

Export Competitiveness of Indian Natural Honey: A study during the time period of 1999-2000 to 2019-2020

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Introduction: -

As a trading component, Export facilities help a nation grow. Development of an economy is strongly linked with the performance of export and import of the economy. Countries can export goods and services in which they have a competitive or comparative advantage. Growth in exports produces employment, rising exports increase Aggregate Demand and cause higher economic growth. Governments encourage exports because they increase revenues, jobs, foreign currency reserves, and liquidity. (Ford, 2021) Traditionally exports have been limited to manufacturing industries only, however in recent years, exports have become more diversified with a greater reliance on service sector-based exports. Indian economy has been transformed from a principally primary products exporting country at the time of independence to an export of finished manufactured products in the last four decades. It reflects a considerable change in the composition of trade. The exports of major traditional and non-traditional items have been increased during the reforms period as a result of various initiatives and incentives provided to the exporters by the government. (Lakshmi, 2020). Along with the export of other agricultural products, India has been able to gain recognition as one of the highest exporters of natural honey. Natural Honey is used to treat a variety of ailments through a wide range of applications. Pollen and nectar of flowering plants are the raw materials for honey and beekeeping industry. Apiculture is practiced mostly by marginal and landless farmers. It increases income from agriculture, generates employment and helps in improving nutritional intake of rural population. The top 10 biggest exporters of natural honey are New Zealand, China, Argentina, Germany and Ukraine Spain, Brazil, Hungary, India and Vietnam. India's

major honey export destinations included United States, Saudi Arabia, United Arab Emirates, Bangladesh, Canada etc. Mustard honey, eucalyptus honey, lychee honey, sunflower honey, pon gamea honey, multi-flora Himalayan honey, acacia honey and wild flora honey are some of the major varieties of Natural honey produced in India. According to honey export data, 17 states of India are exporting natural honey to various countries across the world. Delhi is the largest honey exporter state of India as maximum shipments

have been departed from this state. Delhi has departed 75.98% value of the honey shipments to the global market which is followed by Rajasthan, Maharashtra, Uttar Pradesh and Punjab. As per the estimates of honey production in India, West Bengal, Uttar Pradesh, Punjab and Bihar are the biggest honey producing states of the country. The top exporting companies such as Kejriwal Bee Care India Private Limited and APIS India Limited. (Workman, 2021). A study used data of Total Textiles Exports from India for past 10 years (2005 to 2014), Total Exports of all commodities from India, Total Textiles Exports of the World and Total Exports of all commodities of the World. The collected data are then analyzed with the help of accounting tool 'Revealed Comparative Advantage'. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or industry. The calculation of the RCA index was carried out by applying the data of Indian textiles exports and World textiles exports. Considering the export data, it is particularly striking those textiles exports have continued to grow throughout the selected period. (Chaudhary, 2016). A study was done by selecting major agricultural commodities/commodity groups which were selected based on their major shares in India's total agricultural exports. The RCA method was used to understand ranking of commodities by degree of comparative advantage. The study had shown that exports of various agricultural commodities from India had responded differently in terms of comparative advantage during the post-reforms period. India had enjoyed a comparative advantage in tea exports but had depicted a declining trend over the years. (Chinadurai, 2012). Export of industrial products remains one of the main factors of Lithuanian economic growth and development after the economic crisis in Russia in 1998 and the global economic crisis of 2008–2009. Industrial development mostly depends on export and the ability of industrial companies to compete in foreign markets. The evaluation of the competitiveness of Lithuanian industry in global markets by RCA and RSCA indexes revealed similar results. The values of both indexes showed that the strongest competitive positions in global markets during the period of 2007–2011 were taken by Lithuanian food, chemicals, wood and textile manufactures. The research results also revealed that smaller volumes of sales were characteristic to the export of most product groups with

competitive advantage in the year 2011 in comparison to the year 2007. (Startienė, 2013). The present study strives to find the Revealed Comparative Advantage and Revealed Symmetric Comparative Advantage of the export of Indian natural honey and to extract the pattern of export of Indian natural honey during the period of 1999-2000 to 2019- 20.

Research Methodology: -

It is evident from the literature that it is important to study the comparative advantage of a particular product or an industry in the global market to predict its export potentials and prospects. As applied by different researchers and economists like (Startienė, Remeikienė, 2014), (Chaudhary, 2016), (Laursen, 1998), (Granabeter, 2016), (Clark, Sprinkle, sawyer, 2007), Revealed Comparative advantage (RCA) index is used in the present study that reflects

the comparative advantage of a product or sector in respect of the world or another country's export in the global market (KANAKA, 2012). RCA as discussed by (Balassa, 1965) is adapted as a measure of trade specialization in the international reports published by World Bank and UNIDO as well (Laursen, 1998). It's a ratio of the country's share of export of a product or commodity in its total export to world's share of export of the same product or commodity in its total export. The formula for calculating Revealed Comparative Advantage is as (Laursen,1998)

$$RCA = \frac{x_{ij}}{x_{\omega j}} \times \frac{x_{\omega m}}{x_{im}}$$

Where,

x_{im}

$x_{\omega j}$

x_{ij} = India's natural honey export to world x_{im} = India's all commodity export to world $x_{\omega m}$ = World's all commodity export to world $x_{\omega j}$ = World's natural honey export to world

A country is said to have comparative advantage over a product or industry if the value of $RCA > 1$ and the country is said to have comparative disadvantage if the value of RCA is less than Unity (Laursen, 1998). To avoid the drawback of 'asymmetry', improvisation to the index of RCA i.e RSCA (Revealed Symmetric Comparative Advantage) as adapted from (Laursen, 1998), (Startienė, Remeikienė, 2014), has been calculated as follows: -

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

The value of RSCA ranges from -1 to +1. If the calculated value is greater than zero, then it is indicated that there is comparative advantage and vice versa. The pattern of export of Indian Natural Honey from India to world can be precisely understood with the help of the concept of moving-average time series data. Time series analysis can be defined as an analysis of statistical data in a chronological sequence over an interval of time and also an arrangement of numerical data where each of the item is associated with a particular instant in time. In the present study, the method of 3-year moving average in time series data has been adopted in order to extract

the export pattern of Indian Natural honey. The moving average is characterized by a constant, that is regarded as Period or extent of moving average. In excel, it is termed as 'interval' and hence, the moving average of a period 'm' is a series of successive averages of 'm' overlapping values at a time, starting with 1st, 2nd and 3rd value and so on.

Therefore, for the time series values x_1, x_2, x_3 , for different time periods,

the moving average values of period 'm' can be written as –

$$1^{st} \text{ Moving Average} = \frac{x_1 + x_2 + \dots + x_m}{m}$$

$$2^{nd} \text{ Moving Average} = \frac{x_2 + x_3 + \dots + x_{m+1}}{m}$$

$$3^{rd} \text{ Moving Average} = \frac{x_3 + x_4 + \dots + x_{m+2}}{m}; \text{ and so on.....}$$

In the present study, we have shown the time series moving average with the help of graphical representation in Excel with 3-year moving average i.e $m = 3$. Trade value (in thousand usd \$) of 20years from 1998-1999 to 2019-2020 of Indian natural honey to all over the world has been collected from the official website of World Trade organization.

Analysis and Interpretation: -

Table 1:- Showing the value of Revealed Comparative Index of exports from 1999 to 2019

YEAR	XIJ	XIM	XWM	XWJ	RCA
1999	2212.30	3691977.13	5470674759	436306.19	0.751
2000	2040.99	42358096.16	6277136445.67	440299.56	0.687
2001	1772.39	43878488.72	6055838397.21	456942.77	0.535
2002	8849.47	50097958.25	6372130330.18	732385.08	1.537
2003	15006.80	59360659.09	7446979618.41	987246.85	1.907
2004	15560.70	75904200.37	90105082682.47	885216.38	2.088
2005	16192.30	100352636.50	10146615164	738237.21	2.218
2006	25542.08	121200606.22	11861232547.59	862716.05	2.897
2007	8225.36	145898053.46	13578634208.80	930474.99	0.823
2008	38555.57	1818608.98	155637828457.28	1369587.79	2.421
2009	20015.88	176765036.34	1222535766.49	1329794.34	1.041
2010	56229.10	220408495.99	15034678672.50	1522399.15	2.519
2011	76225.92	301483250.17	18048791874.88	1757365.64	2.597
2012	59881.86	289564769.45	17979047914.88	1810697.19	2.053
2013	75717.72	336611388.77	18714650376.03	2128835.29	1.977
2014	77195.88	317544642.26	18608094914.13	2393750.12	1.889
2015	104051.23	264381003.63	16272543476.86	2350051.71	3.186
2016	70761.03	260326912.00	15797968955.51	2264275.81	1.896
2017	104051.23	294364490.16	17376997310.93	NIL	
2018	101710.66	322291568.43	19071047532.16	2331868.15	2.581
2019	100872.33	323250726	18258830515.94	2062244.78	2.763

Interpretation: - It is evident from the table that the comparative advantage of Indian Natural Honey is fluctuating though at a minimum rate. Since the export value in the year is missing in the official website, it is assumed that no trade has been recorded in the said period. In the year 2015, the comparative advantage is seen to be the highest at 3.186.

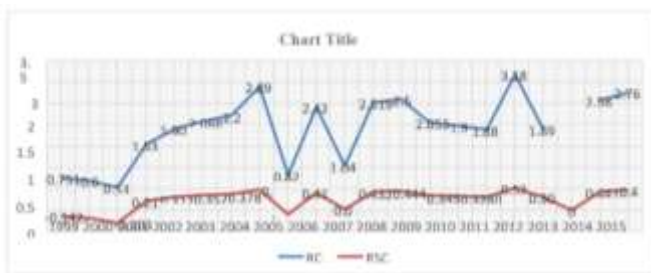
Table 2:- Showing the value of Revealed Symmetric Comparative Advantage of exports from 1999 to 2019

Year	RCA	RSCA	Advantage/ Disadvantage
1999	0.751	-0.142	Disadvantage
2000	0.687	-0.186	Disadvantage
2001	0.535	-0.303	Disadvantage
2002	1.537	0.212	Advantage
2003	1.907	0.312	Advantage
2004	2.088	0.352	Advantage
2005	2.218	0.378	Advantage
2006	2.897	0.486	Advantage
2007	0.823	-0.097	Disadvantage
2008	2.421	0.415	Advantage
2009	1.041	0.020	Advantage
2010	2.519	0.432	Advantage
2011	2.597	0.444	Advantage
2012	2.053	0.345	Advantage
2013	1.977	0.328	Advantage
2014	1.889	0.307	Advantage
2015	3.186	0.522	Advantage
2016	1.896	0.309	Advantage
2017	NIL	-	-
2018	2.581	0.441	Advantage
2019	2.763	0.469	Advantage

and from India to world can be precisely understood with the help of the concept of moving average time series data. It reflects the dynamic pace of movements of a phenomenon over a period of time.

Table 3:- 3years moving average of trade value of natural honey from world to world during the period 1999-2019

YEAR	TRADE VALUE [THOUSAND USD]	3-YEAR MOVING AVERAGES
1999	2,212.30	#N/A
2000	2,040.99	#N/A
2001	1,772.39	2,008.56
2002	8,849.47	4,220.95
2003	15,006.80	8,542.89
2004	15,560.70	13,138.99
2005	16,192.30	15,586.60
2006	25,542.08	19,098.36
2007	8,225.36	16,653.25
2008	38,555.57	24,107.67
2009	20,015.88	22,265.60
2010	56,229.10	38,266.85
2011	76,225.92	50,823.63
2012	59,881.86	64,112.29
2013	75,717.72	70,608.50
2014	77,195.88	70,931.82
2015	1,21,661.85	91,525.15
2016	70,761.03	89,872.92
2017	1,04,051.23	98,824.70
2018	1,01,710.66	92,174.31
2019	1,00,872.33	1,02,211.41



Interpretation: - From the fig, it is revealed that the RCA has been fluctuating through out period and RSCA has been more or less constant over the years. The revealed comparativeness of Indian Natural honey in the world market was increasing from 2001 onwards but decreased by 252% which is again increased by 142.1 % followed by a decrease of 97.57% in the next year. Thus, it is evident from the figure that the Revealed Comparative Advantage of Indian natural honey has been fluctuating through out the period of 20years.

The pattern of export of Natural Honey from world to world
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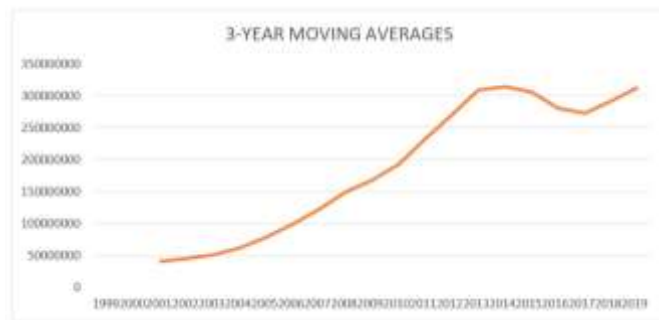
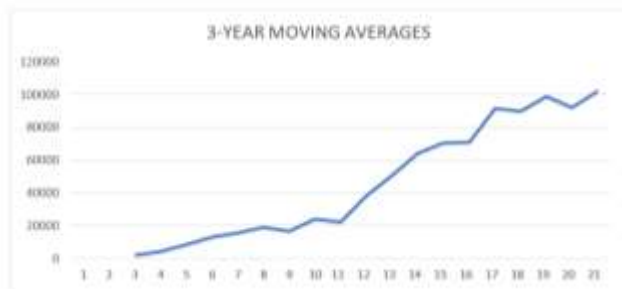


Table 4:- 3years moving average of trade value of natural honey from India to world during the period 1999-2019

YEAR	TRADE VALUE [THOUSAND USD]	3-YEAR MOVING AVERAGES
1999	3,69,19,977.13	#N/A
2000	4,23,58,096.16	#N/A
2001	4,38,78,488.72	4,10,52,187.34
2002	5,00,97,958.25	4,54,44,847.71
2003	5,93,60,659.09	5,11,12,368.69
2004	7,59,04,200.37	6,17,87,605.90
2005	10,03,52,636.50	7,85,39,165.32
2006	12,12,00,606.22	9,91,52,481.03
2007	14,58,98,053.46	12,24,83,765.39
2008	18,18,60,898.30	14,96,53,185.99
2009	17,67,65,036.34	16,81,74,662.70
2010	22,04,08,495.99	19,30,11,476.88
2011	30,14,83,250.17	23,28,85,594.17
2012	28,95,64,769.45	27,04,85,505.20
2013	33,66,11,388.77	30,92,19,802.80
2014	31,75,44,642.26	31,45,73,600.16
2015	26,43,81,003.63	30,61,79,011.55
2016	26,03,26,912.00	28,07,50,852.63
2017	29,43,64,490.16	27,30,24,135.26
2018	32,22,91,568.43	29,23,27,656.86
2019	32,32,50,726.42	31,33,02,261.67

Interpretation: -

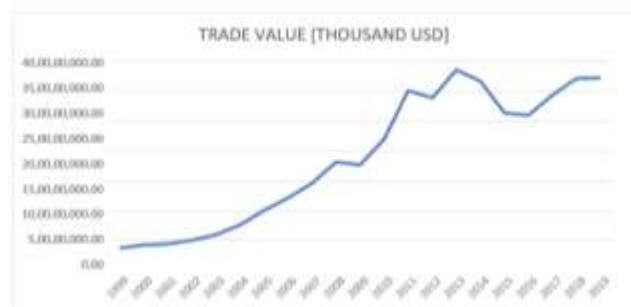
we have shown the moving average time- series set of export of all commodity from world to world since 1998 till 2019. we have consideration the Trade value of all commodity in terms of thousand (USD). After calculating the moving average, of the trade value data, we can observe that trade value for all commodities has gradually increased from 1998 to 2019 as the trade value has also increased. The graphical representation of the trade value and the moving averages, both are demonstrated beside the data. The horizontal axes of both the graphs represent the time in terms of years and the vertical the trade value in terms of thousand USD. The curve in orange shows us the trade value which gradually increases from 1998 to 2008 after which it faces a sharp downfall in 2009. But again, due to development in terms of trade and technology, the trade value began to rise gradually till 2018 even though it faces some of the fluctuations on the way. The curve in blue is what the conclusion of the entire reading like. It represents the z- year moving average of the trade value of export of all commodity from world to world since 1998 till 2019.

Conclusion: -

Along with the export of other agricultural products, India has been able to gain recognition as one of the highest exporters of natural honey. Natural Honey is used to treat a variety of ailments through a wide range of applications. Pollen and nectar of flowering plants are the raw materials for honey and beekeeping industry. It is evident from the study that the Revealed Comparative Advantage of Indian natural honey has been fluctuating throughout the period of 20 years. However, the study shows us the trade value which gradually increases from 1998 to 2008 after which it faces a sharp downfall in 2009. But again, due to development in terms of trade and technology, the trade value began to rise gradually till 2018 even though it faces some of the fluctuations on the way.

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