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Factors influencing occupational mobility among fishermen - An empirical study in the context of infrastructural development projects

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ABSTRACT

Fisheries sector plays a crucial role in the economy by providing employment opportunities, ensuring food security and earning foreign exchange for the country. As modernization takes place in every walk of life, traditional fishers are struggling to make their ends meet. Many development projects were implemented in the coastal region of Kerala that has resulted in the conflicting use of sea and seashore. This is a threat to the livelihood of traditional fishers whose fishing activities are concentrated close to the shore. In the light of these development projects fishers were forced to change their occupation. In this context, a study was carried out with the objective of finding out the factors responsible for occupational mobility among the fishers due to the setting up of different development projects in the locality. Using stratified random sampling technique, 270 fishers were interviewed from Goshree islands in Ernakulam district where development projects have taken place along the coastal areas. Using a structured interview schedule, information on the experience of fishers were gathered and analysed with the help of SPSS. Exploratory Factor Analysis techniques was used to derive the results. The study reveals that various constraints in fishing force the fishers to go in for other jobs.

Key Words : Occupational mobility, Inland fisher, Marine fisher, Livelihood security, Development projects, Exploratory factor analysis

INTRODUCTION

Kerala, located on the west coast of peninsular India is blessed with a coastline of 590 km, a continental shelf area of 40000 sq.km, widespread interconnected brackish water lakes, and estuaries. This has provided opportunities for traditional fishing in inland water bodies forages. The fishermen population of Kerala is around 3.1 per cent of the total population. They reside in 222 marine fishing villages and 113 inland fishing villages of the state. Out of this, 7.88 lakh fishermen belong to the marine sector while 2.36 lakh fishermen belong to the inland sector (Kerala Economic Review 2016, 2017)

When the process of urbanization and industrialization spread to the coastal areas of the state,

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many development projects in the field of infrastructure like International Container Transshipment Terminal (ICTT) Vallarpadam and various projects in Special Economic Zone, Puthuvype were implemented in the coastal belts. As a part of ensuring security to these strategic development projects, fishing was either banned or restricted in the nearby areas. This has affected the traditional inland and marine fishers who depend on coastlines for their livelihood. This has forced the fishers to change their place of fishing or change their occupation. On the other hand, the construction of various development projects has created job opportunities in the locality which was also a motivation for the fishers to shift their job. This resulted in the occupational mobility of fishers.

Panayotou and Panayotou (1986) found that fishermen are responsive to economic incentives and do move between occupations to take advantage of earning differentials. He adds that labour appears to be quite mobile between occupations but less so between locations.

Daw *et al.* (2012) points out that availability of alternative livelihood opportunities increases opportunity costs of investing labour in fishing which facilitates exit from fisheries. Development of alternative livelihoods has also been shown as one of the major cause that leads to lowering the levels of fishing efforts.

Baily (1982) made a study among small-scale fishermen of San Miguel Bay, Philippines which revealed that a high degree of stated willingness to change both occupation and residence was found to exist among fishermen regardless of age, educational attainment, ownership of house or land, and type of fisherman. Tietz *et al.* (2000) based on their investigations into occupational change within and between generations suggest that artisanal fisheries no longer are a "last resort employment" for people in coastal areas. Artisanal fisheries is one of the income earning opportunities out of the different occupations including some outside the fisheries sector.

Sarma and Ali (2005) conducted a study among the Kaibartas of Assam, whose primary occupation is fishing. The study shows that there was a reduction in fishing population and area of wetlands due to rapid urbanization and industrialization. It was seen that the earliest generation was mainly dependent on fishing while the next generation was a mixed one in which majority were fishers followed by agriculturalists, casual labours and wage labours. The present generation has adopted a variety of other occupations in which the earlier generations were not engaged.

Objective :

The main objective of the study was to find out the factors that influence occupational mobility as a result of the development projects taking place in coastal areas.

METHODOLOGY

The study was carried out among the fishers in Goshree islands in Ernakulam district which includes Vypin island, Bolgatty, Vallarpadam and Thannonnithuruthu located in Vembanad Lake. Based on the average and standard deviations of major variables under study, the sample size was estimated as 270. The samples were selected using stratified random sampling technique from the list of fishermen in Azheekal, Ochanthuruthu and Mulavukad fishing villages in Goshree islands where the development projects are located. The sample includes both marine fishers and inland fishers. The factors influencing the occupational mobility of fishers in the light of development projects like Special Economic Zone Puthuvype, International Container Transshipment Terminal (ICTT) Vallarpadam and Goshree bridges were collected using a structured interview schedule by personal interview method. The primary data collected was analysed using SPSS. Exploratory

Factor Analysis (EFA) Technique was used to derive the results. The secondary data used for the study includes various reports, journals and newspapers.

RESULTS AND DISCUSSION

The following results were observed from the study.

General profile of the respondents :

14.1 per cent of the respondents were in the age group of less than 40 years, while 70 per cent of the respondents were in the age group of 40-60 years and 15.9 per cent of the samples were above 60 years. Religionwise break down shows that Hindus constituted 86 per cent of the respondents while 10 per cent of the respondents were Christians and 3.3 per cent of the respondents belonged to the Muslim Community. Marital status of the respondents showed that 94.8 per cent were married and 4.4 per cent were unmarried. The rest of the respondents (0.7 %) constituted of divorced or separated individuals. The education level of the sample showed that 31.1 per cent of the respondents had an education upto upper primary level. 48.9 per cent of the respondents had high school level education and 6.7 per cent of the respondents had higher secondary level education. Only 0.7 per cent of the sample had an education of degree level and above

Table 1 : Category of the respondents

Category	Frequency	Per cent
Fisher	144	53.3
Fishers shifted to other jobs	126	46.7
Total	270	100.0

Source : Survey Data

The table shows that 53.3 per cent of the respondents were continuing their traditional occupation. 46.7 per cent of the respondents shifted to other jobs because of the changes taking place in the locality. The table reveals that occupational mobility is taking place as a result of the changes in the coastal regions.

Factors influencing occupational mobility :

The factors influencing occupational mobility among the fishers were analysed using a five-point Likert type question. The factors like not getting enough income from fishing, decrease in fish catch, high wages in new occupation, new employment opportunities due to development projects, availability of new employment opportunities due to construction of bridges were included in the measuring scale. The factor analysis of the scale produced the following results.

Table 2 : Factors influencing occupational mobility

Reliability statistics	
Cronbach's Alpha	No of Items
.759	6

Source: Survey Data

The reliability of the Likert type scale was assessed by Cronbach's Alpha which shows the internal consistency among the set of questions. The coefficient is 0.759 which indicates that the scale is acceptable.

Table 3 : Factors influencing Occupational Mobility:KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.876
Bartlett's Test of Sphericity	Approx. Chi-Square	77.426
	Df	10
	Sig.	.000

Source: Survey Data

Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.876 which is higher than the required level. Bartlett's Test of Sphericity proves that chi-square value is 77.426 with df =10, $p < 0.05$.

Table 4 : Factors influencing Occupational Mobility – Communalities		
	Initial	Extraction
Decrease in Fish Catch	1.000	.717
Not getting enough Income from Fishing	1.000	.740
High wages in New Occupation	1.000	.882
Availability of New Employment Opportunities due to Construction of Bridges	1.000	.870
New Employment Opportunities due to Development Projects	1.000	.792

Extraction Method: Principal Component Analysis
Source: Survey data

Five statements whose extraction value was greater than 0.5 were retained for further analysis. One statement was excluded due to its low extraction value.

Table 5 : Factors influencing Occupational Mobility- Total Variance Explained									
Component	Initial Eigen values			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.710	34.199	34.199	1.710	34.199	34.199	1.467	29.335	29.335
2	1.195	23.895	58.094	1.195	23.895	58.094	1.278	25.567	54.903
3	1.097	21.932	80.027	1.097	21.932	80.027	1.256	25.124	80.027
4	.570	11.400	91.426						
5	.429	8.574	100.000						

Extraction Method: Principal Component Analysis
Source: Survey data

The table reveals that 80.02 % variation in the responses on 5 variables can be reduced to three factors having Eigen values greater than one using the standard procedure.

Fig. 1 : Factors influencing Occupational Mobility

Scree Plot shows how many factors to rotate to a final solution. Here three factors were considered and factor loadings after rotation was given in the following table.

Table 6 : Factors influencing Occupational Mobility - Rotated Component Matrix

	Component		
	1	2	3
Not getting enough Income from Fishing	.840		
Decrease in Fish Catch	.831		
Availability of New Employment Opportunities due to Construction of Bridges		.919	
New Employment Opportunities due to Development Projects		-.636	.566
High wages in New Occupation			.932

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 4 iterations.
Source: Survey data

On the basis of factor loadings, the variables were organized into different groupings. The variables were named in the following manner by considering the common characteristics present in each group.

F1- Constraints in Fishing

F2-New Employment Opportunities

F3- Wage and employment potential in the projects

Table 7 : Factors influencing occupational mobility – statistics

	Constraints in fishing	New employment opportunities	Wage and employment potential in the projects
Mean	9.0985	5.0227	6.4924
Std. Deviation	1.48200	1.97103	2.89642
Variance	2.196	3.885	8.389
Range	8.00	8.00	8.00
Minimum	2.00	2.00	2.00
Maximum	10.00	10.00	10.00

Source: Survey data

The constraints in fishing as a factor for occupational mobility got extracted from 2 statements. The maximum score on the measurement scale is 10 (2 statements multiplied by a score of 5) and minimum is 2 (2 statements multiplied by score of 1). The constraints in fishing has a standard deviation of 1.48 and mean value is 9.09. The mean value points out that respondents have a feeling that constraints in fishing is very high since value is near the scale maximum.

The respondents have experienced that there was a reduction in fish catch as a result of change in fishing ground due to the setting up of development projects near their old fishing ground. Because of the setting up of these projects fishers were forced to change their fishing ground. This resulted in the decrease in income from fishing. Fishing within a nautical mile from the BPCL-Kochi Refinery's Single Point Mooring (SPM) was banned by the district administration on the recommendation of the Navy. The call to declare 'no-fishing zone' along the Puthuvype Special Economic Zone (SEZ) has so far been unheeded fearing protest from fishermen's forums (Detention near LNG terminal conttinues, says fishermen forum, 2012). Development of modern industrial

agglomeration around the estuaries creates external cost to fishing (Thomson, 2003). (Daw *et al.*, 2012) pointed out that site level factors greatly influence the fisher's readiness to exit from fishery. In this site, the constraints in fishing forced the fishers to change to new jobs.

The new employment opportunities got extracted from 2 statements using factor analysis. The maximum score on the measurement scale of new employment opportunities is 10 (2 statements multiplied by score of 5) and the minimum is 2 (2 statements multiplied by score of 1). The table shows that new employment opportunities has got a mean of 5.02 with standard deviation of 1.97. The mean value reveals that the new employment opportunities is medium since the value is in the middle of the scale.

Here the reason for shift to new jobs is analysed in the light of new job opportunities as a result of the construction of bridges and other development projects. The bridges increased easy accessibility to the main land where urbanization is taking place at a faster rate and thereby creating new job opportunities. The new employment possibilities were created in the area as a result of the implementation of the development projects. The results show that the availability of new employment opportunities due to the construction of bridges and developments projects in the area is medium. The town planer of GIDA observed that the standard of living of the people would definitely improve, as they would have easy access to potable water, transport, medical and educational facilities apart from increased employment opportunities as a result of the construction of Goshree bridges (Nair, 2003).

The variable wage and employment potential in the developmental project is the result from 2 statements. The maximum score on the computational scale is 10 (2 statements multiplied by score of 5). The minimum score is 2 (2 statements multiplied by score of 1). The mean value of wage and employment potential is 6.49. The standard deviation is 2.89. The mean value shows that wage and employment potential in the project is on an average.

Here wages in new occupation and new employment opportunities due to development projects were analysed as a reason for occupational mobility among the respondents. The result points out that wage and employment potential was on an average which motivated the fishers to shift to other jobs. The presence of many industries and development projects such as LNG Terminal provides a better alternative vocation for the local fishers (Salim *et al.*, 2015).

Conclusion :

The analysis of occupational mobility of fishers as a result of development projects in the Goshree islands points out the main factors affecting the occupational mobility. The factors derived are constraints in fishing, new employment opportunities and wage and employment potential in the new development project. The analysis reveals the fact that major reason for occupational mobility of fishers is mainly the constraints in fishing. It indicates that proper policy measures should be taken by the authorities to protect the interest of the fishers while they plan development projects along the coastal regions.

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