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A competitive analysis of Indian fish export to USA: Growth, performance, comparative advantages and instability

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USA is the major export market destination for Indian fish and fishery products especially for crustaceans. The present study analyzed the status, export performance and competitiveness of Indian fish export to USA based on data (2000-2017) collected from UNCOMTRADE statistical database of United Nations. Trade balance revealed that the net trade for Indian fish export to USA was positive and the export has always been far greater than the imports. Compound Growth Rate (CGR) revealed that the seafood export grew at 18.22 % in terms of value with instability of 0.1 from 2000-2017. The average Unit Value Realization (UVR) was found highest in live fishes (15.62) followed by crustaceans (6.89) and others. Commodity wise Revealed Comparative Advantage (RCA) revealed that it is highly positive for crustaceans (7.87) followed by molluscs (2.74) and frozen fish (2.12) indicating that India has a strong comparative advantage in exporting these commodities to USA.

[Keywords: Compound growth rate, Instability, Revealed comparative advantage, Trade balance, Trend analysis, Unit value realization]

Introduction

Indian fisheries and aquaculture is an important sector of food production which not only provides nutritional security but at the same time provides employment to fourteen million people. Indian fish exports form an important item in the basket of India. The slow progress in marine production and rising demand for seafood products resulted in increasing importance of aquaculture. Fish and fisheries products have presently emerged as largest group in agricultural exports of India with 13.77 lakh tons in terms of quantity and 6495.40 US million dollars in value¹. Frozen shrimp continued to be major export items in the export basket in terms of quantity and value. USA is the largest market (247780 MT) for frozen shrimp export in quantity¹ terms followed by South East Asia (616707 MT), European Union (190314 MT), and Japan (85651 MT) as shown in Figure 1. Frozen shrimp is the flagship product in the seafood exports of India. After the WTO agreements the HACCP standards and EU norms have become mandatory for the Indian sea food exports to maintain the quality of seafood exports. USA being the major importer of seafood from India, the highest contribution amongst all is shared by crustaceans

which contributed around 97 % in the year 2017 while shrimp is high valued seafood even in the domestic market, fin fishes fall under wide variety of prices and is a cheap source of protein. Growth and instability management and stabilizing the export performance is a priority for the exporting countries to maximize its earnings². The international trade contributes significantly in employment and income generation. India's export performance has been spectacular over the years but its actual potential is still untapped and unexplored³. The study is based on the data collected from the different sources like Indiastat.com and UNCOMTRADE.COM for the period 2000-2017.

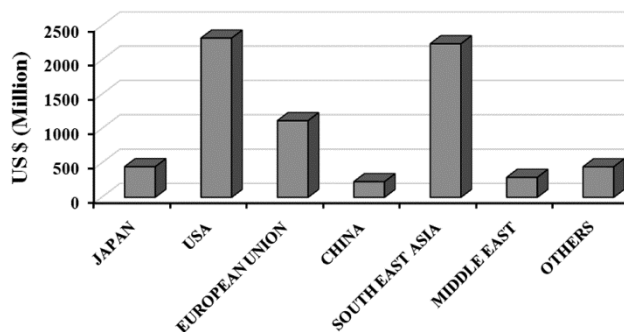


Fig. 1 — Market wise export of India in 2017-2018 (US\$ Millions)

The export competitiveness and comparative advantage of Indian seafood export to USA were estimated with the fact that USA retained the highest positions as the major import markets of India's seafood products, with a share of 32.76 percent⁴. This paper has analyzed the growth, export performance, instability and comparative advantage of Indian seafood exports to USA from the period of 2000-17.

Material and Methods

The export data was collected from the UNCOMTRADE statistical database of the United Nations¹⁵ 2000-2017. All the values of export and import have been referred in US dollars to net out the effects of change in exchange rate. To study the composition of exports of different fishery products percentage analysis has been carried out from the period of 2000-08 and 2009-17 to account the problem of wide fluctuations in exports and imports. Compound growth rates (CGR) was calculated to analyze the trends.

The share of exports of individual items of fish and fishery products from India to USA was calculated using equation

$$\frac{\text{Export of fish (Item wise) to USA from India during } n^{\text{th}} \text{ year}}{\text{Total fisheries export from India during } n^{\text{th}} \text{ year}} \times 100$$

Unit realized per kilogram of product has been estimated by unit value realization by connoting total exported value to exported quantity of fish and fish products from India to USA.

Trade balance/Net balance is the difference between India's export to USA and India's import from USA. It has been calculated to analyze the pattern of bilateral trade between India and USA in fish and fishery products.

Growth analysis

Compounded annualized rate of growth was used to measure the trends in the exports of Indian seafood to USA from 2000 to 2017. If y_t is the study variable at time period t , then the mathematical expression employed for computation of compound growth rate (CGR) r is conventionally given by

$$Y_t = y_o(1+r)^t$$

In general, after a multiplicative error ϵ is assumed in the above equation, logarithmic transformation is done throughout to make it a linear statistical model. That is,

$$\log y_t = \log y_o + t \log (1+r) + \text{Log } \epsilon$$

The above model can be rewritten as

$$\log y_t = A + Bt + \epsilon'$$

Where, $A = \log y_o$, $B = \log(1+r)$, $\epsilon' = \text{Log } \epsilon$

Unknown parameters A and B have been estimated by method of Ordinary Least Square. Thus once B is estimated the CGR estimate \hat{r} is given by

$$r = \exp(\hat{\beta}) - 1$$

Instability index

Instability in export is expected to hamper the process of economic development. This analysis was used to find out the fluctuations in the export of Indian fish and fish products to USA markets. To study the export instability Cuddy Della Valle Index (CDVI)⁵. It takes into account the trend that is commonly present in the time series data and gives the modified (Coefficient of variation)

$$I_x = CV \sqrt{(1 - \hat{R}^2)}$$

Where,

I_x = Cuddy Della Valle index of instability,

CV = coefficient of variation and

\hat{R}^2 = adjusted coefficient of multiple determination.

Revealed Comparative Advantage (RCA) ratios

The concept of RCA was first developed by Balassa⁶. RCA indices can be measured by the relative export share of a country in the world export of the individual commodity. It was used to study the comparative advantage of Indian seafood export in the USA market for the period 2000-17.

RCA =

$$\frac{\text{Indian fish export to USA /total export of India to USA}}{\text{World fish export to USA /World total export to USA}}$$

If $RCA > 1$, Country has revealed comparative advantage in that commodity

If $RCA < 1$, Country has revealed comparative advantage in that commodity

If $RCA = 1$, Comparative neutrality

The RCA should be adjusted to make it unity. The index has been made symmetric and was obtained as $(RCA-1)/(RCA+1)$. This measure ranges from -1 to +1 and the measure is labeled as "*Revealed Symmetric Comparative Advantage*" (RSCA) given by Dalum, Laursen and Villumsen⁷

Results and Discussion

Percentage share and composition of different fish species in total fish exported from India to USA

The exports of major fish species in terms of quantity and value during the period 2000-2017, are presented in Table 1. The fishes were grouped under live fish, fresh chilled fish, frozen fish, frozen fillet meat mince, fish cured smoked fish meal, crustaceans and mollusks. The export of fish items experienced a tremendous growth in terms of value and quantity. Upon analyzing the share of individual items in total fish exports of India to USA, it is observed that during the period of 2000-01 the major exporting items in terms of value were crustaceans (85.31 %) followed by frozen fish (8.11 %), molluscs (5.34 %). Crustaceans being the important commodity in exports its percentage share increased significantly from 2000 to 2004 from 85.31 % to 93.07 %. Later the export of crustaceans decreased from 2005 to 2008 from 89.3 % to 75.17 % and then nearly increased continuously over the years up to 2017. The export of frozen fish was the second most important exporting commodity whose export percentage share decreased from 2000 to 2004 from 8.11 % to 1.64 % and then increased from year 2005 to 2008, the scenario further showed decrease in the export till 2017. During the period of 2017 the major share of export in value terms was crustaceans (96.88 %) followed by mollusks (1.82 %), frozen

fish (0.46 %) and others. In order for the better understanding of the export composition the triennium average of first three and last three years have been taken from 2000-02 and 2015-17, respectively and is depicted in the Figure 2. During

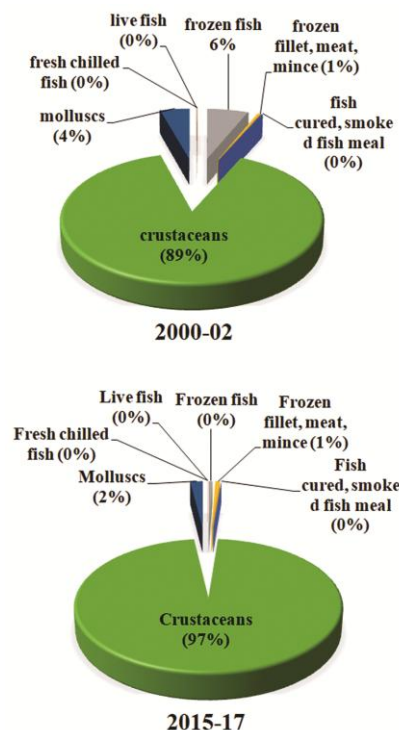


Fig. 2 — Indian Seafood Composition change in market share to USA

Table 1 — Percentage share of different fish species in total fish exported from India to USA (2000-2017)

YEAR	Live Fish		Fresh chilled fish		Frozen fish		Frozen fillet, meat, mince		Fish cured, smoked fish meal		Crustaceans		Molluscs	
	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty	Val	Qty
2000	0.04	0.03	0.21	0.60	8.11	19.20	0.81	2.20	0.18	0.35	85.31	64.85	5.34	12.70
2001	0.05	0.02	0.08	0.18	5.47	15.10	0.48	1.50	0.15	0.38	89.41	72.00	4.34	10.91
2002	0.04	0.01	0.05	0.13	4.94	10.80	0.16	0.30	0.05	0.09	91.13	78.39	3.63	10.20
2003	0.05	0.02	0.08	0.25	2.63	7.63	0.13	0.30	0.03	0.12	92.81	81.70	4.26	10.04
2004	0.05	0.01	0.51	1.32	1.64	4.75	0.09	0.10	0.06	0.07	93.07	80.92	4.58	12.79
2005	0.03	0.00	0.37	0.79	3.87	10.00	0.59	0.70	0.07	0.08	89.30	74.76	5.77	13.70
2006	0.04	0.01	0.62	1.39	4.65	11.20	0.16	0.20	0.01	0.01	86.61	69.46	7.91	17.76
2007	0.05	0.10	1.18	1.72	9.96	18.90	1.15	2.00	0.01	0.02	79.09	58.08	8.56	19.22
2008	0.05	0.02	0.92	1.41	11.40	7.45	1.03	2.10	0.03	0.16	75.17	57.40	11.40	31.47
2009	0.07	0.02	0.18	0.11	3.76	7.97	1.01	1.80	0.10	0.14	88.27	69.61	6.61	20.41
2010	0.03	0.01	0.02	0.03	3.39	11.70	0.53	0.70	0.01	0.02	90.88	78.29	5.14	9.30
2011	0.02	0.01	0.01	0.04	2.44	6.10	0.54	1.50	0.01	0.04	90.71	77.33	6.26	14.99
2012	0.02	0.01	0.00	0.00	2.27	4.03	0.54	0.80	0.01	0.03	92.09	85.05	5.07	10.09
2013	0.09	0.04	0.02	0.09	0.74	2.43	0.53	0.80	0.03	0.02	96.33	89.51	2.25	7.11
2014	0.08	0.04	0.01	0.05	0.58	1.90	0.40	0.70	0.01	0.02	97.26	92.09	1.64	5.23
2015	0.01	0.00	0.00	0.00	0.62	1.33	0.61	0.87	0.00	0.01	96.62	89.96	2.13	7.83
2016	0.01	0.00	0.01	0.01	0.77	1.51	0.53	0.75	0.00	0.01	96.85	93.99	1.83	3.73
2017	0.00	Nil	0.01	Nil	0.46	Nil	0.81	Nil	0.01	Nil	96.88	Nil	1.82	Nil

the period between 2000-02, the major exporting commodity were crustaceans (89 %) followed by frozen fish (6 %) and molluscs (4 %) and at the same time during 2015-17 were crustaceans (97 %) followed by molluscs (2 %) and frozen fillet, meat, mince fish (1 %). It's observed that the export of crustaceans has increased by 8 %, molluscs have reduced by 2 % and the frozen fish has almost vanished. The scenario indicates that there is increase in demand and consumption of crustaceans especially shrimps and lobsters and at the same time increase in their domestic production. Fish and shrimp accounted for 40 % and 20 % of total seafood exported from India during 2006-2010¹

Performance of Indian sea food export to USA

The export of Indian fish to USA has been increasing over the years and the increase is more in terms of value rather than quantity. It has been observed that the export in terms of values has increased from 241.88 million US \$ to 1457.37 million US \$ from 2000-01 to 2016-17, respectively. At the same time the export in terms of quantities has increased from 47.66 million tons to 151.83 million tons from 2000-01 to 2016-17. The major exporting commodities are the crustaceans (shrimps and lobsters). It can be seen clearly from the Figure 3 that here was a drastic decline in the export of Indian fish to USA between 2005-2009 which is possibly due to anti-dumping duties (11.75 %) imposed by USA in 2005 and lasted up to 2009-10. The duty was further reduced to 1.6 % in 2009 which lead the boom and the export once again started growing to USA till 2012-13. Later in 2012-13 the antidumping duty was further increased to 2.51 %.

Growth and instability in the export of seafood products

Seafood exports are one of the major earning of foreign exchange in India. Over the years India has shown significant increase in the seafood export, the total seafood export to USA has increased from

47.66 million tons in 2000-2001 to 151.88 million tons in 2016-17, while during the same period the value of total export increased from 241.88 million dollars to 1457.37 million dollars. The growth of the Indian seafood export has been calculated in four phases i.e. from 2000-2004 (pre antidumping phase), 2005-2009 (antidumping phase), 2010-2014 (post antidumping phase) and 2015-2017 (recent phase). Dumping occurs when a country produces seafood and then exports and sells them in United States less than their fair value and affects their domestic industry. United States being the most open market in the world and the high tariffs and import duties in other large importing countries provides a powerful incentive for exporters to increase shrimp shipments to US. High tariff rates in other large importing countries provided a powerful incentive for exporters to increase shrimp shipments to the United States⁸. In January 2004, the US Department of Commerce (DOC) announced the initiation of antidumping investigations against the six countries including India. So, there was a decline in the US market share during 2004-09 after the anti-dumping duties came into effect, and the number of Indian exporters to the US declined significantly from 280 in 2005 to just 68 in 2009⁹. Indian seafood export in value grew by 12.14 % during the period 2000-2004, decreased by -14.96 % during 2005-2009 and further increased massively by 41.53 % in 2010-2014 as shown in Table 2. Recent years (2015-17) have shown the growth rate of 29.10 %. The post antidumping phase was considered as a boom for the export as it grew tremendously due to relaxation of anti-dumping duties by USA.

Cuddy Della Valle Index (CDI) revealed that the instability was 0.073 during 2000-2004, 0.077 during 2005-2009, 0.069 during the period of 2010-2014 and 0.134 during 2015-17. The highest instability has been observed during the recent years from 2015-17 which may be contributed due to the massive decline of growth rate from 41.53 % to 29.10 %. The overall

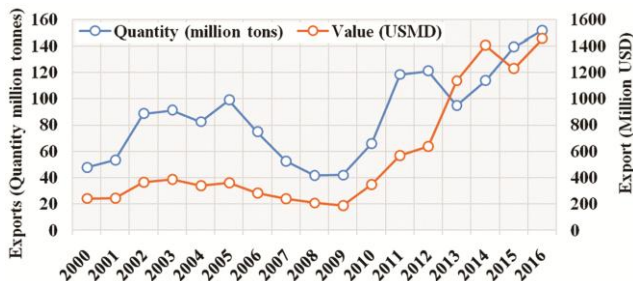


Fig. 3 — Performance of Indian seafood export to USA (2000-2016)

Table 2 — Growth and instability in the total Indian seafood export to USA (2000-2017)

Periods	CAGR (Value %)	CDI (Instability index)
2000-2004	12.14	0.073
2005-2009	-14.96	0.077
2010-2014	41.53	0.069
2015-2017	29.10	0.134
2000-2017	18.22	0.100

instability over the period of 2000-2017 was observed as 0.1. The higher instability can thus be tackled both through price stability measures like value addition and export diversification².

Trade balance of fish between India and USA

Trade balance/Net balance is the difference between India's export to USA and India's import from the USA. It can be seen from Table 3 that the trade balance for Indian fish export to USA has been positive all through the years. India has been importing fish from USA but value of the fish purchased was far lesser than the amount sold indicating that India is a major exporter of fish to USA rather than being an importer. With the period of time the export of fish to USA have increased almost by 6 times from 2000-01 to 2013-14. With the period of time the export of fish to USA have increased almost by 8.5 times from 2000-01 to 2017-18. At the same time the import of fishes from USA has also been increased almost by 27 folds but this import is far lesser than the exports.

Unit value realization

Unit value realization tells us about the export composition in terms of quantity and value. It's an indicator of determining the economic value of a particular commodity. Total unit value of fish exports from India to USA has been increasing over the years from \$5.07/kg in 2000 to \$9.6/kg in 2016 and the average unit value of India's total fish export to USA

is \$5.99 per kgs. The UVR for the year 2017 could not be calculated as the actual quantity of crustaceans exported during that year was not available. It was revealed that on an average unit value was high for live fish \$15.62 per kg followed by crustaceans (6.89), frozen fillet, meat, mince (3.63) and others as depicted in Table 4. The UVR of crustaceans have increased from \$6.68/kg in 2000 to \$13.05/kg in 2014 and then gradually decreased to 9.89 in 2016. The highest increment in the UVR is observed in live fish being \$28.3/kg in 2014 from \$6.9/kg in 2000 and the least increment in UVR is observed in molluscans from \$2.14/kg in 2000 to \$4.70/kg in 2018. The similar results were obtained where the highest UVR was found in live fish followed by fish cured smoked, crustaceans and others¹⁰. Frozen fish contributing significantly in the total export but showed less UVR as compared to the live fish and crustaceans, the reason being the concentration of frozen fish to be sold in blocks frozen forms with little or no value addition¹¹. The scatter diagram in Figure 4 depicts the total UVR over the years and it clearly shows that the highest average UVR (12.35) was observed in the year 2014 and the lowest (3.66) in 2005

Comparative advantage and export competitiveness of fish export to USA

The results of RCA and RSCA of Indian seafood export have been revealed in Table 5 and Table 6, respectively. As can be seen from the Table, the RCA has been greater than the unity in crustaceans,

Table 3 — Trade balance of fish between India and USA

Period	India's export of fish to USA (US \$)	India's import of fish from USA (US \$)	Trade balance (US \$)
2000-01	241887624	500592	241387032
2001-02	242932296	1957	242930339
2002-03	364185932	1373047	362812885
2003-04	386238093	738332	385499761
2004-05	340160584	1189217	338971367
2005-06	361536258	1331531	360204727
2006-07	282926128	2373073	280553055
2007-08	240544951	1392009	239152942
2008-09	207566504	206408	207360096
2009-10	187753485	248139	187505346
2010-11	349519024	511984	349007040
2011-12	568757388	1575782	567181606
2012-13	638743418	3739974	635003444
2013-14	1135386415	5633532	1129752883
2014-15	1404929672	11031968	1393897704
2015-16	1229420846	12261122	1217159724
2016-17	1457341251	13063623	1444277628
2017-18	2048922919	13849656	2035073263

Table 4 — Commodity wise Unit value realization (UVR) from fish export to US

YEAR	Live Fish	Fresh chilled fish	Frozen fish	Frozen fillet, meat, mince	Fish cured, smoked fish meal	Crustaceans	Molluscs	total
2000	6.97	1.79	2.14	1.84	2.54	6.68	2.14	5.07
2001	13.27	2.15	1.66	1.52	1.79	5.68	1.82	4.57
2002	14.98	1.58	1.88	1.87	2.14	4.78	1.47	4.12
2003	13.77	1.30	1.46	2.13	1.19	4.82	1.80	4.24
2004	14.69	1.59	1.43	2.56	3.86	4.75	1.48	4.13
2005	27.57	1.71	1.42	3.15	3.36	4.37	1.54	3.66
2006	22.67	1.69	1.58	3.05	3.51	4.73	1.69	3.79
2007	2.07	3.16	2.43	2.67	1.27	6.28	2.05	4.61
2008	12.93	3.27	7.67	2.47	1.08	6.56	1.82	5.01
2009	17.50	7.64	2.12	2.61	3.10	5.71	1.46	4.50
2010	11.17	2.94	1.54	4.25	2.94	6.16	2.94	5.31
2011	13.42	1.10	1.93	1.73	1.18	5.64	2.01	4.81
2012	11.37	2.83	2.98	3.58	1.79	5.72	2.65	5.28
2013	27.66	2.92	3.63	7.88	18.82	12.88	3.80	11.97
2014	28.29	2.90	3.79	7.40	3.90	13.05	3.90	12.35
2015	13.35	2.40	4.13	6.27	3.50	9.49	2.41	8.84
2016	13.94	9.77	4.92	6.72	4.32	9.89	4.70	9.60
Average	15.62	2.98	2.75	3.63	3.55	6.89	2.33	5.99

Table 5 — Revealed Comparative Advantage (RCA) Of Indian Seafood Export to USA during 2000-17

Periods	Live fish	Fresh chilled fish	Frozen fish	Frozen fillet, meat, mince	Fish cured, smoked fish meal	Crustaceans	Molluscs	Total export
2000	0.33	0.08	5.61	0.15	0.31	6.89	3.67	4.16
2001	0.42	0.03	3.62	0.09	0.28	7.51	3.90	4.38
2002	0.39	0.02	3.89	0.03	0.11	9.70	3.39	5.20
2003	0.31	0.03	2.19	0.03	0.08	9.17	4.00	5.01
2004	0.31	0.22	1.07	0.01	0.13	8.10	3.76	4.30
2005	0.19	0.14	2.52	0.08	0.13	7.42	3.82	3.96
2006	0.24	0.16	2.37	0.02	0.01	5.48	3.89	2.92
2007	0.21	0.24	3.95	0.10	0.01	4.00	3.36	2.33
2008	0.20	0.16	3.78	0.07	0.03	3.34	3.70	1.99
2009	0.20	0.02	1.04	0.05	0.07	3.30	1.51	1.53
2010	0.14	0.00	1.54	0.04	0.01	5.27	1.81	2.43
2011	0.17	0.00	1.40	0.05	0.01	6.14	2.52	2.88
2012	0.10	0.00	1.36	0.05	0.02	8.69	2.91	3.37
2013	0.93	0.01	0.77	0.07	0.06	9.67	1.29	4.33
2014	1.13	0.01	0.72	0.06	0.02	10.16	1.13	4.81
2015	0.08	0.00	0.68	0.09	0.01	10.97	1.22	4.75
2016	0.08	0.01	0.85	0.08	0.01	11.57	1.23	4.93
2017	0.08	0.01	0.72	0.29	0.04	14.36	2.16	7.56
Average	0.31	0.06	2.12	0.08	0.07	7.87	2.74	3.94

molluscs, and frozen fish and the rest were having the RCA value of less than unity all through the years. This indicates that India has comparative advantage in exporting crustaceans, mollusks and frozen fishes. Commodity wise RCA revealed that it is highly positive for crustaceans (7.87) followed by molluscs (2.74) and frozen fish (2.12) indicating that India has a strong comparative advantage in exporting these commodities to USA. At the same time India has no comparative advantage in exporting fresh chilled fish,

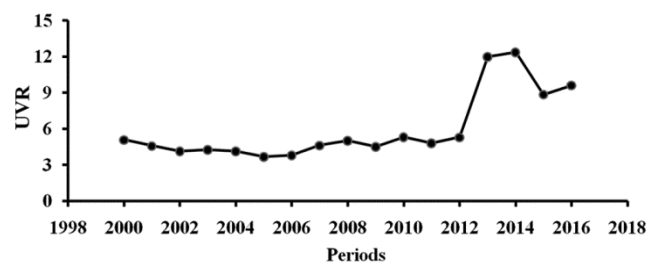


Fig. 4 — Scatter diagram representing the UVR of total Indian seafood export to USA (2000-2016)

Table 6 — Revealed Symmetric Comparative Advantage (RSCA) of Indian seafood export to USA

Year	Live fish	Fresh chilled fish	Frozen fish	Frozen fillet, meat, mince	Fish cured, smoked fish meal	Crustaceans	Molluscs	Total export
2000	-0.51	-0.85	0.70	-0.74	-0.53	0.75	0.57	0.61
2001	-0.41	-0.93	0.57	-0.83	-0.56	0.76	0.59	0.63
2002	-0.44	-0.96	0.59	-0.94	-0.80	0.81	0.54	0.68
2003	-0.52	-0.93	0.37	-0.95	-0.86	0.80	0.60	0.67
2004	-0.52	-0.63	0.03	-0.97	-0.77	0.78	0.58	0.62
2005	-0.69	-0.75	0.43	-0.84	-0.76	0.76	0.58	0.60
2006	-0.61	-0.72	0.41	-0.97	-0.98	0.69	0.59	0.49
2007	-0.65	-0.61	0.60	-0.83	-0.99	0.60	0.54	0.40
2008	-0.67	-0.73	0.58	-0.87	-0.94	0.54	0.57	0.33
2009	-0.67	-0.96	0.02	-0.91	-0.88	0.54	0.20	0.21
2010	-0.75	-0.99	0.21	-0.92	-0.97	0.68	0.29	0.42
2011	-0.71	-1.00	0.17	-0.91	-0.97	0.72	0.43	0.49
2012	-0.81	-1.00	0.15	-0.91	-0.96	0.79	0.49	0.54
2013	-0.04	-0.98	-0.13	-0.86	-0.89	0.81	0.12	0.63
2014	0.06	-0.99	-0.16	-0.88	-0.96	0.82	0.06	0.66
2015	-0.84	-1.00	-0.19	-0.83	-0.98	0.83	0.10	0.65
2016	-0.85	-0.99	-0.08	-0.85	-0.98	0.84	0.10	0.66
2017	-0.86	-0.99	-0.16	-0.55	-0.93	0.87	0.37	0.77
Average	-0.58	-0.89	0.23	-0.86	-0.87	0.74	0.41	0.56

cured and smoked fish, frozen fillet meat mince to USA. The share of the export in fresh chilled fish, cured and smoked fillets is less which can be the factor contributing to the less RCA. The primary market for these products is the developing countries where the preference of the people is these low valued fishes¹². The average RCA value for the frozen fish was positive showing the comparative advantage but India exports finfish in frozen form which is imported and further reprocessed it and sold it at higher prices by proper value additions¹². So it's revealed that India has highest comparative advantage is exporting the crustaceans (shrimps and molluscs). As the production of shrimps is increasing year by year in India so more and attention is needed to promote the shrimp export and at the same time do proper value additions which can fetch higher prices in the international markets. It was revealed that some financial incentive schemes are sponsored by MPEDA to provide support for export promotion and market development¹³. It was also emphasized on export market research, diversification of fishing area and market destinations in order to make shrimp exports sustainable¹⁴.

Conclusion

The export of fishes is of immense importance when observed from the point of protein and nutritional security. As the awareness of nutritional benefits has increased, the trade of fish internationally

has gone high. The export performance of Indian seafood has shown a tremendous growth especially when exporting to high demanding country like USA. Amongst all the seafood items exported crustaceans contributed the highest share as the USA is developed country with high profile and high income people the consumption of shrimps and lobsters was more. The export competitiveness revealed that there is a need for policy measures to make export sustaining over the years by taking proper sanitary and post-harvest measures so that high quality fish gets exported. India is more competitive in exporting crustaceans (shrimps and lobsters) so there is need to maintain the processing standards and follow proper HACCP measures.

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Conflict of Interest

The authors declared no conflict of interest.

Author Contributions

Manuscript was prepared by UN, MYT supervised the study and NRK supported in analyzing and reviewing the manuscript.

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