased manifold up to 1991-92 after which it declined. In contrary, export of tea bags has reached a momentum with high export growth while the export of instant tea declined faster from 1981-82. The growth of export

was the lowest for total tea and packet tea, while it was higher for other value added tea like tea bags and instant tea. Relative to the changes in physical quantity, growth of export values were higher for each grade in the country. It was the highest for tea bags and instant tea export in the country. This indicates that India should also put more emphasis to export value added tea.

Table 5 indicates the relative advantage of production of tea in the major tea producing countries and it indicates that the advantages of per hectare productivity was higher in Kenya followed by India and Sri Lanka. It was also observed that labour productivity in kilograms per man was the highest in Kenya followed by India due to higher productivity and use of domestic labour in tea cultivation. Cultivation of tea in Kenya obtained cost advantage followed by India and Sri Lanka. It was true for Kenya due to quality plucking throughout the year with more of domestic labour while, India and Sri Lanka incurred more of overhead costs as the industry remained idle for a larger part of the year. Labour costs were also high in India. The high costs of production of tea in India lost the market power and the competitiveness in the international tea trade. Out of these three countries Sri Lanka could realize higher price and higher profit per kilogram of tea for the production of quality tea.

Intracountry advantages of tea production in India indicates that the South Indian states like Tamil Nadu and Karnataka had the advantages of higher productivity followed by North India and Assam (Table 6). It was mainly due to the geographical and climatic advantages in South India. The South Indian states were also in advantage of labour productivity and cost of production mainly due to higher productivity of tea in those states. However, Assam and West Bengal exhibited the advantage of higher profit due to premier price realized for selling quality tea like high altitude Darjeeling tea and more flavoured tea of Assam in comparison to the profitability in Tamil Nadu.

The Revealed Comparative Advantage (RCA) index developed by Balassa (1965) is one of the most popular methods of indicating competitiveness in international trade. It shows how much competitive is a product in country's export compared to that product's share in the global trade. Table 7 shows estimated Revealed Comparative Advantage (RCA) index for Indian tea. The RCA index value of tea was 16.21 in 2001-02 but declined continuously thereafter to 14.80 in 2015-16 and the index varied from 8.80 in 2005-06 to 16.20 in 2001-02. It shows that India is still competent in the global tea market (Barik and Anand, 2016). The trend of stagnant production and increasing consumption has declined the RCA of Indian tea.

**Table 5:** Relative advantages of tea production in different countries

Name of countries	Productivity per hectare (000 kg)	Labour productivity (kg/worker)	Cost of production (₹/kg of made tea)	Realization of profit/ha (₹ in 000)
India	2140	1903	108	29.03
Sri Lanka	1788	578	82	188.42
Kenya	2240	5600	77	76.63

Source: Tea statistics, Tea Board of India

**Table 6:** Intra country relative advantages of tea production

Name of countries	Productivity per hectare	Labour productivity(kg/worker)	Cost of production (₹/kg of made tea)	Realization of profit/ha (₹ in 000)
Assam	2066	910	73.86	88.74
West Bengal	2222	957	84.22	91.64
Tamil Nadu	2509	3584	62.08	29.52
Kerala	1813	1473	60.84	67.15
Karnataka	2760	1780	55.15	32.47

Source: Tea Statistics, Tea Board of India

**Table 7:** India's Revealed Comparative Advantage (RCA) in tea export

India's exports of,	Unit	2001-02	2005-06	2010-11	2015-16
Tea	₹ in crore	1695	1793	3222	4493
Total merchandise	₹ in crore	209018	456418	1136964	1273323
<b>World export of,</b>					
Tea	\$ Billion	3.07	4.534	4.09	3.93
Total merchandise	\$ Billion	6270	10159	15238	16482
Revealed Comparative Advantage (RCA)		16.21	8.80	10.55	14.80

Source: Tea Statistics, Tea Board of India

**Table 8:** India's competitive measure for tea in India

Year	Domestic Price (₹/kg)	World Price (₹/kg)	NPC
2001-02	61.71	92.99	0.66
2005-06	66.01	91.20	0.72
2010-11	104.66	140.13	0.74
2014-15	127.62	192.90	0.66

Source: Tea Statistics, Tea Board of India

The Nominal Protection Coefficient ( $NPC = P_d/P_b$ ) for the commodity measures the effect of government intervention in determining commodity prices, which is a ratio between the item price domestic and price of the border. The table 8 shows the value of NPC ranging between 0.66 and 0.74. NPC was less than unity in the year 2010-11 and 2014-15 indicating that the domestic prices of tea were less than world prices, which signify that tea did not receive a significant protection from the state. The NPC's above unity also indicate that tea was not an efficient export crop. It could be seen from the table that there had been an increasing trend in the values of NPC from 2001-02.

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## CONCLUSION

It can be concluded that the production of tea and its productivity made a shift after 2016. During 1971-2015, CAGR of the production of tea was higher at 2.30% while export growth was 0.28% only. India

produces more than 55% of CTC tea followed by Orthodox tea. After 2001, CAGR of green tea was higher (14.07 %) followed by orthodox tea. It was also found that the export of bulk tea was found to decline till 2001 and the export of packet tea increased manifold up to 1991-92. Export of tea bags has increased, while the export of instant tea declined faster from 1981-82. Quantity growth of export value was higher in the country. Production of tea in Kenya was more advantageous in terms of labour productivity, cost advantage while in Sri Lanka at profit advantage. In India, South Indian states had the labour and cost advantage while Assam and West Bengal gained profit advantage for selling quality tea. Revealed Comparative Advantage indicated that India is still competent in the global tea market and not an efficient export crop as the domestic prices were higher than the world prices. The study concludes that India should go more for graded and value added tea by reducing the costs of production to gain competitive advantages.

## REFERENCES

- Arya, N. 2013. Indian tea scenario. *Inter. J. Scie. and Research Publctns*, 3(7): 1-10.
- Balassa, B. 1965. "Trade Liberalization and Revealed Comparative Advantage." *The Manchester School of Economic and Social Studies*, 33: 99-123.

- Barik, T. and Anand, B. 2016. Revealed comparative advantages and competitiveness of India's agriculture, tea, food, coffee products.
- Chatterjee, S. 2005. Examining the interlinkages between production, consumption and exports of Tea in India. *Conf. on Empirical Issues in Intern. Trade and Finance*, held in December, 2010.
- Hicks, A. 2009. Current status and future development of global tea production and tea products. *AU J. Tech.* **12**(4): 251-264.
- Sahewalla, I.P. and Borthakur, N. 1996. An analysis of trends and determinants of tea production in Assam. *J. Agric. Sci. Soc.*, **9**(1): 50-54.
- Talukdar, K.C. and Sahewalla, I.P. 1997. Growth and instability of exports of Indian tea to major European countries. *Paper presented in 24<sup>th</sup> World Marketing Congress, held at Institute of marketing and Management, New Delhi*, Published in IMM Year Book: 89-102.
- Tea Statistics: Various issues, Tea Board of India.
- Uppal, D.K. 1994. Status paper on horticulture and role of National Horticulture Board in creation of infrastructure. *Indian Food Packer*, **48**(8): 22.