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Growth, instability and export competitiveness of tea and coffee: An overview

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Abstract

The present study was undertaken with the specific objectives to assess the growth, instability and competitiveness of tea and coffee for the time period of 1991-92 to 2019-20. To analyze growth and instability, Compound growth rate (CGR), Cuddy Della Valle instability Index (CDVI) and for competitiveness RCA (Revealed Comparative Advantages) and RSCA (Revealed Symmetric Comparative Advantage) has been used. This study is based on secondary data and result reveals that tea and coffee shows positive but declining significant growth rate per annum and have comparative advantage in world market.

Keywords: Growth, instability, export competitiveness, tea, coffee

Introduction

India is one of the leading agricultural exports in the world. Tea and coffee is one of the most important beverages consumed in the world. India is the largest producer of tea and coffee in which tea contributed around 10% percent export in world market as well as country export its 70% production of coffee globally which is around 3% in the world market. India is also among the top tea consuming countries in the world with 80% of tea produced in the country being consumed by the domestic population. Indian tea is the finest in the world due to strong geographical indication heavy investment in processing units and better strategic market expansion.

The export of tea recorded in 1992 was 175 (M.kgs) respectively (Tea statistics 1992-93). Whereas, now India produce 1.2 million tons tea per year and about 50% of it is consumed by its own population. Presently tea is grown in almost all parts of the world some of the major producers are China, India, Kenya, Sri-Lanka, Vietnam, etc. India exports tea to more than 25 counties across the world. Majority of the tea exported out of India is black tea which makes up around 96% of the total exports. Some of the major importers of tea from India are Iran, UAE, UK, Germany and Japan making up about 14%, 8%, 7%, 5% and 2% of the total export respectively.

The production of coffee recorded in 1993 was 169395 MT and shares 2.80% in India's total share (data base on coffee, 2021). Whereas, now in 2021 the production of coffee is 358 (M.Kgs) and export recorded a 42% raise to US\$ 1.04 billion from previous year. Italy, Germany, Belgium and the Russian federation are the largest importers of coffee from India with an average total share of about 45% (ibef.org)

Review of literature

Kumareswaran *et al.* (2018) (a) ^[8] study stated that there was a negative growth rate in export (quantity) of tea from 1986-2000 which is -0.9% per annum which indicate continuous decrease in tea export over the time, whereas, there is a positive growth rate of 3.6% per annum during 2001-2015. The overall growth rate of export quantity in overall period (1986-2015) was estimated to be 1%.

Sneha (2019) ^[1] study stated that Indian tea in global tea trade confirms the prominent competitive position as the major tea producer, exporter in the world. The analysis shows that there's a lot of potential in the India tea industry; Gaining and retaining competitiveness in the world tea market by providing varied flavors of quality tea are an important option.

Kumareswaran *et al.* (2018) (b) study stated that the highest growth rate was observed in period 1986-2000 which was 6 percent per annum whereas, highest and significant growth was observed during 2001-2015 due to fall in the price of coffee in foreign market.

Variability in export was observed 28.45% in 1986-2000 whereas 19.95% in 2001-2015 over all variability was 29.73% which is moderate due to the increase in number of exporters.

Methodology

The time series secondary data on the export of tea and coffee from 1991-92 to 2019-2020 was collected from the database of FAO (<https://www.fao.org/faostat/en/#data/TCL>) Data was analyzed by using following analytical tools:

Compound growth rate

$$Y=ab^t$$

Where,

Y= export quantity

a=constant/intercept

Then compound growth rate (r) was computed by using the relationship:

$$CGR(r) = (\text{antilog of } \log b - 1) \times 100.$$

The significance of growth rate was judge by student's 't' test.

Instability index

The index was originally developed by John Cuddy and Della Valle (1978) for measuring the instability in time series data:

$$\text{Instability index} = CV \times \sqrt{1 - R^2}.$$

$$CV = (\text{standard deviation/mean}) \times 100.$$

R²= coefficient of determination.

Ranges

0-15:- low instability, 15-30:- moderate instability, >30:- high instability.

Revealed comparative advantages (RCA)

The index is based on the premise that countries specialize and export those agricultural commodities which they can produce at lower relative cost.

The original index of RCA was first formulated by Balassa, 1965 and can be written as:

$$B = (X_{ij}/X_{ik}) / (X_{nj}/X_{nk})$$

Where,

X_{ij} = Exports of country 'i' of commodity 'j'.

X_{ik} = Exports of country 'i' of a set of commodities 'k'.

X_{nj} = Exports of a set of countries 'n' of commodity 'j'.

X_{nk} = Exports of a set of countries 'n' of a set of commodities 'k'.

The RCA index value ranges between zero (0) and positive infinities (+∞). If the RCA index value is greater than one then the country has comparative advantage on that product and vice-versa.

Since, RCA suffers asymmetry, RSCA is used. Mathematically, it can be expressed as follows,

$$RSCA = (RCA - 1) / (RCA + 1)$$

The value of RSCA ranges between {-1} and {+1} and is free from the problem of skewness. A commodity is said to have comparative advantage in its exports if the corresponding RSCA value is positive and vice-versa.

Results and Discussion

Tea: There is positive growth in export of tea which is 1.87% per annum and low instability index 13.22%. There is reduction of about 50% in tea export in global market as compare to 1990 because of decline in demand for Indian tea in global market, poor price realization, increase in cost of production etc. (Debashish Bishwas)

India is among the major leading exporter of tea in world market. India was found to be competitive in tea export over the study period because of the greater than unity values of RCA and RSCA. But, over the years its comparative and competitive advantage seems to be deteriorating because of availability of low-cost varieties in global market and shifting of consumption pattern from CTC (Crude Tea and Curl) variety to orthodox variety which results in loosing Russian market to Kenya and Sri Lanka. Major competitors of Tea in world market are Sri Lanka and Kenya. RSCA values were positive for all the competing countries.

Table 1: Growth and instability of tea and coffee: 1991-92 to 2019-20

Commodity	Growth rate (%)	Instability index (%)
Tea	1.879***	13.220
Coffee	3.242***	12.329

***1% level of significant.

Coffee: There is a positive and significant growth in export of coffee which is 3.24% per annum with low instability index of 12.39%. The growth rate in export quantity is 2.76% per annum whereas the instability in export of coffee was 23.05% whereas coefficient was 15.73% during the years from 1990-2011 (Latika and Burark, 2015)^[10].

Coffee is one of the largest traded commodity in the world. Columbia and Brazil showing more RCA and RSCA values found to be more competitive as compare to others. India's comparative and competitive value seems to be deteriorating during the study period. The country produces two types of coffee: Arabica and Robusta in which Robusta is mainly manufactured in India with a share of 72% of total production. India loses its global market because of production of robusta coffee which is superior in quality and have high price in global market which shifts its importing market to Arabica producing countries. So, India should monitor trend of international market and should focus on high quality Arabica coffee to capture the world market.

Table 2: RCA and RSCA estimates of tea export for India and other major world exporters

Tea Country	Year				
	1992	1999	2006	2013	2020
Balassa RCA					
India	18.21	10.5	5.78	33.14	3.71
China	3.31	3.01	3.85	3.68	5.57
Kenya	56.25	67.77	69.36	73.66	65.05
Sri Lanka	87.78	96.38	94.41	104.97	83.64
Viet nam	1.65	1.5	3.85	1.84	1.76
RSCA					
India	0.90	0.83	0.71	0.94	0.58
China	0.54	0.50	0.59	0.57	0.70
Kenya	0.97	0.97	0.97	0.97	0.97
Sri Lanka	0.98	0.98	0.98	0.98	0.98
Viet nam	0.25	0.20	0.59	0.30	0.28

Table 3: RCA and RSCA estimates of coffee export for India and other major world exporters

Coffee Country	Year				
	1992	1999	2006	2013	2020
Balassa RCA					
India	2.47	2.33	1.72	1	1.11
Colombia	30.25	16.5	16.52	18.06	20.75
Brazil	7.23	6.5	4.59	3.36	3.72
Indonesia	4.08	3.39	2.09	2.27	2.13
Viet Nam	4.27	6.11	10.42	11.88	6.68
RSCA					
India	0.42	0.40	0.26	0.00	0.05
Colombia	0.94	0.89	0.89	0.90	0.91
Brazil	0.76	0.73	0.64	0.54	0.58
Indonesia	0.61	0.54	0.35	0.39	0.36
Viet Nam	0.62	0.72	0.82	0.84	0.74

Conclusion

Both tea and coffee shows positive significant growth rate throughout the study period with low instability index which indicate lesser variation in export of tea and coffee. Whereas, both tea and coffee are competitive in global market because of its more than unity and positive value in RCA and RSCA. But, there is decline in the export of tea and coffee during the study period. India should focus on production of desired variety, quality improvement, value addition, proper blending and marketing for higher price realization, etc. for increase in export as well as competitiveness of India tea and coffee in International market.

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