

## Determinants of Fisherwomen's Economic Status in Fisheries

P.S.Swathi Lekshmi<sup>1</sup> and Narayanakumar R<sup>2</sup>

<sup>1</sup>Senior Scientist, CMFRI, Mangalore Research Centre of CMFRI, Mangalore, Karnataka

<sup>2</sup>Head of Dept., SEETTD and Senior Scientist, CMFRI, Kochi

Corresponding author e-mail : swathi.lekshmi263@gmail.com

### ABSTRACT

India's vast coastline provides food, stability, and income-producing opportunities for many of India's economically disadvantaged sections of the population. Fisheries in India account for 2.5 per cent of the gross domestic product and generate powerful income and employment opportunities for many of the country's rural poor. Women, who constitute approximately half of India's population, play a vital role in the operation of the fisheries and their continuing growth as a component of the agriculture sector of the economy. The contributions of the fisherwomen penetrate every aspect of postharvest handling, preservation, processing, and marketing of seafood products, and provide an integral link between producers and consumers. The study was conducted on a sample of 50 fisherwomen drawn from the 2 coastal districts of Tamilnadu namely, Kancheepuram and Chennai. The findings revealed that, most of the fisherwomen had a high level of livelihood index (Score of < 50), and also had a high level of aspiration (Score <13). The step wise regression analysis revealed that the variables influencing the livelihood index of fisherwomen, in order of importance, were annual level of savings and annual level of debt. The annual level of expenditure and annual level of savings had a positive and significant influence on the level of aspiration of fisherwomen.

**Keywords :** Determinants, Fisherwomen; Economic Status; Fisheries; Fish Vendors

In the world all over, women's role in the fisheries sector is becoming increasingly better defined and pronounced with fisherwomen taking up the varied roles of fish sellers, fish processors, loading /unloading workers, fish sorters and traders. In the fisheries sector, women have an active role and extensive involvement especially in the post-harvest operations where they constitute almost half of the work force, (Sathiadhas, 2003). It is estimated that there are about 5 lakh women who are involved in the post harvest sector of marine fisheries, (Khader et al 2005). Of the total 1,712,311 women, 3,65,463 are involved in fishery related activities viz. marketing, labour, processing, making/repairing of nets, which accounts for 48.30 percent of the fisher folk in fishing associated activities, (National Marine Fisheries Census 2005). Fisherwomen contribute substantially towards the family income. Studies conducted by Khader et al (2005) revealed that 60.70 per cent of the earned income contributed to the expenditure incurred for maintenance of the household. Development programmes targeted at fisherwomen are thus bound to pay rich dividends. Experience shows that if women rather than men are targeted with resources the end result is that welfare benefits will accrue directly to them and their children, Bavnic and Gupta, (1997).

### METHODOLOGY

The study was conducted in 2 predominant coastal districts of Tamilnadu, namely Kancheepuram and Chennai districts. 5 fisherwomen who were drawn randomly from each of the 5 villages of Kancheepuram and Chennai districts to form a total sample of 50

fisherwomen. A total of 16 independent variables namely age, education, occupation, stakeholder category, family type, annual income, material possession, source of livelihood, social participation, credit orientation, expenditure per year, debt per year, and savings per year, were selected for the study. The dependant variables were livelihood index and level of aspiration. The independent variables for the study were measured through standardized scoring procedures. The livelihood index for the present study was operationalised as the income, expenditure, debt and savings pattern of the individual respondent which denotes the standard of living of the individual respondent. A livelihood index (L.I.) was developed for the present study which was as follows:

$$\text{Livelihood Index} = \frac{\text{Actual income} + \text{Actual expenditure}}{\text{Potential Income} + \text{Potential expenditure}} + \frac{\text{Actual debt} + \text{Actual savings}}{4} \times 100$$

The potential income, potential expenditure, potential debt and potential savings was defined as the maximum possible income, expenditure, debt, savings that could be incurred by the fish vendors.

**Potential income :** The potential income was operationalized as the maximum possible income a respondent could earn in and year from his occupation.

**Potential expenditure:** The potential expenditure was operationalised as the maximum possible expenditure a respondent incurred in an year for carrying out his occupation as well as for maintenance of his family.

**Potential debt:** The potential debt referred to the maximum possible debt a respondent incurred in a year, for his occupation as well as for his occupation as well as maintenance of his family.

**Potential savings:** The potential savings referred to the maximum amount of money a respondent could save in an year.

The potential income, the potential expenditure, the potential debt and potential savings for each category was calculated by taking a sample of 30 respondents from fish vendors and asking them to indicate the level of potential income, potential expenditure, potential debt and potential savings. The average of the values was found out for each category which are detailed as follows:

**Fisherwomen who are fish vendors**

Potential Income / year	=	Rs. 75,000
Potential expenditure/year	=	Rs. 50,000
Potential debt/year	=	Rs. 10,000
Potential savings/year	=	Rs. 20,000

The data were collected using structured interview schedules during the period from October to November 2004. Statistical tools such as step wise linear regression analysis and percentage analysis was made use of for analyzing the data. Step wise regression is a variation of multiple regressions which provides a means of choosing independent variables that yield the best prediction possible with the fewest independent variables. It permits the researcher to solve a sequence of one or more multiple linear regression

problems by stepwise application of the least square method. At each step in the analysis, a variable is added or removed which results in the greatest production in the error sum of squares. (Burroughs Corporation, 1976).

For the present research, step wise linear multiple regression analysis (step down procedure) was performed to study the factors influencing the livelihood index and level of aspiration of the fisherwomen. The adequacy as well as significance of the models are tested using the analysis of variance technique. The step wise linear multiple regression model takes the form

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + \dots + b_nx_n$$

Where  $x_1, x_2, x_3, \dots, x_n$  stands for various components of the independent variables and  $b_0$  is a constant.

**RESULTS AND DISCUSSION**

It could be observed from Table 1 that most of the respondents (58.00%) were middle aged (36-45 years). This finding gains the support of Sathiadhas et.al whose studies revealed that majority of the fish vendors were in the age group of 40-60 years. The studies conducted by DFID (2003) reveal that fish vendor women of Tamilnadu are either middle-aged or old and younger women are prevented from venturing out in to this occupation due to social barriers. Further it could be inferred from the table that most of them (56.00%) had primary level of education, all had fisheries as their main occupation, 100 per cent were involved in fish vending, and 80 per cent in fish processing.

**Table 1**  
**Socio-economic profile of the fisherwomen**

Sr. No	Category	Fisherwomen who were fish vendors (N = 50)	
		F	%
1.	<b>Age</b>		
	Young (up to 35 years)	12	24
	Middle (>35-45 years)	29	58
	Old (above 45 years)	09	18
2.	<b>Education</b>		
	Illiterate (Score = 1)	22	44
	Primary (Score = 2)	28	56
	Middle level (Score = 5)	0	0.00
	High School (Score =7)	0	0.00
	Collegiate (Score = 8)	0	0.00
3.	<b>Occupation</b>		
	Fisheries as primary occupation	50	100.00
	Fisheries as secondary occupation	0	0.00

4.	<b>Stake holders category</b> Capture fisheries Culture fisheries Net making Boat making Fish vending Fish processing Labourer in export companies	0 0 0 0 50 0 0	0.00 0.00 0.00 0.00 100.00 0.00 0.00
5.	<b>Family type</b> Nuclear ( Score = 1) Joint ( Score =2)	14 36	28.00 72.00
6.	<b>Material possession</b> Low Medium High	08 50 0	0.00 100.00 0.00
7.	<b>Source of livelihood</b> 1. Capture fisheries 2. Culture fisheries 3. Sale of fish a) Dry fish b) Fresh fish (by auction) 4. Fish processing 5. Labour in the form of loading fishes in lorries 6. Ancillary activities	0 0 10 40 0 0 0 0	0.00 0.00 20.00 80.00 0.00 0.00 0.00 0.00
8.	<b>Social participation</b> Low ( Score of 1) Medium ( Score of 2) High ( Score of 3 and above)	0 21 29	0.00 42.00 58.00
9.	<b>Credit orientation</b> Low (>4 ) Medium ( Score of 4,5 ) High (< 5)	0 37 13	0.00 74.00 26.00
10.	<b>Economic motivation</b> Low ( Score > 33) Medium ( Score of 34-36) High ( Score < 36)	4 14 32	8.00 28.00 64.00
11.	<b>Risk orientation</b> Low (Score >28) Medium ( Score 28-30) High ( Score < 30)	13 15 22	26.00 30.00 44.00
12.	<b>Scientific orientation</b> Low ( Score < 15) Medium ( Score 16-20) High ( Score > 20)	12 23 15	24.00 46.00 30.00

*F - Frequency % Percentage*

Among the other important profile characteristics studied, 58.00 per cent were having high level of social participation. This could be attributed to their high degree of participation in self-help groups which plays a vital role in motivating the fisherwomen to save their hard earned money and invest their savings in fish marketing and selling. Most of the respondents had a medium level of credit orientation, high level of economic motivation, high level of risk orientation and medium level of scientific orientation.

**Table 2.**  
**Income, expenditure, debt and savings pattern of the fisherwomen**

Sr. No.	Independent Variables	Fisherwomen who are fish vendors (n=50)
13.	<b>Income (In Rs.)</b> Average income/month Average income/year	4666.00 55920.000
14.	<b>Expenditure (In Rs.)</b> Average expenditure/month Average expenditure/year	3816.67 45800

15.	<b>Debt (in Rs.)</b> Average debt/month Average debt/year	483.33 5800.00
16.	<b>Savings (in Rs.)</b> Average Saving/month Average Savings/year	531.67 6380.00

A perusal of Table 2 shows that income, expenditure, debt and savings pattern of the fisherwomen. The average income /year of fish vendors was Rs 55,920. The studies of Sathiadhas et.al (2003) undertaken among fisher women in Kerala revealed that the annual income / year of women fish vendors was Rs 59,760. The studies conducted by Srinath K (1987) have indicated that the income of fisherwomen contribute substantially for the maintenance of their families. Ferrer and Barrido (2007) in their studies on the contribution of fisherwomen in Philippines towards their household income have said that the more the women contribute to household income, the more likely they have personal savings, have their own money for buying things without asking their husbands and the more control they have over factors of production.

**Table 3.**  
**Distribution of respondents based on their livelihood index (n = 50)**

Category	Livelihood index	
	No	%
Low (score > 40)	13	26.00
Medium (score of 40-50)	18	36.00
High (score <50)	19	38.00

It could be observed from Table 3 that 38.00 per cent of the respondents had high level (score of <50) of livelihood index. The livelihood index was computed using the independent variables such as annual expenditure, annual debt, annual savings and annual income.

**Table 4**  
**Distribution of respondents based on their level of aspiration (n-50)**

Category	Level of Aspiration	
	No	%
Low (score <10)	05	10.00
Medium ( score 10-13)	15	30.00
High (score >13)	30	60.00

It was observed from Table 4 that most of the fisherwomen (60.00%) had a high level of aspiration. (score <13). This could be because, most of these fisherwomen were members of self-help groups which were actively involved in mobilization of micro credit for fisherwomen for fish vending and dry fish selling.

These self-help groups helped to increase the level of aspiration, as well as annual income of these fisherwomen.

**Table 5**  
**Estimated regression model for Livelihood index (Y<sub>1</sub>)**

Explanatory variable	Regression Coefficients	Standard error	t-value (d.f.=45)	R <sup>2</sup>	F- value
Constant	7.074	3.102	2.28	0.887	117.994**
Annual savings (X <sub>14</sub> )	3.845	0.362	10.619**		
Annual level of expenditure(X <sub>12</sub> )	4.318	0.775	5.574**		
Annual level of debt (X <sub>13</sub> )	7.164	1.540	4.650**		

\* Significant at 5% level \*\* Significant at 1% level  
NS-Non Significant

A perusal of Table 5 revealed that, step-wise multiple regression analysis of the sixteen independent variables with the livelihood index and level of aspiration of the fisherwomen. It could be seen that out of the 16 independent variables ,only three independent variables such as annual savings, annual expenditure and annual debt were found to influence the livelihood index of the fisherwomen. The regression co-efficients were significant for these independent variables. This shows that an unit increase in savings *Ceteris Paribus* would result in an increase of 3.845 units in the livelihood index of the fisherwomen. A unit increase in the level of expenditure *Ceteris Paribus* would result in an increase of 4.318 units in the livelihood index of the fisherwomen. A unit increase in level of debt *Ceteris Paribus* would result in an increase of 7.164 units in the livelihood index of fisherwomen. Livelihood index is an indicator of the quality of life and standard of living of a community. An increase in the standard of living in turn results in an increase in the family expenditure, and fisherwomen are forced to avail of loan facilities for investing in their ongoing enterprise, thereby increasing the debts also.

From the Table-5 it could be seen that R<sup>2</sup> value was 0.887 and from the analysis of variance for regression it could be seen that the f value was highly significant. This thereby, means that the finally selected 3 independent variables namely annual savings, annual

expenditure and annual debt together were able to explain 88.70 per cent of the variation in the livelihood index of the fisherwomen.

Further a perusal of Table 6 revealed that, out of the 16 independent variables studied, only two variables ie annual level of expenditure and annual level of savings had a positive and significant influence

on the level of aspiration of fisherwomen. A unit increase in annual level of expenditure *Ceteris Paribus* was found to result in an increase of 2.526 units in the level of aspiration of the fisherwomen. Similarly, a unit increase in annual level of savings *Ceteris Paribus* would result in an increase of 3.134 units in the level of aspiration of the fisherwomen.

**Table 6**  
**Estimated regression model for**  
**Level of aspiration ( $Y_2$ )**

Explanatory variable	Regression Coefficients	Standard error	t-value (d.f.=45)	R <sup>2</sup>	F- value
Constant	23.396	5.209	4.492	0.535	12.681**
Annual level of expenditure ( $X_{12}$ )	1.456	.576	2.526*		
Education ( $X_2$ )	-1.203	0.274	-4.387**		
Annual level of savings ( $X_{14}$ )	0.867	.277	3.134**		
Credit orientation ( $X_8$ )	-2.251	0.933	-2.412*		

\* Significant at 5% level \*\* Significant at 1% level NS-Non Significant  
Regression model:  $Y_2 = 23.396 + 1.456 X_{12} - 1.203 X_2 + 0.867 X_{14} - 2.251 X_8$

### CONCLUSION

The foregoing study revealed that among all the 12 socio-economic variables studied, the variables influencing the livelihood index of fisherwomen in order of importance were annual level of savings, annual level of expenditure and annual level of debt. Fisherwomen were the fulcrum of their families and they contribute significantly towards the family income. But often, the economic participation of women was grossly under estimated and their economic potentials not fully utilized. As the fisherwomen's role in her family as an income earner increases, she becomes a major force to reckon with and it is at this juncture, their participation in the fisheries sector could be enhanced by improving their access to micro credit, motivating them to adopt improved technologies in preservation and value addition of fish and fishery products, provide facilities for marketing and transportation of their products and

for marketing and transportation of their products and by imparting training in manufacture and marketing of processed fishery products and integrating them with the local small home based industries like shell string making and local handicrafts.

Providing extension services for guiding and training few selected women leaders or link workers from fishing villages would go a long way in exposing them to improved technologies and accentuate the dissemination of knowledge and skills and obtain better control and management of their resources and bring them in close social interaction with the outside world. This would pave the path for the social and economic empowerment of the fisherwomen of our country.

*Paper received on* : November 26, 2016

*Accepted on* : December 07, 2016

### REFERENCES

1. Alice Joan G. Ferrer and Arthur P. Barrido. 2007. Contribution to Household income and empowerment: The case of married women from fishing households in Guimaras, Philippines. *Book of Abstracts*, Fisheries and Aquaculture: Strategic Outlook for Asia, 8<sup>th</sup> Asian Fisheries Forum. pp 3.
2. Bavnic and Gupta, G.R. 1997. Female headed households and female maintained families: Are they worth targeting to reduce poverty in developing countries? *Economic Development and Cultural Change*. 45 (2).
3. DFID 2003 Changing Fish Utilisation and its impact on poverty in Tamilnadu. *A project funded under DFID'S Post harvest Fisheries Research Programme*.

4. Khader Vijaya, R.Sathiadhas and H.Mohamad Kasim 2005. Role of women in Fisheries in the Coastal Eco-system of Andhra Pradesh, Karnataka, Keralaand Tamilnadu. *Journal of Research, ANGRAU* 33 (1) 53-59.
5. Krishna Srinath, 1987. Role of women in small scale fisheries-A case study. *Marine Fisheries Information Service*, T&E Series, No 74, 12-17.
6. Marine Fisheries Census 2005, Published by **Government of India**, Ministry of Agriculture, Department of Animal Husbandry, Dairying and Fisheries, Krishi Bhavan, New Delhi and Central Marine Fisheries Research Institute ,Kochi:25-29
7. *Sathiadhas R., Ashalatha S, Sindhu Sadanandan and Y.Joseph Raj* 2003. Women workers in the post-harvest marine fisheries sector of Kerala: *Socio-economic profile*. Vol.23.(2): 31-35.