

An Economic Analysis Of Production And Export Performance Of Marine Fish Products

N.SAHARBAN

PhDResearch Scholar in Economics, V.O.Chidambaram College, Thoothukudi– 628 008
Affiliated to Manonmaniam Sundaranar University, Abishekapatti, Tirunelveli – 627012,
Tamil Nadu, India.

Abstract

Marine fish is a good source of food, and it is not exhaustible immediately and efficiently in the short run. The present study focuses on explaining the production and export performance of marine fish products in India and Tamil Nadu during the year 2000-01 and 2017-18.

The objectives of the present study are:

1. To study the marine fish production of inland and marine capture in the World from 2005 to 2015.
2. To find out the average amount of fish production and stability of performance of inland and marine fish capture of the World during the period 2005 to 2015.
3. To list out exports of a variety of marine products in India during the year 2000-01 and 2017-18 and
4. To study the production and export performance of marine fish and fish products in Tamil Nadu during the year 2000-01 and 2017-18

The study based on secondary data from 2000-01 to 2017-18. The secondary data collected from books, journals, magazines, newspapers, periodicals, reports, internet, unpublished Ph.D thesis District Collector Office, Department of Fishery of the Government of Tamil Nadu and Policy Note of the Government of Tamil Nadu, Department of Fisheries and Village Administrative Offices and unpublished records of District Industries Centre (DIC). The tools used for the study were percentage analysis, mean, standard deviation, compound growth rate and coefficient of variation. It could be seen that production performance of marine capture of world fish show a smaller proportion than inland capture in all the years during the period 2005 to 2015. The value of the coefficient of variation specifies that the production performance of inland fish capture was relatively stable over 11 years compared to production performance of marine fish capture. India and Tamil Nadu have recorded the utmost amount of growth in the marine fish production, during the year 2017-18.

Keywords: fishery, a national asset, export earnings, marine capture, fish production.

INTRODUCTION

The fishery is a national asset and bears the heritage of all the people. Fish are a vital source in countries like Japan, Norway, Sweden, Iceland and Germany (Sivakami, S., 2009). Export earnings from the marine sector increased from rupees 3.92 crores in 1961-1962 to rupees 12901.47 crores in 2010-2011 registering 11.8 per cent growth during 2009 - 10 (www.mpeda.com).

India has a coastline of about 8118 kilometres, with an Exclusive Economic Zone (EEZ) of 2.02 million square kilometres, comprising 0.86 million square kilometres to the west coast, 0.56 million square kilometres on the east coast, 0.60 million square kilometres around the Andaman and Nicobar Islands (<http://www.un.org/depts>). India is the third-largest producer of fish, preceded by China and Peru.

India is the second-largest producer of freshwater fish preceded by China, seventh-largest producer of capture fish in the world and harbour a large percentage of the world's fishermen (Bavinck et al. 2008). The total fisherfolk population of the nation is 3.52 million, having 0.72 million energetic fishermen (CMFRI, 2005).

About 10 percent of fish production is exported, bringing in foreign exchange earnings of Rs 8607.97 crores in 2008-2009 (FSI, 2009). In India, the continental projection extends up to 41,412 km with 23,255 km being upto 50 m depth and 18,157 km between the 51-200m depth (DoA, 2011).

India occupies the seventh rank in the top ten fish producing countries, but in fish consumption, India is ranked 136th position (Nambiar, K.R.P, 2008). The lower Tamil Nadu Coast, especially the coastline of the districts of Tuticorin, Tirunelveli, Kanyakumari and Ramnad is essential for the production of fishes with high unit value, and this part of the coastline contributes to around 60 per cent of the total catches from the state with export value (Endeavour and Achievement, 1997). The present study focuses on explaining the production and export performance of marine fish products in India and Tamil Nadu during the year 2000-01 and 2017-18.

OBJECTIVES

The objectives of the present study are:

- 1) To study the marine fish production of inland and marine capture in the World from 2005 to 2015.

- 2) To find out the average amount of fish production and stability of performance of inland and marine fish capture of the World during the period 2005 to 2015.
- 3) To list out exports of a variety of marine products in India during the year 2000-01 and 2017-18 and
- 4) To study the production and export performance of marine fish and fish products in Tamil Nadu during the year 2000-01 and 2017-18.

METHODOLOGY

The study based on secondary data from 2000-01 to 2017-18. The secondary data collected from books, journals, magazines, newspapers, periodicals, reports, internet, unpublished Ph.D thesis District Collector Office, Department of Fishery of the Government of Tamil Nadu and Policy Note of the Government of Tamil Nadu, Department of Fisheries and Village Administrative Offices and unpublished records of District Industries Centre (DIC). The tools used for the study were percentage analysis, mean, standard deviation, compound growth rate and coefficient of variation.

MARINE FISH PRODUCTION IN THE WORLD

Fish and fishery foods are among the most traded food merchandises worldwide. Fisheries are one of the oldest traditional industries of the world. Fishing equipment and methods improved through the centuries, mechanisation came to fishing in the 20th century. The use of mechanical propulsion for fishing boats was the first significant technological development.

World marine resources include Atlantic Ocean, Pacific Ocean, Indian Ocean, Southern Ocean and the Arctic Ocean. The total coastal line distance of the world is 586153 kilometres, of which Africa has 37,908 kilometres, Asia 163,609 kilometres, Oceania 52,488 kilometres, North and Central America 183,950 kilometres, South America 30,663 kilometres, Europe 69,43 kilometres and former USSR has 47,842 kilometres. In the world coastal line, India accounts for only 0.17 per cent.

Table 1 shows the precise condition of marine fish production of inland and marine capture in the World from 2005 to 2015.

TABLE I
WORLD MARINE FISH PRODUCTION

Year	Inland capture (in Million Tonnes)	Percentage to Total	Marine capture (in Million Tonnes)	Percentage to Total	Total
2005	9.4	10.17	83	89.83	92.4
2006	9.8	10.86	80.4	89.14	90.2

2007	10	11.03	80.7	88.97	90.7
2008	10.2	11.32	79.9	88.68	90.1
2009	10.4	11.54	79.7	88.46	90.1
2010	11.2	12.58	77.8	87.42	89
2011	11	11.76	82.5	88.24	93.5
2012	11.6	12.71	79.7	87.29	91.3
2013	11.7	12.63	80.9	87.37	92.6
2014	11.8	12.65	81.5	87.35	93.3
2015	11.9	12.75	81.4	87.25	93.3

Source: Various Fisheries and Aquaculture statistics reports, FAO.

Comparative total fish production in inland capture and marine capture of World is presented in Table 1. In marine capture, the total fish production was 83 million tonnes in 2005 and from which it decreased to 81.4 million tonnes in 2015. The declining trend in marine fish production is due to monsoon conditions. However, in 2005 the marine fish production reached a peak level of 83 million tonnes. On the other hand, the inland capture fish production for the World showed an increasing trend for 9.4 million tonnes in 2005 to 11.9 million tonnes in 2015.

From Table 1, it could also see that production performance of marine capture of world fish show a smaller proportion than inland capture in all the years during the period 2005 to 2015. The proportion ranges from 89.83 percent during the year 2005 to 87.25 percent during the period 2015. The proportion of inland fish capture, which is 9.4 percent in 2005, had increased to 11.9 percent during 2015 through the amount of production performance of marine capture showed an increasing trend.

The average amount of fish production over a period and stability of performance of inland and marine fish capture of World during the period 2005 to 2015 presented in Table 2.

TABLE 2
AVERAGE LEVEL AND STABILITY OF PRODUCTION OF INLAND AND MARINE CAPTURE OF WORLD FROM 2005 to 2015

Particulars	Inland capture	Marine capture	Total fish production
Mean (X)	10.8182	80.6818	91.5000
Standard Deviation (S.D)	.89310	1.44348	1.58240
Co-efficient of Variation (C.V)%	8.26	1.79	1.73

It inferred from Table 2 that production performance of marine fish capture, on an average over a period was found to be higher than the production performance of inland fish

capture. The average amount over the period from 2005 to 2015 was 80.6818 million tonnes for marine fish capture and 10.8182 million tonnes for inland fish capture. The value of the coefficient of variation specifies that the production performance of inland fish capture was relatively stable over 11 years compared to production performance of marine fish capture.

Exports of a variety of marine products in India

The Indian Seafood Industry nowadays is on a different footing as to what existed in the late sixties. India has taken a significant stand in the Global Seafood Market, and our seafood is one of the biggest foreign exchange-earners. Today we have world-class seafood factories following quality control measures meeting the most severe of international standards. Though shrimp continues to rule our export basket, the Indian Seafood Industry has expanded its product range and its markets.

For many years, Japan was India's chief export market, but in the last two years, the United States has arisen as India's leading export market. We export mainly primary raw material for reprocessing to Japan, whereas our exports to the United States consists of value-added products for direct use in the American Food Service Industry and retail sale in the supermarkets. Our seafood exports now comprise crabs, lobsters and other kinds of fish.

The booming market of India's seafood tolerates and support the entire fisheries sector of the annual 25,000 crore Indian Fisheries segment of which 7000 crores is exported. It is the value realised from exports that give our fishing communities a supportable stable income. What needs to be renowned is that of the 7000 crore exports, more than 50 percent is for shrimp aquaculture. Currently, the Ministry of Commerce and the Marine Product Development Authority work very carefully with the industry for the development of India's seafood exports.

During 2013-14, exports aggregated to 9, 83,756 MT valued at Rs. 30,213.26 crores and US\$ 5,007.70 million. Compared to the year 2012-13, seafood exports recorded a growth of 5.98 percent in quantity, 60.23 percent in rupee and 42.6 percent growth in US\$ earnings respectively. The unit value realisation also reached to record high from US\$/Kg 3.78 during 2012-13 to US\$/Kg 5.09 during 2013-14 and recorded growth of 34.55 percent.

The increased production of shrimp has helped to achieve higher exports. The total export of shrimp during 2013-14 was to the tune of 3, 01,435 MT worth US\$ 3210.94 million. USA is the largest market (95,927 MT) for frozen shrimps exports in quantity terms followed by the European Union (73,487 MT), South East Asia (52,533 MT) and Japan (28,719 MT).

The variety of marine products exports from India is shown in table 3.

TABLE 3
EXPORTS OF VARIETY OF MARINE PRODUCTS IN INDIA

Item	Quantity/Value	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Fr. Shrimp	Quantity in ton	111874	127709	134815	129768	138085	145180	137397	136223	126039	130553	151465	189125	228620	301435	357505	373866	434486	565980
	Value in Crore	4481.5	4139.9	4608.3	4013.1	4220.7	4271.51	4506.08	3941.62	3779.8	4182.4	5718.13	8175.26	9706.36	19368.3	22468.1	20045.5	24711.3	30868.17
	US\$ Million	985	871.03	953.44	876.64	938.41	970.43	997.64	980.62	839.28	883.03	1261.81	1741.2	1803.26	3210.94	3709.76	3096.68	3726.38	4848.19
Fr. Fin Fish	Quantity in ton	212903	174976	196322	138023	159689	182344	270751	220200	238544	260979	312358	347118	343876	324359	309434	228749	296762	353192
	Value in Crore	874.68	713.11	841.65	620.73	759.27	998.7	1452.88	1303.41	1722.34	2032.3	2623.89	3284.15	3296.86	4294.81	3778.5	3462.25	4460.9	4674.03
	US\$ Million	192.25	150.04	174.63	135.82	168.69	225.94	321.95	326.29	375.24	430.94	583.48	683.5	617.59	708.63	619.66	529.85	672.47	733.17
Fr. Cuttle fish	Quantity in ton	33677	30568	41381	39610	44239	49651	55701	45955	50750	63504	59159	54671	63296	68573	82353	65596	63320	69183
	Value in Crore	288.99	280.07	417.09	435.17	474.01	549.1	797.37	744.13	761.05	923.83	1104.57	1346.72	1354.28	1386.98	1833.21	1636.11	1944.5	2356.46
	US\$ Million	63.52	58.93	86.37	94.91	104.89	124.48	175.75	185.66	168.27	195.69	244.62	282.72	251.54	228.13	300.69	250.31	292.73	369.88
Fr. Squid	Quantity in ton	37628	39790	37838	37832	48124	52352	47252	34172	57125	61445	87579	77373	75387	87437	69569	81769	99348	100845
	Value in Crore	324.43	329.67	384.37	372.92	477.26	575.52	568.32	408.42	632.35	622.63	1010.57	1228.19	1378.08	1731.97	1275.25	1615.21	2575.29	2451.87
	US\$ Million	71.31	69.36	79.83	81	106.63	130.49	126.25	101.29	142.87	132.24	223.67	262.72	256.9	284.6	209.84	247.53	388.64	385.01
Dried items	Quantity in ton	7532	8307	8178	12574	9692	14167	24293	22414	31688	47053	79059	53721	72953	67901	70544	43320	61071	88997
	Value in Crore	70.22	67.96	84.23	145.68	121.01	132.56	183.16	258.88	420.75	981.11	954.9	562.65	819.9	998	1010.16	725.58	871.7	1042.37
	US\$ Million	15.43	14.3	17.46	31.69	27.09	30.03	40.75	64.72	92.51	208.72	212.22	117.66	152.81	167.89	165.52	111.57	199.77	163.53
Live items	Quantity in ton	1844	1628	2115	2341	2262	2568	2478	2498	3434	5492	5208	4199	4373	5080	5488	5493	6703	7034
	Value in Crore	39.88	40.57	53.66	51.1	50.75	61.71	64.06	69.07	99	139.14	142.15	154.61	197.89	281.85	301.51	308.81	403.75	286.11
	US\$ Million	8.77	8.54	11.12	11.15	11.31	13.99	14.22	17.21	21.82	29.52	31.46	32.46	36.82	46.7	49.62	47.77	61.05	45.41
Chilled items	Quantity in ton	3820	3284	3350	3779	3988	5060	7200	6541	21453	28817	21118	21278	26868	19755	31404	33150	31815	19501
	Value in Crore	71.63	63.66	59.14	64.03	68.14	81.56	117.3	118.11	217.34	264.49	257.54	357.42	537.11	527.83	635.93	809.5	769.81	647.41
	US\$ Million	15.74	13.39	12.27	14	15.16	18.4	26.63	29.62	48.39	55.87	56.93	74.03	99.87	88.48	104.71	124.51	116.02	101.78
Others	Quantity in ton	31195	38209	43299	48090	55250	60841	67571	73698	73801	80592	97145	114538	112841	109212	124947	113949	141442	172512
	Value in Crore	292.54	322.09	432.88	389.23	475.58	574.58	674.35	777.29	975.33	902.64	1089.67	1488.24	1565.78	1623.5	2138.94	1817.78	2133.59	2780.48
	US\$ Million	64.3	67.77	89.79	85.54	106.29	130.46	149.72	193.68	220.24	196.84	242.72	314.16	292.86	272.34	351.31	279.71	320.54	434.58
Total	Quantity in ton	440473	424470	467297	412017	461329	512164	612641	541701	602835	678436	813091	862021	928215	983756	1051243	945892	1134948	1377244
	Value in Crore	6443.9	5957.1	6881.3	6092	6646.7	7245.3	8363.53	7620.92	8607.94	10049	12901.5	16597.2	18856.3	30213.3	33441.6	30420.8	37870.9	45106.89
	US\$ Million	1416.3	1253.4	1424.9	1330.8	1478.5	1644.21	1852.93	1899.09	1908.63	2132.8	2856.92	3508.45	3511.67	5007.7	5511.12	4687.94	5777.61	7081.55

Source: www.mpeda.gov.in, 2018

It is seen from the Table 3 that, Frozen Shrimp, Frozen fish, Frozen Cuttlefish, Frozen Squid, Frozen Squid, Dried Item, Live Items, Chilled Items formed the major export items of fish to India during the year 2000-01 to 2017-18.

PRODUCTION AND EXPORT OF MARINE FISH IN TAMIL NADU

Tamil Nadu is having a coastline of about 1076 kms. It has 13 coastal districts and 591 fishing villages with a total marine fishermen population of about 8.61 lakhs, of which 2.60 lakh fishermen are actively engaged in fishing. The fishing fleet strength of Tamil Nadu includes 6200 mechanised fishing crafts and 49,804 traditional crafts of which vallam

constitutes 18,812 and catamarans 30,992. Tamil Nadu ranks third in marine fish production and the annual marine fish catch for the year 2008-09 was 3.97 lakh tonnes.

The state has the potential to emerge as a significant exporter of marine products. During 2008-09, about 68,397 tonnes of marine products valued at Rs.177220 lakhs was exported from Tamil Nadu. Tamil Nadu is one of the critical coastal states on the east coast, pioneering and implementing many developments and welfare schemes.

The Planning and the public policy on fishery have tremendously improved this sector in the State. Input supply programme, creation of infrastructure and fishery policies in the plans have contributed well in the marine fishery development of the State. Technology, marketing and export potential of marine fish resources have significantly added to the progress of this sector.

The production and export performance of marine fish and fish products in Tamil Nadu during the year 2000-01 and 2017-18 is portrayed in table.4.

TABLE.4**EXPORT OF MARINE FISH AND FISH PRODUCTS IN TAMIL NADU**

S No.	Year	Production (in Tonnes)	Quantity (in Tonnes)	Value (in Lakhs)
1	2000-2001	372402	53005	192264.00
2	2001-2002	373861	58482	201640.00
3	2002-2003	379214	70147	250787.00
4	2003-2004	381148	68462	207116.00
5	2004-2005	307693	70809	206804.00
6	2005-2006	389713.07	72418	199572.00
7	2006-2007	392191.32	72883	206805.00
8	2007-2008	393266.22	72644	181314.00
9	2008-2009	392117.22	68397	177220.00
10	2009-2010	401128.00	73327	198207.47
11	2010-2011	424823.85	76181	286019.00
12	2011-2012	426735.44	76538	298461.25
13	2012-2013	429641.24	79507	314675.04
14	2013-2014	453979.00	81094	364287.49
15	2014-2015	460029.8	83647	395704.57
16	2015-2016	466604.032	85063	418400.06
17	2016-2017	472004.34	79336	391400.39
18	2017-2018	497836.00	114337	540769.08
	CGR	1.72%	4.63%	6.27%
	Average	411910.4184	75348.7222	279524.7972
	SD	46269.39348	12613.81076	104547.28049

Source: Tamil Nadu State Fisheries Department (TNFD), various issues.

Table 4 presents the production and export trend of fish and fish products in Tamil Nadu. The growth of fish production is 372402 tonnes during the year 2000-01. Tamil Nadu has recorded the utmost amount of growth in the marine fish production, during the year 2017-18. The growth of fish production is 497836 tonnes during the same year. During the years 2004-05 and 2008-09, the growth of fish production was negative.

Export of fish and fish products augmented from 53005 tonnes during the year 2000-01 to 114337 tonnes during the year 2017-18. In value terms, the export of fish and fish products has increased from 192264lakhs to 540769.08 lakhs during the same period. However, for the year 2004-2005 even though there is an increase in terms of quantity, the value is less. The export of marine products does not show an increasing trend, but it serves as an excellent foreign exchange earner when compared to the other agricultural products.

The Compound Growth Rate for the growth of fish production during the year 2000-01 and 2017-18 of Tamilnadu was 1.72. Average and Standard Deviation values were 411910.42 and 46269.39, respectively in that particular period. The Compound Growth Rate for the export quantity of fish during the year 2000-01 and 2017-18 of Tamilnadu was 4.63%. Average and Standard Deviation values were 75348.72 and 12613.81, respectively in that particular period.

The Compound Growth Rate for an export value of fish during the year 2000-01 and 2017-18 of Tamilnadu was 6.27%. Average and Standard Deviation values were 279524.79 and 104547.28, respectively in that particular period. It reveals that there is positive and stable growth of production and export performance of marine fish and fish products in Tamil Nadu during the year 2000-01 and 2017-18.

CONCLUSION

Exports of marine foods have played a key role in emerging the fishing and aquaculture sectors in India. Over 14 million people are working in the fisheries and related activities, and this makes the fishery sector a key player in poverty mitigation and employment.

The current study emphasises on illumination the affordability of seafood trade in India and its effectiveness and relative gain in the Indian market. These results have exposed that India does have a comparative advantage in exporting fish and fish products. It is a positive sign for fisheries as growing business and emphasised for further development and study in order to make fisheries more profitable and competitive in the international market. If proper

attention has been paid towards the export procedure and quality enhancement in the export of seafood, India can incorporate this irregularity in competitiveness which leads fisheries a primary foreign currency contributing sector.

By focusing the fisheries and seafood export can result to enhance the international transactions, which lead to further development in the fisheries sector. There is still need for further improvement, which may encourage more trade, rural development and foreign exchange shortly.

Observance this in view, it is essential to develop long term plans for the development of exports based on a long term strategy. It can be concluded here that India owns the potential which should be emphasised and promoted as the same time significant determinants like fluctuations of price in international market and exchange rate should be incorporated to achieve expected growth rate.

REFERENCES

1. Bavinck, M.R., Chuenpagdee, H. Diallo, HeijdenPrander, J.Kooiman, R. Mohan and S.Williams, 2008, "Fishery Governance A guide to better practice", Delft. Eborn Academic Publishers.
2. CMFRI 2011. Annual Report 2010-11. Central Marine Fisheries Research Institute, Cochin, 163 pp.
3. Department of Animal Husbandry, Dairy and fisheries, Annual Report 2010-2011, pp 21.
4. Endeavour and Achievement, Fisheries Statistics, Directorate of Tan Nadu State Fisheries, Government of Tamil Nadu, Madras, 1997.
5. A fishery survey of India, Mumbai, Govt. of India, 2009.
6. <http://www.un.org/depts/los/legislationandtreaties/pdffiles/ind>
7. Nambiar, K.R.P., "Food fish scarcity – An impending reality", Seafood Export Journal, Seafood Exporters Association of India, Cochin, Volume XXVII, No.2, February 2008, p.25.
8. Sivakami, S. and SomyKuriakose 2009. "An appraisal of the marine fisheries of Orissa India". Asian Fisheries Science., 22 (2): 691-705.
9. www.mpeda.com