



Status and Competitiveness of Fish Exports to European Union

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Abstract

Fish trade is an important source of foreign exchange for India with total earnings of US\$ 5511.12 million in 2014-15. The European Union (EU) is an important market destination for Indian fish and fishery products with a share of 20.08% in value. In this study, an attempt has been made to analyse the status, performance and competitiveness of Indian fish exports to the EU. The study is based on data collected from UNCOMTRADE statistical database of United Nations for the period 2000-2014. Unit Value Realization, Revealed Comparative Advantage (RCA) and share of individual items in total export, were calculated to measure the performance and comparative advantage. Crustaceans, molluscs, fish frozen/whole, fish chilled/whole and fish meat /fillets formed the major product composition of Indian exports to the EU. Among fish products exported over the years, crustaceans contributed highest (54.74%) followed by molluscs (40%), frozen fish (2.81%) and fish fillets (2%). The unit value realised was high for live fish (26.24) followed by fish cured and smoked (6.64) and crustaceans (6.6). RCA for total fish exports revealed that India has comparative advantage with RCA more than 1 throughout the period. RCA value for 2014 was 1.55 which is the highest value witnessed since 2000. However, fluctuating RCA is a concern unless it is taken care of by suitable policy measures. Product wise RCA showed that India has comparative advantage in exporting molluscs (3.20) and crustaceans (2.6) and comparative disadvantage in exporting frozen fish, fillets, chilled and live fish. The RSCA values showed similar trends as the RCA.

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Introduction

Fisheries and aquaculture provides livelihood and income for an estimated 54.8 million people engaged in fish production worldwide during 2010. In the last three decades (1980–2010), world food fish production from aquaculture has increased by almost 12 times, at an average annual rate of 8.8%. Asia accounts for more than 87% of the world total fish production from aquaculture (FAO, 2012). About 38% of the fish and fishery produce are traded internationally. About half of the trade in fish and fishery products originated from developing countries and are destined for the developed markets of EU, USA and Japan (Anon, 2008).

Fisheries sector is considered as a sunrise sector of Indian economy. Exports of fisheries products contributed 24.16% of the fisheries GDP of India during 2012-13 (Government of India, 2014). Seafood export forms largest group of commodity of agricultural trade from India. With growing demand for seafood all over the world, trade of fish and fishery products from India is increasing. Export earning of India reached US\$ 5511.12 million in the year 2014-15, with the growth rate of 6.86% in quantity and 10.05% in value compared to the previous year (MPEDA, 2014).

The composition of fish exports from India included frozen shrimp followed by frozen finfish, frozen cuttlefish, frozen squid, dried items, chilled items, live items and others. Their contribution to the export value (US\$) was 67.19, 11.30, 5.48, 3.81, 3.02, 1.90, 0.90 and 6.40, respectively during 2014-15 (MPEDA, 2014). The USA, South East Asia, European Union, Japan and Middle East are the important markets for Indian seafood, jointly contributing 83% of the total export by quantity and 87% by value.

The European Union continued to be one of the major export destinations for Indian sea food with a share of 20.08% in value and 17.87% in quantity during 2014-15. The EU has been most unstable market for Indian fish exports till 1999 after which India's exports to EU started increasing steadily (FAO, 2012). EU, thus is a very important market for Indian seafood and has a significant role to play in Indian seafood trade. This study is an attempt to analyse the trend, performance and competitiveness of Indian seafood exports to the European Union market.

Materials and Methods

The export data was collected from the UNCOMTRADE statistical database of the United Nations for the years 2000-2014. All the values of export and imports have been referred in US dollars to net out the effects of changes in exchange rate.

The share of export of individual items of fish and fishery products from India to EU was calculated using equation as below:

Share of Indian fish exports to EU in n^{th} year

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

Trade balance/ net trade was calculated to analyze the pattern of bilateral trade taking place between India and EU in fish and fishery products. Trade balance is the difference between India's export to EU and India's import from EU.

Unit Value Realization was estimated by the ratio of total export value to export quantity which gives the value realized per kg of product.

Revealed Comparative Advantage (RCA) is one of the most widely used measures for studying comparative advantage of exports. RCA was used to study the comparative advantage of Indian seafood exports in the EU market for the period 2000-2014.

$$RCA = \frac{\text{Indian fish exports to EU} - \text{Total exports of India to EU}}{\text{World fish exports to EU} - \text{World Total exports to EU}}$$

A comparative advantage is "revealed" if $RCA > 1$. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or industry.

Relative Export Advantage (RXA), Relative Import Advantage (RMA) and Relative Trade Advantage

(RTA) are the three measures offered by Vollrath (1991). The RXA is similar to the RCA of Balassa (1965). The other two measures signify the relative import (dis) advantage and net trade (dis) advantage respectively as used by Nikita et al. (2009). Revealed Symmetric Comparative Advantage (RSCA) given by Dalum et al. (1998) is as follows;

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

Results and Discussion

India's fish export to EU has been increasing over the years. The increase is more in terms of value rather than quantity as shown in Fig. 1. Upon analysing the share of individual items in total fish exports of India to EU, it was found that major items exported were crustaceans (54.74%), molluscs (40%), frozen fish (2.81%) and fish fillets (2%). During 2000-2014, Crustaceans contributed highest (66.9%), followed by molluscs (29.5%), frozen fish (1.94%) and fish fillet (1.36%) as shown in Fig. 2. This shows crustaceans and molluscs are the major commodities exported to EU contributing to more than 90% of the total Indian fish exports to EU.

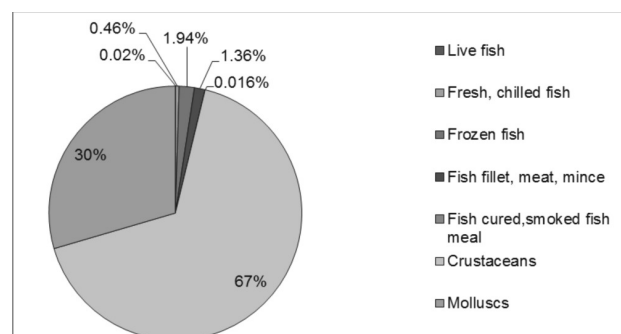


Fig. 1. Composition of Indian seafood exports to EU (2000-14)

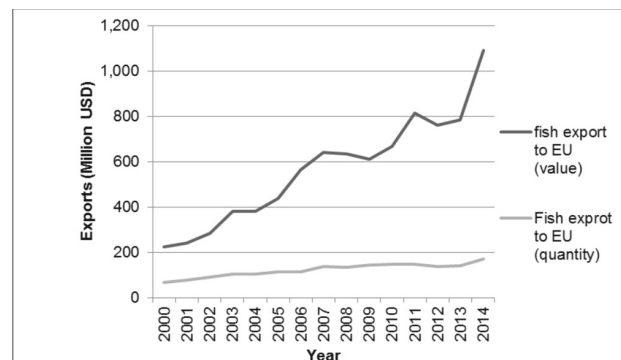


Fig. 2. Performance of Indian seafood export to EU (2000-14)

Trade balance shown in Table 1 revealed that net trade for Indian fish exports to EU was positive. This indicates that even though there is bilateral trade between India and EU in seafood products, India is a major exporter of seafood to EU rather than being an importer of seafood from EU.

Unit value realization gives the clear picture of the export composition in terms of quantity and value. Total unit value of fish exports from India to EU has been increasing over the years from \$3.34 kg⁻¹ in 2000 to \$6.39 kg⁻¹ in 2014. The average unit value of India's total fish exports to EU was \$4.38 kg⁻¹. Commodity wise export (Table 2) reveals that on an average, unit value was high for live fish (\$26.24 kg⁻¹) followed by fish cured smoked (6.65), crustaceans (6.62) and others. Apart from live fish which includes both edible as well as ornamental fishes, crustaceans like shrimp, molluscs like squid and cuttlefish are important product composition fetching higher value in EU market.

RCA of Indian seafood exports are presented in Table 3. Commodity-wise RCA (Avg) revealed that it was highly positive for molluscs (3.20) followed by crustaceans (2.6) indicating that India has a strong comparative advantage in exporting these

commodities to EU. India has no comparative advantage in exporting live fish, fresh frozen fish, chilled fish, fish fillet and fish cured to EU. Comparative advantage in exporting crustaceans and molluscs to EU may be due to the fact that these two commodities contribute for more than 90% of India's total seafood exports to EU and also fetch high unit value. Moreover, export of crustaceans and molluscs has been increasing over the years. Comparative disadvantage for commodities other than molluscs and crustaceans may be because of their lower share in the exports. Live fish has realised high unit value but its share to the export basket is very small (0.06%). RCA value for total fish products exported to EU was above 1 all over the years indicating competitiveness for India. However, fluctuating RCA is a matter of concern for Indian fish exports. This may be due to poor quality and lack of value addition in exports. RSCA values also revealed the same results with only crustaceans and molluscs having positive values in terms of comparative advantage (Table 4).

EU is one of the important trading partners of Indian fish export. The main components of fish export were high value commodities like live fish, fish cured smoked, mollusc and crustaceans. Live

Table 1. Trade balance of fish between India and EU (2000-14)

Period	India's export of fish to EU(US\$)	India's import of fish from EU (US\$)	Trade balance
2000	226,115,397	423,359	225,692,038
2001	241,362,052	366,269	240,995,783
2002	285,388,114	895,210	284,492,904
2003	380,095,980	1,081,937	379,014,043
2004	381,374,512	2,099,018	379,275,494
2005	437,315,182	1,723,356	435,591,826
2006	563,920,278	1,477,516	562,442,762
2007	642,933,595	2,168,034	640,765,561
2008	634,766,819	2,318,230	632,448,589
2009	615,884,423	2,835,815	613,048,608
2010	669,331,486	3,022,984	666,308,502
2011	815,225,776	5,172,402	810,053,374
2012	761,890,587	3,602,573	758,288,014
2013	784,420,910	5,609,798	778,811,112
2014	1,091,988,296	8,833,853	1,083,154,443

Source: UNCOMTRADE statistical database of United Nations

Table 2. Commodity-wise Unit Value Realization from fish exports to EU

Period	Total (03)	Live fish (0301)	Fresh, chilled fish (0302)	Frozen fish (0303)	Fish fillet, meat, mince (0304)	Fish cured, smoked, fish meal (0305)	Crustaceans (0306)	Molluscs (0307)
2000	3.34	16.25	5.74	2.20	2.36	-	6.54	2.11
2001	3.08	18.05	4.69	2.13	2.40	-	6.45	2.02
2002	3.07	18.31	5.50	2.03	2.04	2.40	4.59	2.23
2003	3.61	22.83	5.43	2.17	2.49	16.36	5.25	2.59
2004	3.65	24.84	4.79	2.07	2.91	4.61	5.78	2.50
2005	3.78	30.36	4.81	2.27	3.01	2.71	5.92	2.67
2006	4.22	24.04	4.55	2.38	3.11	6.28	6.40	3.05
2007	4.69	24.57	4.35	2.23	4.08	2.44	6.84	3.62
2008	4.68	24.93	5.64	2.53	4.61	0.00	6.39	3.69
2009	4.23	31.72	4.73	2.66	4.66	1.94	6.10	2.93
2010	4.47	30.28	5.84	2.75	3.71	5.71	6.55	3.38
2011	5.47	28.31	6.73	3.06	3.94	5.45	7.76	4.31
2012	5.54	28.12	5.65	3.39	4.17	25.07	7.23	4.48
2013	5.49	32.13	6.10	3.26	3.55	7.99	8.02	3.72
2014	6.40	38.96	6.17	3.39	4.78	5.46	9.53	3.83
Average	4.38	26.25	5.38	2.57	3.45	6.65	6.62	3.14

Source: UNCOMTRADE statistical database of United Nations

Table 3. Revealed Comparative Advantage (RCA) of Indian seafood exports to EU during 2000-14

Period	Total (03)	0301 Live fish	0302 Fresh, chilled fish	0303 Frozen fish	0304 Fish fillet, meat, mince	0305 Fish cured, smoked, fish meal	0306 Crustaceans	0307 Molluscs
2000	1.45	0.07	0.01	0.28	0.15	-	2.04	3.62
2001	1.39	0.08	0.01	0.31	0.11	-	2.03	3.62
2002	1.54	0.08	0.01	0.19	0.09	0.0006	2.48	3.19
2003	1.74	0.07	0.01	0.17	0.04	0.0008	2.30	2.90
2004	1.46	0.10	0.01	0.16	0.04	0.0014	2.51	3.07
2005	1.40	0.08	0.01	0.18	0.04	0.0004	2.52	3.11
2006	1.46	0.07	0.02	0.26	0.03	0.0006	2.56	3.27
2007	1.36	0.06	0.02	0.43	0.05	0.0001	2.76	3.24
2008	1.23	0.06	0.03	0.45	0.07	0.0000	2.73	3.15
2009	1.23	0.06	0.03	0.40	0.08	0.0004	3.05	3.05
2010	1.11	0.07	0.02	0.25	0.08	0.0012	2.61	3.53
2011	1.11	0.06	0.02	0.25	0.08	0.0000	2.63	3.11
2012	1.26	0.05	0.02	0.19	0.08	0.0090	2.87	3.27
2013	1.21	0.05	0.02	0.18	0.08	0.0000	3.24	3.23
2014	1.55	0.04	0.02	0.20	0.05	0.0038	3.18	2.63
Average	1.37	0.067	0.018	0.260	0.071	0.0014	2.63	3.20

Source: UNCOMTRADE statistical database of United Nations

Table 4. Revealed Symmetric Comparative Advantage (RSCA) of Indian seafood exports to EU during 2000-14

Period	Total (03)	0301 Live fish	0302 Fresh, chilled fish	0303 Frozen fish	0304 Fish fillet, meat, mince	0305 Fish cured, smoked, fish meal	0306 Crustaceans	0307 Molluscs
2000	0.18	-0.87	-0.98	-0.57	-0.74	-	0.34	0.57
2001	0.16	-0.85	-0.98	-0.53	-0.80	-	0.34	0.57
2002	0.21	-0.85	-0.99	-0.68	-0.84	-0.999	0.42	0.52
2003	0.27	-0.86	-0.98	-0.71	-0.93	-0.998	0.39	0.49
2004	0.19	-0.82	-0.98	-0.73	-0.93	-0.997	0.43	0.51
2005	0.17	-0.86	-0.98	-0.70	-0.92	-0.999	0.43	0.51
2006	0.19	-0.87	-0.95	-0.59	-0.93	-0.999	0.44	0.53
2007	0.15	-0.89	-0.96	-0.40	-0.91	-1.000	0.47	0.53
2008	0.10	-0.89	-0.95	-0.38	-0.86	-1.000	0.46	0.52
2009	0.10	-0.88	-0.94	-0.43	-0.86	-0.999	0.51	0.51
2010	0.05	-0.87	-0.96	-0.60	-0.85	-0.998	0.45	0.56
2011	0.05	-0.89	-0.95	-0.60	-0.86	-1.000	0.45	0.51
2012	0.11	-0.90	-0.96	-0.67	-0.85	-0.982	0.48	0.53
2013	0.10	-0.91	-0.96	-0.69	-0.86	-1.000	0.53	0.53
2014	0.22	-0.92	-0.96	-0.67	-0.91	-0.992	0.52	0.45
Average	0.15	-0.87	-0.97	-0.60	-0.87	-1.00	0.44	0.52

Source: UNCOMTRADE statistical database of United Nations

fish had high unit value realisation, followed by cured smoked fish and crustaceans. Lack of value addition in the products might have resulted in low unit value. Nikita et al. (2009) reported that the concentration of exports in block frozen forms, with little or no value addition, was the main reason for low value realization for finfish exports.

RCA above 1 realised for only two commodities indicates that export competitive advantage was only in these two products. Nikita et al. (2009) in her study also concluded that among different marine products, India has no comparative advantage in finfish export. India exports finfish mostly in frozen form, which is used as a raw material by the importing countries. It is reprocessed and re-exported or channelled into the domestic market in retail packs. Further, tariff profile charged by EU to Indian fish exports is high which might have also resulted in less exports and comparative disadvantage. The demand for only high value items like crustaceans (shrimps and lobsters) and molluscs (squid and cuttlefish) may be another reason for less export of other products to EU.

Fluctuations in the value of RCA and RSCA over the years suggests for change in policy to encourage stronghold in aquaculture, adoption of latest seafood safety standards, value addition in exports and to promote better harvesting as well as processing practices (Nikita et al., 2009). Shyam et al. (2004) suggested the acceptance of quality standards like HACCP facilitate Indian seafood trade conforming to international quality standards. Since India has gained comparative advantage in crustaceans and molluscs, there is scope for value addition of export of these two commodities to fetch higher prices. All these steps will help in increasing demand for Indian fish and fish products that will make Indian fish export more competitive in international market.

Fluctuating RCA for total fish products over years during the study period indicates fluctuation in India's comparative advantage in export of fish to EU. This may be due to high and ever changing food safety norms in EU that hinders the pace of export growth to EU from India. This requires vigilant and alert monitoring system that can keep watch on probable changes in food safety measures in EU and

suggest proactive actions to ward off detrimental effect of those changes on export from India. Value addition of export products will go a long way for bettering the value realisation and improving the competitiveness of Indian seafood industry. This will also create more employment opportunity for Indian youth and increase earning in the sector.

Fish is one among the important traded commodities in the world. Due to increasing awareness of the nutritional benefits of fish, fish trade has been increasing over the years. This can be advantageous for India to increase fish exports with high quality farmed products as per the demand in international markets. EU is a stable, promising destination for India in fish exports. With proper monitoring, updating of the seafood standards practiced, bringing innovative ideas of value addition in export of items like crustaceans and molluscs can make India realise more competitiveness in EU. Again, many fish exporting countries like Thailand, Vietnam, etc are suffering loss of production due to disease outbreaks in the aquaculture sector due to which there is lot of demand for fish products from India in these nations. This can also be a positive note for India to gain a competitive edge in global market. This will help India in establishing a stronghold not only in EU but also in other international markets and thus can sustain exports of fish.

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References

- Anon (2008) Fisheries and International Trade- Department for International Development (DFID) and Marine Resources Assessment Group (MRAG)-Policy Brief 7, United Kingdom (www.dfid.gov.uk) (Accessed on 5 February, 2015)
- Anon (2000-2011) WTO Statistical Database. World Trade Organization, Geneva. (www.wto.org) (Accessed on 5 February, 2015)
- Balassa, B. (1965) Trade liberalization and 'revealed' comparative advantage. *The Manchester School of Economic and Social Studies*. 32: 99-123
- Dalum, B., Laursen, K. and Villumsen, G. (1998) Structural change in OECD export specialisation patterns: de-specialisation and 'Stickiness'. *Int. Rev. Appl. Econ.* 12: 447-467
- FAO (2012) The State of World Fisheries and Aquaculture. 10 p. Food and Agriculture Organization of the United Nations, Rome
- Government of India (2014) Handbook on Fisheries Statistics, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Government of India
- MPEDA (2014) One million tonnes of marine products exports from India fetches a foreign exchange of US\$ 5.5 billion in 2014-15- press release, Ministry of Commerce, Govt. of India, Cochin. (<http://www.mpeda.com/frontpage/stat1415.pdf>) (Accessed on 9 June, 2014)
- Nikita, G. and Unnithan, G.R. (2006) Fisheries & WTO. In: *Fisheries Policy Update*, Central Institute of Fisheries Technology, Cochin
- Nikita, G., Jeyanthi, P., Geethalakshmi, V. and Unnithan, G. R. (2009) Indian finfish exports – An analysis of export performance and Revealed Comparative Advantage. *Agric. Econ. Res. Rev.* 22: 291-297
- Shyam, S. S., Sekhar, C., Uma, K. and Rajesh, S. R. (2004) Export performance of Indian fisheries in the context of globalisation. *Indian J. Agric. Econ.* 59: 17
- UNCOMTRADE (2010-12) United Nations Commodity Trade Statistics Database – get trade data (<http://comtrade.un.org/db/dqQuickQuery.aspx>) (Accessed on 9 June, 2014)
- Vollrath, T. L. (1991) A theoretical evaluation of alternative trade intensity measures of Revealed Comparative Advantage. *Rev. World Econ. (Weltwirtschaftliches Archive)* 127(2): 265-280