

Trend in Production and Technology of Fishery Sector in Kerala

^aUnnikrishnan N B, ^bLakshmy Devi K R

^aResearch scholar, Department of Economics Dr John Mathai Centre, University of Calicut, Kerala India

^bRetired Professor and Research Guide Department of Economics, Dr John Mathai Centre University of Calicut, Kerala, India

Abstract

Fishery sector holds an important position in the development of a nation. The modernisation and up gradation of existing fishing technologies helped to increase the efficiency of fishing and allied activities. The mechanised fishing obviously did well in the economics of fisher folk those who adopted technology, but did worse in the case of fisher folk those who didn't adopt technology. In this context the present paper deals with the study of trend in production of fishery sector of Kerala as well as spread of modern technology. Data from 1981 reveal that the total fish production has been continuously increasing in Kerala. However, the sub division of inland and marine production reveal that marine fish production has been increasing till 2003-04 but thereafter showing a declining trend. But the inland production of fish has been continuously increasing in Kerala. It can also be seen that the modernisation and up gradation of any field become worthless, if the adopted changes are ineffective. The direction of difference is found by mean ranks. Fisher men those who are using modern technology feel the technology are more effective than the older ones. Fisher men who are using traditional methods feel the technology are not effective.

KEYWORDS: Fishery sector, Technology, modernisation, Mann-Whitney U Test

INTRODUCTION

Fishery sector holds an important position in the development of a nation. The modernisation and constant changes and up gradation of existing fishing technologies helped to increase the efficiency of fishing and allied activities. At the same time it has made some sort of negative impact on those who are unable or reluctant to keep up with the changes that happened in the fishing technology. The motorized and non motorized fishing become a hot thought for the scholars since it is connected to the sustainability in fishing. The mechanised fishing obviously did well in the economics of fisher folk those who adopted technology, but did worse in the case of fisher folk those who didn't adopt technology.

In this context the present paper deals with the study of trend in production of fishery sector of Kerala as well as spread of modern technology. The study has been made using both primary and secondary sources. Secondary data has been collected from the various issues of Economic Review. The study is based on a sample of 300 persons selected at random from these areas for the purpose of analysis various statistical tools will be used in course of the study. Data was collected from 4 villages in Thrissur district namely Valappad, Nattika, Vadanappally and Engandiur villages of Thrissur district in Kerala

Review of Literature

This section gives a brief review of available literature showing the studies about production and Mechan of fishery sector. Mahesh V. Joshi (1996) attempted to examine the influencing factors that has resulted from mechanisation of fishing crafts. The study focused on various impacts on marine fish production, household income and the standard of living of fishermen households. It could be identified that earnings of crew members in mechanised crafts were substantially higher than those of crews in non-mechanised crafts. The study further highlighted the short run and long run issues of mechanised fishing. The fish stock would be exhausted which has negative effect on employment income and standard of living of traditional fishermen.

Aswathyet *al.*, (2011) studied the impact of mechanised fishing. The study identified that there has been increasing cost of fish catching and production due to mechanisation and increasing fuel cost. This is likely to reduce the profitability from the fishing activities. However, the fishery sector withstand due to the possibilities of continuous increase in the price of fishes that the fishing units. Pillai, et.al. (2007) studied the impact of the proliferation of the number of mechanized vessels in Kerala Coast. They identified that the existing situation in the fishery sector of Kerala is a free and open access system and consequently there is an intense competition for the resources among the various sectors. They could examine that certain unhealthy fishing practices emerged after 1990s that caused stagnation in the marine fisheries production.

Bhatta (2003) observed that there were symptoms of over harvesting such as stagnation of total production, decline in the catch per unit of fishing effort. This has negative socioeconomic implications in terms of lack of fish availability to local community and nutritional insecurity. Therefore, incentives may be given for small scale, selective sustainable harvesting technologies with strong back ward and forward linkages that enhance and maintain employment opportunities within fishing communities and also increased people's participation and de-centralisation of investments and planning will give added impetus

Srinivasan (1981) attempted to analyse the issues and problems faced by traditional fishermen as a result of introduction of mechanisation. The study could identify that due to the increasing competition from mechanised boatmen. The study has also pointed out the danger of continuing the tempo of trawling in the study area of Tamil Nadu coast as it might experience the diminishing returns which have already set in on the west coast. Rajasenan, D. (1987) constructed fishery production function using the data from 1964 to 1984. The study could find that there was thirty six fold increase in the value of output during the period of observation. The study found out that one third of the total catch value is spent on diesel in the mechanized sector. Thampi Mathew and P.Suresh Kumar,(2009),in their paper on "Ecological Imbalances and changing coastal Environment : challenges of marine fishermen" had focused on some of the specific factors that affect the production and yield which have a burdening effect on the traditional marine fishermen in Kerala.

Trend in Fish Production in Kerala

Trend in fish production in Kerala has been evaluated in this session using the secondary statistics collected from data of state planning board. Trend in inland production, marine production and total production has been analysed. Data from 1981 reveal that the total fish production has been continuously incensing in Kerala. However,

the sub division of inland and marine production reveal that Marine fish production has been increasing till 2003-04 but thereafter showing a declining trend. But the inland production of fish has been continuously increasing in Kerala.

Table 1 - Trend in Fish Production in Kerala (in Lakh tonnes)

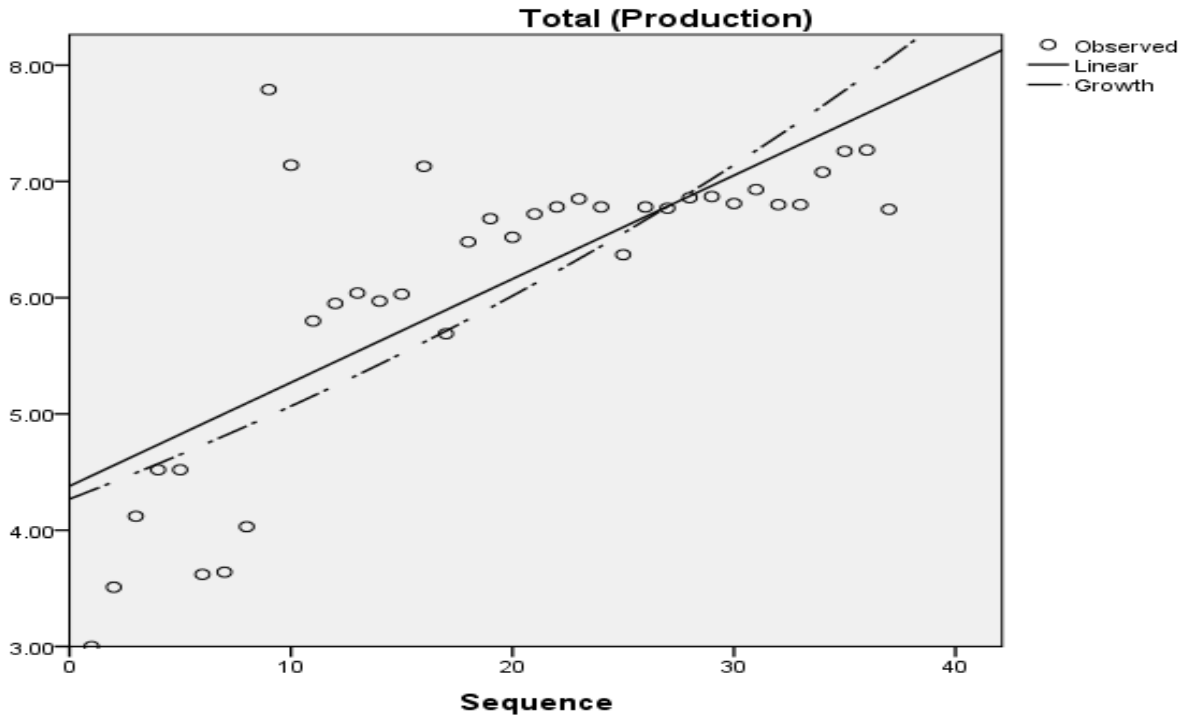
Year	Marine	Inland	Total
1981	2.74	.26	3
1982	3.25	.26	3.51
1983	3.85	.27	4.12
1984	4.25	.27	4.52
1985	3.34	.28	4.52
1986	3.35	.29	3.62
1987	2.83	.27	3.64
1988 -89	3.75	.28	4.03
1989-90	6.46	.33	7.79
1990-91	6.78	.36	7.14
1991-92	5.40	.40	5.80
1992-93	5.53	.42	5.95
1993-94	5.59	.45	6.04
1994-95	5.49	0.48	5.97
1995-96	5.53	0.50	6.03
1996-97	6.61	0.52	7.13
1997-98	5.11	0.58	5.69
1998-99	5.82	0.66	6.48
1999-00	5.94	0.74	6.68
2000-01	5.67	0.85	6.52
2001- 02	5.94	0.78	6.72
2002-03	6.03	0.75	6.78
2003-04	6.09	0.76	6.85
2004-05	6.02	0.76	6.78
2005-06	5.59	0.78	6.37
2006-07	5.98	0.80	6.78
2007-08	5.86	0.91	6.77
2008-09	5.83	1.03	6.86
2000-10	5.70	1.17	6.87
2010-11	5.60	1.21	6.81
2011-12	5.53	1.4	6.93
2012-13	5.31	1.4	6.8
2012-13	5.31	1.49	6.8
2013-14	5.22	1.86	7.08
2014-15	5.24	2.02	7.26
2015-1 6	5.17	2.1	7.27
2016-17	4.8	1.88	6.76

Source: Economic Review, Kerala State planning Board, Various issues

Model Summary and Parameter Estimates

Dependent Variable: Total

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.578	47.853	1	35	.000	4.380	.089
Growth	.566	45.682	1	35	.000	1.451	.017



Spread of Modern Technology in Kerala

Technology is an inevitable factor of development. Introduction of any kind of advanced technology in any fields of economic activity generates incomparable differences in the returns from the fields where it has implemented is an unveiled truth. Implementation of new technology is the only way to reap the unexploited coastal resource. The table 3 reveals that the fishing sector of Kerala is not reluctant to adopt any type of modern technology in order compete with the fishing people of abroad. Here 60 percent of people are using advanced technology for the results beyond their expectations, or the fishing sector is transforming technologically like anything and the result will be their economic and social development and finally the nation’s economic growth since the coastal resources have high international markets. But the reality that can’t be ignored is that 21.33% of the population is pessimistic as they are avoiding modernisation. Another fact that has same importance is the unawareness of people regarding the modern technologies available to them even we are far ahead in every fields compared to other states of India. About 18.67% of total population belongs to this category. That is the pessimistic and ignorant people together make 40% of the population.

Table 2: Application of technology in the fishing sector

Sl.No	Application of technology	Number of respondents	Percentage
1	Use modern technology	180	60
2	Do not use modern technology	64	21.33
3	No idea about modern technology	56	18.67
	Total	300	100

Source: Primary Survey

Fishing gear refers to the equipments used by fishermen. This includes bag nets, scoop nets, traps, plunge baskets, seines, drift grill nets, Chinese dip nets, fishing crafts etc. The fishing gears may be traditional or modernised. About 70% of the population own modern fishing gears such as motorised boats, mechanised crafts and other equipments. Among this, 45 % prefer mechanised fishing methods and the remaining 25% use motorised fishing techniques. It will be noted that even in this age of technological explosion 30% are using or preferring the outdated fishing techniques which have been existing for several years or follows the methods of ancient times.

Effectiveness of Technology

The modernisation and up gradation of any field become worthless, if the adopted changes are ineffective. As per our primary survey, 180 respondents were adopted modern technology in their fishing whereas 84 respondents are still using traditional methods. The effectiveness of technology is assessed by taking responses of uses in a five scale likert of effectiveness. Recorded responses are tested and validated by Mann-Whitney U Test. Total 264 fishermen are recorded their responses at five scale likert. 180 responses are marked from the users of modern technology, whereas 84 responses are marked from the users of traditional technology. The mean rank of responses marked against modern technology is 156.75 and it is 80.54 in traditional technology. The observed behaviour is statistically validated by the rejection of null hypothesis even at 1 percent level of significance

Table 3: Effectiveness of Technology

Hypothesis Test Summary				
	Null Hypothesis	Test	Sig.	Decision
1	The distribution of effectiveness is the same across categories of Traditional and Modern Technology.	Independent-Samples Mann-Whitney U Test	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .05.				
Note: 5 scale likert. 5= Highly Effective, 4= Effective, 3= Undecided, 2= Ineffective, 1= Totally Ineffective				

The test statistics of 3195.5 at .001 significance corroborate that the the distribution of effectiveness is not same across categories of Traditional and Modern Technology. The direction of difference is found by mean ranks. Fisher men those who are using modern technology feel the technology are more effective than the older ones. Fisher men those who are using traditional methods feel the technology are not effective.

Concluding remarks

Technology and modernisation efforts are common in fishery sector also today. The modernisation and constant changes and up gradation of existing fishing technologies helped to increase the efficiency of fishing and allied activities. The mechanised fishing obviously did well in the economics of fisher folk those who adopted technology, but did worse in the case of fisher folk those who didn't adopt technology. Data from 1981 reveal that the total fish production has been continuously increasing in Kerala. However, the sub division of inland and marine production reveal that marine fish production has been increasing till 2003-04 but thereafter showing a declining trend. But the inland production of fish has been continuously increasing in Kerala. It can also be seen that fisher men those who are using modern technology feel the technology are more effective than the older ones. Fisher men who are using traditional methods feel the technology are not effective.

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