

ECONOMICS OF RURAL COSTAL FISHING ACTIVITIES IN TIRUCHENDUR TALUK OF TAMIL NADU

A.Shunmugapriya,

Reg.No 19224011032003, Research Scholar in Economics,
Research Centre & Department of Economics, Manonmaniam Sundaranar University,
Abishekapatti,Tirunelveli-12

Dr.J.Sacratees,

Professor & Head Department of Economics,
Research Centre & Department of Economics, Manonmaniam Sundaranar University
Abishekapatti,Tirunelveli-627 012

Abstract

Fisheries sector occupies a very important place in the socio-economic development of the country. This sector is thus an important source of livelihood for a large section of economically backward population of the country, particularly in coastal areas. Fishing is the traditional occupation of a community of fisherman living along the seacoast. Fishing and allied activities constitute an industry and have created employment opportunities for more and more fisherman having different skills in different fields of fisheries. It offers a wide scope to fulfill the objective of production-cum-employment envisaged in the developments plans in India. It provides direct employment to millions of sample fisherman and indirect employment through associate networks like net-making, boat-making, boat-repairing, fish-processing, fish transportation etc. In this context the fisheries sector given high priority since it has the potential of employment generation. They have acquired a secondary status in social life, economic activities, and decision-making. A number of socio-economic constrains limit their work productivity and role in employment and income generating activities. They have the potential to play an active and sometimes dominant role in fishing related activities. The state of Tamil has a coastal length of 1076 k.m which constitutes about 15 per cent of Indian coastal line. There are 695 fishing villages in 16 coastal districts in Tamil Nadu. The fisherman living the coastal fishing villages are 8.79 lakh, which include 4.58 lakh fisherman and 5.31 lakh fishermen. The literacy rate is 77 percent. About 4.70 lakh metric tonnes of fish are caught in commandant coast Palkbay, and Gulf of Mannar coast throughout the year. There are about four lakhs of fishermen in Tamilnadu low, which only about 44,000 are productively employed in fishing related activities in Thoothukudi district, one of the important maritime districts of Tamilnadu the fishing workers are busily engaged in all the shore-based activities often go unnoticed. This will also pave the way for proper compensation for their activities through suitable policy measures. The present research aims at studying the economic appraisal of marine fishing workers in Tiruchendur Taluk, Thoothukudi district.

Key words: Costal, Fishing Environment, Rural, Tiruchendur, economic activities,

Introduction

Tamil Nadu is one of the maritime states of South-East coast of India, extending between latitude 805' N and 13035' North and longitudes 76015' E and 80020' East, and bounded in the East by the Bay of Bengal, Palk Strait and Gulf of Mannar, in the South by Indian Ocean and in the West by the Arabian Sea and the states of Kerala and Karnataka. Tamil Nadu covers East and West Coasts which constitute 15 per cent of India's total coastline. The fishery resources spread over the continental shelf of 41412 kms. The state is rich in fish resources and there are nearly 591 marine fishing villages and 1,41,340 fishermen households in 13 coastal districts. The total marine fisher folk population was 8,17,832 in 2007. About two-third of the fisher folk are literates, about 56.79 per cent of them have high school education, and only 3.34 per cent are employed in Government and other private sector firms.

The state with a coastline of about 1076 kms, comprising the Coromandel, Palk Bay, Gulf of Mannar and West Coast offers excellent scope for fishing throughout the year. The resources are presently exploited by traditional crafts and mechanized fishing boats. Changes in the pattern and mode of fishing operations such as multiday fishing have necessitated an appraisal of the trawl fishery of Tamil Nadu during the last fifteen years. The potential of fishery resources is utilized to a greater extent due to the introduction of more and more mechanized fishing effort to corner more catch per unit effort. Fish food makes a substantial contribution to the protein requirement of people, and most of the fresh fish is consumed within the state. The state has exported marine fish and fish products to the level of 72,883 tonnes, valued at 2,06,805 lakhs in 2007.

Thoothukudi District is situated along the East Coast of India with a coastal length of 163.5 Km forming the final stretch of the Gulf of Mannar. The coast of Thoothukudi District is having 21 fishing villages. Gulf of Mannar, known for rich biodiversity, contributes notably to the total marine fish landings of Tamil Nadu. Thoothukudi is blessed with a wide variety of flora and fauna inhabiting the fragile ecosystems of coral reef and mangroves. Corals and mangroves play a vital role in maintaining the productivity of coastal areas acting as breeding ground, nursery and as habitat for many economically important species. Thoothukudi is located in the midway of the coast of Gulf of Mannar. There are about 399 mechanised fishing boats in Thoothukudi fishing harbour. The fishermen of each mechanized boat spend about 20,000 daily for diesel, food and wages, if they venture throughout the day. Production statistics shows that the inshore waters where the traditional fishermen fish are highly productive. With increased mechanization and expansion of fishing grounds, trawl nets have become the principal gear for exploitation of cephalopods in this gulf. In the Gulf of Mannar, neritic squids and cuttlefishes mainly constitute the cephalopod fishery. The total marine fish production in the district was 48,996 tonnes in 2009-2010, occupying the third place in the state.

Objectives

1. To study the socio-economic conditions of the fishermen households in the sample villages.
2. To study the fishermen-expenditure in fishing net and the number of days of fishing activities of fishermen.
3. To analyses the operational cost at fishermen per production trip.

Methodology

The study is based on both primary and secondary data. The primary data has been collected with the help of a robust interview schedule based on simple random method from the period of six months from June to December 2019. The primary data comprises of basic socio-demographic details of costal fisher folk of Tiruchendur block of Thoothukudi district of Tamil Nadu pertaining to respondents those who are involving fishing activities and its related works. The primary data includes type of shrimp farm production capacity, water usage, effluent discharge, water and soil quality analysis in farms and also nearby land and wetland ecosystem. The secondary sources collected from Costal aqua culture authority world marine fish production, Marine products and exports development authority, Kochi. Director of fisheries f India, Govt of India, food and agriculture organization, World Food Production (FAO) statistics, Central Institute of Brackish water aquaculture, Central marine fisheries research institute, association and Books, Magazines, Journals, Library and websites.

Results and Discussion

Fig-1 Marine Fish Production in Thoothukudi District: Estimated trend models

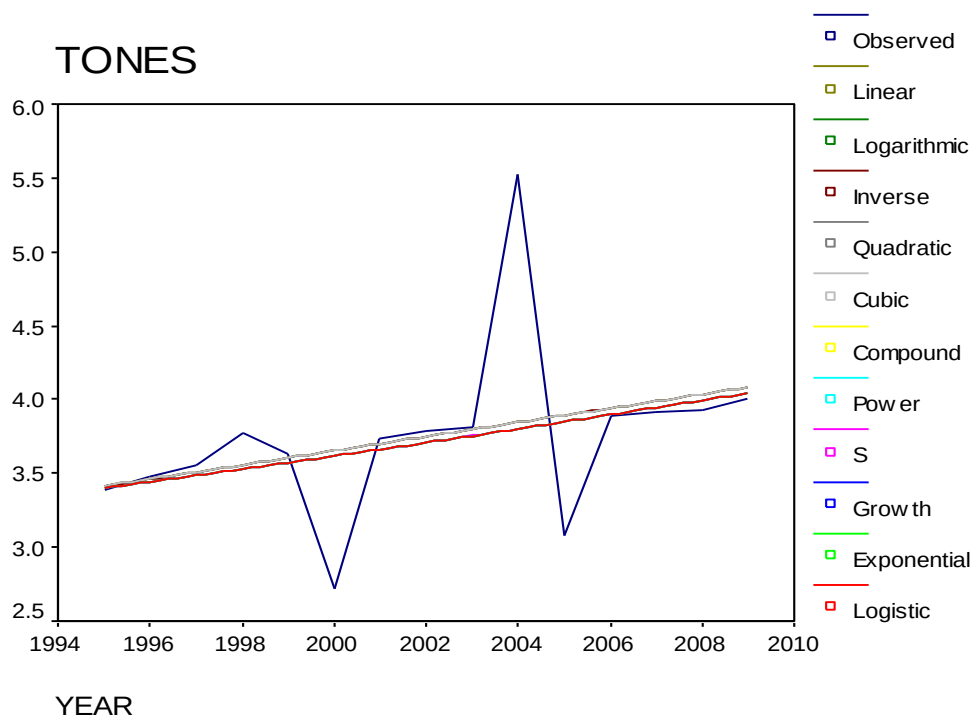


Table-1 Coastal Information of Tamil Nadu

S. No.	Particulars	TamilNadu			
		East coast	West coast	Total	India
1	Coastal length (in km)	1,016	60	1,076 (13.38)	8,041 (100.0)
2	Continental Shelf (in sq.km)				
	i. up to 50m depth ii. 51 m to 200m depth	22,411 11,205	844 6,952	41,412 (7.81)	5,30,000 (100.0)
3.	Exclusive Economic Zone (in million sq. km) extends to 200 nautical miles from shore	-	-	0.19 (9.41)	2.02 (100.0)
4	Territorial waters (in sq. km) (Approximately)	--	--	19,000 (9.41)	202000 (100.0)

Source: Commissioner of Marine Fisheries, Chennai

Note: Figure in parentheses indicates percentage to India.

Tamil Nadu has a coast length of 1,016 km on the east and 60 km on the West. The continental shelf area is 41,412 sq. km with a width of 43 km and EEZ is 0.19 million sq. km. Tamil Nadu has the third longest coastline among the maritime states of India. Some important pelagic varieties available in Tamil Nadu are oil sardines, seerfish, tunnies, mugil, caranx, ribbonfish and anchoviella. The demersal

varieties are pomfrets, perches, red mullets, catfishes, eels sharks, rays, prawn, lobsters and crabs. Tamil Nadu stood first in fish catch followed by West Bengal.

Table -2 Marine Fish Production in Thoothukudi District (Quantity in Tonnes)

Year	Tamil Nadu	Thoothukudi	Average Growth Rate
1992	307349	39575	--
1993	317716	39137	-1.11
1994	330729	37201	-4.95
1995	341317	33658	-9.52
1996	350790	34478	2.44
1997	356487	33609	-2.52
1998	377483	48140	43.23
1999	373926	41678	-13.42
2000	372402	41275	-0.97
2001	373861	41423	0.36
2002	379214	31587	-23.75
2003	381148	32910	4.19
2004	307693	28246	-14.17
2005	389713	50190	77.69
2006	392191	44326	-11.68
2007	393267	46359	4.59
2008	391677	48512	4.64
2009	397312	49000	1.01
AAGR			3.11

Source: Statistics of Marine Products Exports Development Authority
2008, Cochin, India,
FAO Year Book of Fishery, USA,
Statistics and Commissioner of Marine Fisheries, Chennai

The above table-2 reveals that the total marine fish production in Thoothukudi district increased from 39,575 tonnes in 1992-1993 to 49,000 tonnes in the year 2009-2010. The sudden increase of total marine fish production noticed in the year 1998-1999 was due to the favourable fish catching. The AAGR has not been consistent during the reference period as the fish catch varied widely and the annual average growth rate is 3.11 per cent.

Species-wise Marine Fish Production in Thoothukudi

The species-wise marine fish production in Thoothukudi district is depicted in the following table 4.30. It reveals that, species-wise marine fish production in 2007-2008 is 46,359.15 tonnes in Thoothukudi district. The total marine fish production in Tamil Nadu is 3,93,267 tonnes in 2007-2008. The share of species-wise marine fish production in Thoothukudi is 11.79 per cent for the year 2007-2008. The 100 per cent share of Oil sardines is produced in Thoothukudi district during 2007-2008 followed by Ribbon Fish, it contributes 52.06 per cent.

Table-3 Species-wise Marine Fish Production in Thoothukudi District during 2007-2008

Name of the Species	TamilNadu	Thoothukudi	Percentage of share
Sharks	7085.63	1258.85	17.77

Skates & Rays	11990.76	3037.69	25.33
Eels	350.73	33.85	9.65
Cat Fishes	3954.68	457.57	11.57
Chirocentrus	24328.56	4619.62	18.99
Oil Sardines	4870.80	4870.80	100.00
Lesser Sardines	31506.81	4773.92	15.15
Hilsa Llisha	181.48	3.56	1.96
O. illisha	9.93	1.73	17.42
Anchoveilla	13609.42	1042.64	7.66
Thrissocles	2653.71	82.56	3.11
Clupeids	18245.80	1502.32	8.23
Saurida & Saurus	652.86	0	0.00
Hemirhampus	2273.47	167.22	7.36
Flying Fish	1614.14	102.36	6.34
Perches	20032.14	901.24	4.50
Red Mullet	8996.23	402.36	4.47
Polynemids	1809.72	120.36	6.65
Sciaenids	10918.86	1160.57	10.63
Ribbon Fish	3206.46	1669.36	52.06
Caranx	11533.72	1193.92	10.35
Chironemus	1526.72	535.80	35.09
Trachynotus	863.81	2.33	0.27
Ceryph aena	5.63	0	0.00
Elacate	499.28	0	0.00
Silver bellies	31365.97	2494.02	7.95
Lactarius	311.00	41.25	13.26
Pomfrets	2015.33	225.69	11.20
Mackerel	11632.20	271.58	2.33
Seerfish	5959.12	1120.35	18.80
Tunnies	4833.22	215.37	4.46
Spyreana	2160.97	811.54	37.55
Mullet	2497.49	0	0.00
Bregmaceres	992.67	2.35	0.24
Soles	7091.80	0	0.00
Panaeid Prawns	21701.39	2128.71	9.81
N.P. Prawns	948.65	0	0.00
Lobsters	628.28	41.66	6.63
Crabs	24268.55	2518.35	10.38
Cephalo pods	6325.24	1781.58	28.17
Miscellaneous	69316.19	2874.74	4.15
Drepane	324.17	0	0.00
Lethrinus	6570.41	1235.62	18.81
Sillago	4748.25	3.20	0.07
Balisteres	5712.89	2652.51	46.43
Ora	230.62	0	0.00

Source: Commissioner of Marine Fisheries, Chennai.

Table-4 Species-wise Marine Fish Production in Thoothukudi District during 2008-2009

Name of the Species	Tamil Nadu	Thoothukudi	Percentage of share
Sharks	8459.00	1034	12.22
Skates & Rays	8022.00	980	12.22
Eels	399.00	49	12.28
Cat Fishes	4130.00	505	12.23
Chirocentrus	23883.00	2989	12.52
Oil Sardines	5242.00	641	12.23
Lesser Sardines	31695.00	3873	12.22
Hilsa Llisha	198.00	24	12.12
O. illisha	10.00	1	10.00
Anchoveilla	15926.00	1946	12.22
Thrissocles	4529.00	553	12.21
Clupeids	18546.00	2266	12.22
Saurida & Saurus	1112.00	136	12.23
Hemirhampus	2424.00	296	12.21
Flying Fish	3891.00	476	12.23
Perches	22923.00	2917	12.73
Red Mulletts	11185.00	1611	14.40
Polynemids	1865.00	228	12.23
Sciaenids	12629.00	1543	12.22
Ribbon Fish	2424.00	296	12.21
Caranx	11677.00	1427	12.22
Chironemus	1747.00	214	12.25
Trachynotus	953.00	116	12.17
Ceryph aena	8.00	1	12.50
Elacate	518.00	63	12.16
Silver bellies	31770.00	3882	12.22
Lactarius	318.00	39	12.26
Pomfrets	2065.00	252	12.20
Mackerel	9557.00	1412	14.77
Seerfish	8938.00	1092	12.22
Tunnies	4845.00	592	12.22
Spyreana	2224.00	272	12.23
Mulletts	2542.00	311	12.23
Bregmaceres	2065.00	252	12.20
Soles	7197.00	869	12.07
Panaeid Prawns	17951.00	2193	12.22
N.P. Prawns	5162.00	631	12.22
Lobsters	636.00	78	12.26
Crabs	26868.00	3283	12.22
Cephalo pods	6115.00	747	12.22
Miscellaneous	52230.00	6369	12.19
Drepane	238.00	29	12.18
Lethrinus	6475.00	791	12.32
Sillago	4646.00	568	12.23
Balisteres	5202.00	636	12.23

Ora	238.00	29	12.18
Total	3,91,677.00	48,512	12.39

Source: Commissioner of Marine Fisheries, Chennai.

The species-wise marine fish production in Thoothukudi district is depicted in above table-4. It reveals that, species-wise marine fish production in the year 2008- 2009 is 48,512 tonnes. The total marine fish production in Tamil Nadu is 3,91,677 tonnes in the year 2008-2009. The share of marine fish production in Thoothukudi district is 12.39 per cent during 2008-2009 when compared with the total production of Tamil Nadu. However, the highest share of species-wise marine fish production is Lactarius and Lobsters, it contributes 12.26 per cent each.

Table- 5 Species-wise Marine Fish Production in Thoothukudi District during 2009-2010 (Quantity in tones)

Name of the Species	TamilNadu	Thoothukudi	Percentage of share
Sharks	8538.85	1044.08	12.23
Skates & Rays	8097.88	990.16	12.23
Eels	440.06	53.92	12.25
Cat Fishes	4171.22	509.79	12.22
Chirocentrus	24700.02	3019.50	12.22
Oil Sardines	5331.10	651.94	12.23
Lesser Sardines	31996.38	3911.63	12.23
Hilsa Llisha	47.46	5.21	10.98
O. illisha	10.45	1.28	12.25
Anchoveilla	14033.95	1715.63	12.22
Thrissocles	4531.45	553.90	12.22
Clupeids	18644.04	2279.33	12.23
Saurida & Saurus	1160.91	142.15	12.24
Hemirhampus	2447.41	299.01	12.22
Flying Fish	3929.24	480.38	12.23
Perches	24180.86	2964.54	12.26
Red Mullet	12635.06	1620.03	12.82
Polynemids	1923.77	235.29	12.23
Sciaenids	12710.27	1553.87	12.23
Ribbon Fish	2485.19	303.94	12.23
Caranx	11789.41	1441.13	12.22
Chironemus	1803.86	220.58	12.23
Trachynotus	1001.63	122.54	12.23
Ceryph aena	6.80	0.83	12.21
Elacate	560.37	68.63	12.25
Silver bellies	32319.63	3950.84	12.22
Lactarius	359.76	44.12	12.26
Pomfrets	2086.76	254.89	12.21
Mackerel	11668.78	1426.42	12.22
Seerfish	9020.37	1102.90	12.23
Tunnies	4891.90	598.02	12.22
Spyreana	2284.51	279.40	12.23
Mullet	2886.95	352.93	12.23
Bregmaceres	2124.15	259.79	12.23
Soles	7176.35	877.42	12.23

Panaeid Prawns	30071.55	3676.34	12.23
N.P. Prawns	8058.57	985.26	12.23
Lobsters	719.81	88.23	12.23
Crabs	27064.55	3308.71	12.23
Cephalo pods	6815.47	833.30	12.23
Miscellaneous	34541.61	4566.58	13.22
Drepane	561.49	68.63	12.22
Lethrinus	6616.60	808.80	12.22
Sillago	5052.03	617.63	12.23
Balisteres	5413.09	661.74	12.22
Ora	400.07	49.02	12.25
Total	3,97,311.64	49,000.26	12.33

Source: Commissioner of Marine Fisheries, Chennai.

The above table-5 reveals that, species-wise marine fish production in the year 2009-2010 is 49,000.26 tonnes in Thoothukudi district. The total species-wise marine fish production in Tamil Nadu is 3,97,311.64 tonnes in the year 2009-2010. However, the share of Silver bellies is 12.22 per cent in 2009-2010. It is the maximum quantum of fish production in Thoothukudi district. The average share of Thoothukudi district is 12.33 per cent for the year.

Conclusion

Global aquaculture today produces 40 to 45 million mt of seafood annually, and accounts for 74 percent of freshwater and 17 percent of saltwater seafood consumed by humans (54 percent and eight percent, respectively, if Chinese production is excluded). According to ETIA 2013 (Emerging Trends in Indian Aquaculture) is yet another initiative from this department. That too, at a very crucial juncture, when Aquaculture is poised to become the major contributor to world fisheries production, it is important that India keeps abreast with technology developments and innovations across the world, utilize its vast untapped natural resources to sustain its aquaculture production, not just to feed its growing population but also for enhanced exports. As you are all aware, fisheries production is a combination of production both from capture fisheries as well as cultured fish. The world continues to witness the declining trend in capture fisheries production in spite of increased efforts at conservation. The trend in India too is no different with landings becoming stagnant and declining at times. Aquaculture has now emerged as the main way forward in sustaining fisheries production and augmenting fishery resources through increase in farming area as well as development of innovative farming practices. The share of Aquaculture in the total world fisheries production rose from 29.8% of total fisheries production in 1998 to the present level of 42% of total fisheries production in 2011. It is soon predicted to become a bigger contributor to global fisheries production than capture fisheries. Though India is ranked second behind China in world Aquaculture production (2010), its contribution to world production is only 4.64 million tonnes accounting for 7.75% of world production as against 36.73 million tonnes amounting to 61.38% contribution by China. The gap between the two top ranked countries is uncomfortably wide. While India depends largely on land based Aquaculture systems i.e., traditional earthen ponds adjoining to freshwater and brackish water sources for culture of Freshwater Carps, Catfish, Scampi as well as Shrimp. Technology development in introduction of new species and new biocategories for diversification of aquaculture is slow and of recent origin. Only 15% of the available land resources and almost none of the water resources such as reservoirs, lakes, bays and seas are utilized for aquaculture in India. Thus, the major reasons for the gap are “Unutilization and Underutilization” of available resources. Opportunities require to be created through the expansion of the Seafood industry that would not only ensure sustained aquaculture production, but also contribute in employment generation and alleviation of socio-economic conditions of communities involved in the sector.

Marine fish production in India currently produce from 2989 mt/year in 2004 to 3285 mt/year in 2009, with the average around 1,000 mt/year (FAO, 2010). Proposed future production facilities are larger, with projected output capacity ranging from 1,000 to over 20,000 mt/year. Current labor productivity for fish farms ranges from 30 to 200mt fish/man-year (Forster 1999). For proposed projects, labor productivity up to 500 mt fish/man-year has been suggested, depending on the level of automation and the species produced. Reported labor cost (wages) range from \$30,000/man-year (e.g., harvester) to \$60,000/man-year (e.g., manager or captain). At present, Indian aquaculture contributes about \$ half billion to gross domestic product and supports an estimated 120,000 jobs. For a large farm with output of 2,000 mt/year, assuming labor productivity of 300 mt/man-year, the total labor requirement is seven persons (including captain, divers, harvesters, manager, and office staff). Generally, offshore aquaculture operations are not expected to be labour intensive; and this would certainly have to be true of any competitive aquaculture operation. In addition to jobs in the production sectors (i.e., fish farms), a significant number of jobs may be created in the economy due to indirect and induced effects in the industries linked to the production sector (e.g., hatcheries and processors).

References

1. Subba Rao, N. (2005). Impact of Marine Environmental Degradation on Fishery Resources and Coastal Fishing Population of India, *Fishing Chimes*, 24(11): Pp.17 -21.
2. FAO Fisheries Department, Circular No.920 FIRM, C920
3. Government of Tamil Nadu, Statistics in Economic Survey, 1999-2000, pp.18-139.
4. MPEDA, 2009, www.mpeda.com
5. www.wikipedia.org
6. Swaminathan, M.S. (2005). Sustainable Alternative Livelihood Systems Using Local Resources for the Benefit of People Living off the Gulf of Mannar Coast, 20(5): www.flonnet.com
7. Government of Tamil Nadu, Department of Economics and Statistics, Statistical Hand Book, 2007, www.tn.gov.in.
8. Warriar, S.B. (2001). Radiation Processing of Fish and Fishing Products, *Fishing Chimes*, 20 (10 and 11), P.39.
9. Endeavour and Achievements, Department of Fisheries, Government of Tamil Nadu, 2002-2003, pp.1-75.
10. Government of India, Ministry of Information and Broad Casting, India 2000 – A Reference Annual, Publications Division, New Delhi, p.415.
11. Madras Institute of Development Studies, Tamil Nadu Economy – Performance and Issues, Madras 1988, p.162.
12. Department of Fisheries, Government of Tamil Nadu, Endeavour and Achievements, 2002-2003, Chennai, p.39.
13. Kathiresan, K. and Rajendran, N. (2005). Grow Mangroves for Protecting Coral Reefs, SDMRI Research Publication, No.9,Pp.41-48.
14. Bennet Sam, P. and Arumugam, G. (1989). The Present Status of Small Scale Traditional Fishery at Thoothukudi, Marine Fisheries Information Services, No.99, Pp.1-3.
15. Commissioner of Fisheries in Chennai