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Education and Intergenerational Mobility In Employment In Fisheries Sector

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Abstract: This manuscript examines the determining factors of intergenerational mobility of employment in fisheries sector in Kerala. For this purpose, a randomly selected 300 respondents from both fishery and non-fishery sector in Kerala were interviewed and various information on their socio-economic conditions were collected. From the socioeconomic analysis, the study observed that compared to non-fishery community, fishery communities are following joint family system and their average monthly salary is below 15000 rupees. The education level of fishery community is very low and most of them having the education below matriculation level and they are having less access to bank for credit and relying on money lenders and friends. For analyzing the possible reasons for intergenerational mobility of employment from fishery to non-fishery sector, the study employed a Logit model and the results shows that an additional year of education is more than three times than other factors is likely to shift the people from fishery to non-fishery sector.

Keywords: Fishery, Inter-generational mobility, Education, Logit, Kerala

1. INTRODUCTION

Kerala's inland water spread of around 4 lakh hectares and an exclusive economic zone 36000 square kilometer in the Kerala coast, which makes the state as one of the leading marine revenue generating states of India. Fishery sector is the leading sectors in Kerala that promotes economic development in the state. It also contributes the state's export revenue and support the poor people to achieve required protein and nutrition. Fishery sector provides 11 lakh employments opportunities in Kerala as per the latest estimates, there are 2.20 lakh active fishermen, of which 82 percent are engaged in the marine sector (Kerala Economic review, 2019). The three districts Malappuram, Thiruvananthapuram and Alleppey is having highest number of fishermen population and 64.1% percent of the fisher folk are living below poverty line(Handbook, MoA,2004).

Fisheries as an economic sector gained importance with the initiation of economic planning in India. The long coastline and the productive continental shelf gave fisheries the status of a sector capable of accelerating the growth of the rural economy of the country. Accordingly, planned marine fisheries development had the multi-faceted objectives of increasing the fish harvest, improving socio-economic conditions of fishermen, augmenting export earnings and generating new employment opportunities. These objectives were to be achieved through initiatives promoted by the state and private efforts. The globalization gave birth to structural innovation and commercialization of the fisheries sector. And due to this, the fisheries sector has witnessed an impressive growth from a subsistence traditional activity to a well- developed

commercial and diversified enterprise.
The fisheries sector of Kerala contributes about 9 percent of the GSDP from the agriculture sector and occupies a significant position in the state economy (Economic Review, 2013). Even though there are conscientious changes in the structure of production, processing, export and marketing activities in Kerala's inland and sea fishing Industry, the youths born in fishing communities are going away from this industry due to many reasons. This paper is an attempt to study the causes and determinants responsible for intergenerational mobility of employment among fisherman community in Kerala. There are studies which examines the economic and social conditions of fisheries community but studies on inter-generational mobility of employment are very rare. So, this paper is aimed to fill this gap. The remaining part of this paper is organized as follows. Section 2 presents the empirical literature. Section 3 gives the data and methodology used. Section 4 and 5 presents the empirical results and discussions and final section presents policy implications and conclusions.

2. REVIEW OF LITERATURE

Gunakar, Jadav and Bhatta (2017) determined India's fisheries governance suffers from weak regulation and poor compliance, with a primary exception – a collection of coastal seasonal fishing bans or closures. Mainly based on monsoon ban and how it affects the fish small scale fisheries in India. The small-scale fisheries Guidelines provide a normative foundation for strengthening the monsoon fishing bans as part of dynamic fisheries management to privilege and protect India's small-scale fisher communities. And the monsoon ban mainly affected small scale industries and it caused the income decline of the fisheries sector.
World Bank (2012) studied issues, opportunities and transition for sustainable development in fisheries sector all over India. India's marine fishing sub-sector can develop a more asset base by building more productive fish stacks. But they identified that India's marine fisheries has some problems like implementation failure, ineffective administration and very impotently product quality. These problems are highly dominated in this sector and most of that affect productivity and modernization of the fisheries sector. Finally, they pointed to the lack of a single and strong fisheries ministry in the center.
Ayyapan (2012) analyzes issues of Indian fisheries sector and a case study on inland fishing, coastal aquaculture, cold water fisheries, fish processing and marketing in India. The exporting sector of fish products drastically increased, and it reached 0.6 million tones and inland fishing also helped to the improvement of export. As per the aquaculture index, India is the second largest country of inland fishing and country building a new inland fishing culture. Ramesan (2006) studied on inland fishing gears of north Kerala and examined different types of inland fishing, materials they used for, conditions in north Kerala etc. Around 1.5% of people working in inland fishing in Kerala and most of them depending this sector for their livelihood life. The study also mentioned about sustainable effect of inland fishing and impact of sand mining, human wastes and others to this community.
Pazhani (1998) analyzed marine fisheries finance with 404 samples in Kanyakumari district. Mainly referred through credit utilization and repayment behavior of fishermen and socio-economic, cultural factors. Poor banking facilities and most of the fish craft owners didn't have any 3idea about insurance policy are determining failure in financial status. Most of the funds allowed under NCDC (National Cooperative Development Corporation) and intervention of the government is very low. So, the study finds that private lending institutions had a significant role and they exploit this community very well.
Viswanathan (1997) researched about internal marketing in marine fishery with reference to

Kerala 3state fisheries sector. There are three mainly used by selling fish products that are through Malsya fed, cooperative societies and private agencies. Most of the people (74%) used private agencies to sell their products and the study implies that these private agencies control the supply and demand of fish products in the market. Paper also finds out the impact of intermediaries in internal fish marketing and their exploitation.

The study by Vinayan (2014) examines socio-economic transformation of fishermen community in Kannur and Kasaragod districts and points out through infrastructure facilities, harbors, safe landing centers and finally what are the problems they faced. And, studies of immemorial accidents in the mid sea and shortage of proper storage facilities are one of the major threats in current life. The problem of the wage system affected their daily consumption pattern and the major reason of inequality in income distribution is mainly based on fluctuated or seasonal income variation. The costly and mechanized fishing crafts and their maintenance costs are always making a huge expenditure to the fishermen. Finally, these problems are not only based on these two regions, but it can be generalizing all fishing Communities in Kerala.

Mahesh (2006) studied poverty, inequality and natural resources degradation of small-scale fisheries in Kerala especially in south Kerala region. Study analysis on 6200 samples in research area and finding out some relevant indexes like poverty of these people comparatively high (21.2%) and a wide range of inequality among rural people with fishermen. The research paper also highlights the educational level of those people and find that one by third of fishermen are illiterate and they are facing a huge socio- economic problem in the society.

Chandra (2015) provides a descriptive picture on cooperative movement in Kerala with special reference of fisheries sector and he used the data in between 1969 to 2004. Mainly focus on functioning and effectiveness of cooperative societies in the fisheries sector. Also referred to the different financial assistance to these societies from NCDC and NABARD. The study assumes that each production sector has a well-structured cooperative institution and they can control the production, distribution and pricing of that product very neutrally. But in the case of the fisheries sector they didn't have a structured cooperative society and most of the sections controlled by private firms. The paper also described the effect of the Indo Norwegian Project (INP). The same studies on cooperative sectors of fisheries sector has shown in Kumar (1998) and Rajeev (2015). Both are studied about the cooperative systems and functioning in fisheries sector especially in Kerala,

Perumal (2010) in his study mainly contributed to inter-state disparities in marine fisheries development in India and classified the study area to education, settlement, income distribution and strength in the fisheries sector in various states. The paper found that around 83.72% fishermen are full time fish workers and among them 69.63% are dependent on the fishing sector for their livelihood. The educational status of these people is very pathetic and analyzed that around 43.5% of them are illiterate and only 5.55% people have proper higher education in this sector. Finally, this research paper concluded that in India there is a wide disparity among fishermen, and they are facing several socio-economic problems in the society.

Kurien and Achary (1990) describe overfishing along Kerala coast with the combination of economic, technological and socio factors operating in a specific context, which has led to the overuse and highlights the deleterious consequences of this marine ecosystem. The developing structure of the fishing sector of Kerala and contribution to center in production of fish products. The study mainly passes through the development era of the fisheries sector especially in the 1970's and 1980's and prescribes the big hands of capitalists and owners in this sector. So, development and technological progress either improve the fish folks or it causes overfishing in seaways.

Salim, Rehman and Athira (2017) discuss on huge migration from outside of Kerala to fisheries

sector. And they are facing certain problems like competition among migrants, lack of education and discrimination in sharing of revenue items. Even though most of the migrants get proper income as compare to their local state and study founded that these people could repay their debts and improve their life index. But major problem behind this migration is it provokes the employability of other Kerala fishermen, and it cause income outflow to other states.

Ancy and Raju (2014) provides a study on structural change in fisheries sector of Kerala. The productivity of fisheries sector has been in an increasing trend till 2010 and after 2013 the contribution of fisheries to GSDP is reduced to 18%. Educational status, gender wise fishing and allied activities and fish craft operating also mentioned in this paper. Around 15% of total population are under fish folks and among them 73% are literate. So, the Kerala fishing industry literally high in income earning and quality life index than other states. State have given more intention to employment generation and foreign exchange earnings to this sector and this will improve this sector very well.

3. DATA AND METHODOLOGY

This study is based on primary data collected from 300fisheries and non-fishery respondents from Malappuram and Kozhikode districts using random sampling. Among 156respondents are working in fisheries sector and remaining 146 members are working in non-fisheries sector. In order to examine the impact of education, income, age on intergenerational mobility, the study used Logit regression model.

4. ANALYSIS AND RESULTS

General demographic and socio-economic characteristics of the sample farm households are summarized in the following tables.The table 1 shows the family distribution of sample respondents.

Table 1: Distribution of type of family and sector wise distribution

Sector	Nuclear Family	Joint Family	Total
Fisheries sector	101	53	154
Non-fisheries sector	136	10	146
Total	237	63	300

Source: primary data

Table (1) shows that 65% of the fisheries families are following nuclear family system, while 93% of families in non-fishery sector are following nuclear system. It shows that compared to non-fishery community, fishery communities are following joint family system.

Table 2: Distribution of monthly income

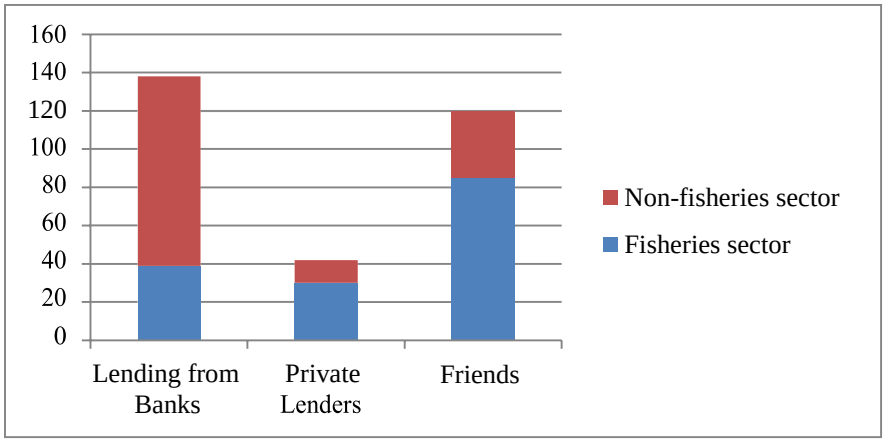
Income	Fisheries Sector	Non-fisheries sector	Total
5000-10000	51	0	51

10000-15000	101	42	143
15000-20000	1	61	62
20000-25000	1	20	21
25000-30000	0	17	17
30000-35000	0	6	6
Total	154	146	300

Source: primary data

The table shows the distribution of income of both fishery and non-fishery respondents. 33 % 64% of the respondents from fishery sectors are earning less than 10000 and 15000 rupees in a month respectively. While in non-fishery sector, 73% earning more than 15000 per month. It is a clear indication that fishery sector is failed to provide constant income to fisher folks. And due to this low income they are not able to meet their monthly expenditure and depending on various formal and informal sector for getting loans. (Figure 1)

Figure 1: Meeting contingency consumption

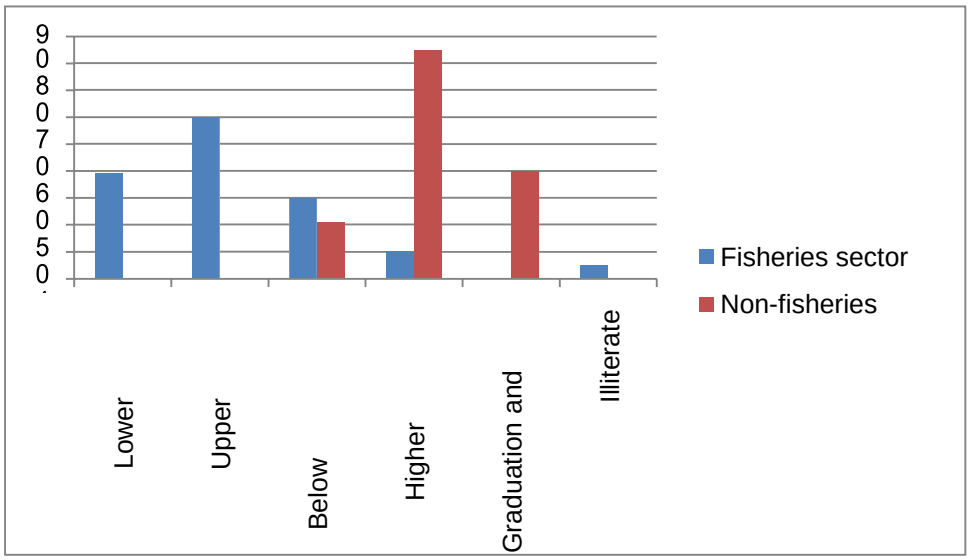


Source: primary data

The figure shows that, in the fisheries sector, they mostly approaching friends (55.19%), banks (25.30%) and private lenders (19.50%) for credit facilities respectively. In the non- fisheries sector, most of them select lending from banks (67.80%) and friends (23.97%) Respectively. Very few of them (8.22%) select private lenders. It is giving a clear picture that the fisherman community still have low access to banking facilities.

The analysis on the education level of the respondents are shown in figure 2, which shows that most of the respondents from fishery folk is only having an education level of below matriculation, while the same in non-fishery sector shows that most of them having above matriculation level of education. Most of the responders from the fisheries sector (38.89%) have upper primary education and lower primary (27.08%) and matriculation (23.37%) follows. Only one person has higher secondary education in the fisheries sector and 6.4% didn't have any kind of education. Most of the responders in non-fisheries sector have (58.21%) have higher secondary education and 28% people have graduation and above qualification.

Figure 2: Education level of responders



Source: primary data

Other findings from the data

The other findings from the information provided by the respondents are as follows.

a. In the non-fisheries sector, most of them are working in gulf countries and they are having high income. Some other people working in different construction fields and few of them working in private and professional jobs. The crucial thing is that only very few people work in the government or organized sector. So, participation in government sector jobs are very low and only few of the people are trying these jobs in early stages of their life.
b. In the fisheries sector fluctuation in their income is very high and they are having low income in monsoon time and high income in good season. And this fluctuation might cause people to select other jobs rather than the fisheries sector.
c. It was found that most of the fishermen joined the fisheries sector due to the traditional setup of society and another few of them joined since it incurred less investment.
d. Meeting contingency consumption is very important to all households. Majority of the non-fisheries sector meet with lending loans (gold loans) from banks and with friends. But banking activity from fisheries sector workers are comparatively low and they mostly prefer friends or private lenders to meet contingency consumption. So, a lack of proper saving or investment are shown through these points.
e. Government provides several policies and financial help adopted to the fisheries sector like special rations, pensions, educational help to children, insurance and cooperative banking. But in non-fisheries sector workers didn't get any kind help from governments.

Logit Regression Model

To examine the factors influencing the intergenerational mobility in the fisheries community, this study adopted Logit Regression model, which is used when the dependent variable is dichotomous and independent variables are measured on any scale. In our case, the dependent variable indicates the presence or absence of a member in a fishery community in fisheries sector. We considered monthly income, education level, age and parental job as some of the explanatory variable. We hypothesized that as income and educational level increases members in a fishery communities are able to find better jobs and tend to withdraw from the fisheries sector. As younger people's preference are more for non-fisheries job, we considered

age as another influencing variable.

Basic Characteristics of Sample

Variable	Description	Mean	Stand Dev
Employment	Fishery Sector=1 (Count 139) Non-fishery Sector=0 (count 161	0.463333	0.499487
Income	Monthly income measured in rupee	17450	7477.558
Education level	Number of Years of Education attained	10.02	4.274792
Age	Age measured in years	37.32	11.73356

Letting Yi=1, if a member in fishery community works in fishery sector and Yi=0 otherwise, monthly income measured in rupee, education in number of years of schooling and age as predictors, we specified a Logit regression model as follows

$$L_i = \left(\frac{\overline{P_i}}{1-P_i}\right) = \beta_0 + \beta_1 Y^m + \beta_2 e^d + \beta_3 age + u$$

β_1, β_2 and β_3 in this equation are partial slope coefficent and measure the change in the estimated logit for a unit change in the value of the given Indipendent variable holding other regressors constant. This can be estimated using the method of maximum likelihood (Newton-Raphson / Marquardt steps)

$$\hat{L}_i = 11.9118 - 0.00028Y^m - 1.14639e^d + 0.1295age$$
$$(3.27121) \quad (7.69E05) \quad (0.29301) \quad (0.04842)$$
$$[3.64141][-3.6212][-3.912][2.6754]$$
$$Log\,likelihood - 41.68043,\ \text{McFadden R} - \text{square}\ 0.79\ \text{LR statistic}\ 330.9127,$$

The estimated results from Logit gives theoretically consistent results and the values given in ( ) and [ ] are standard error and Z- statistics respectively shows that the estimated coefficients are significant. The income coefficient is -0.00028, which is very low and negative showing that if income increases by a unit, on average the estimated logit decreases by about 0.00028. It suggest that even though higher income leads to a withdrawal from fishery sector, its magnitude is very low. Whereas the education coefficient is 1.14639 which is also negative but very high, and showing that an additional year of education decreases the estimated logit by 1.14. It indicates that the education is a crucial factor that determine the intergenerational mobility in fishery sector. The coefficients of age is 0.1295 which positive suggesting that if age increases the estimated logit increases by 0.129. it indicates that the higher the age, the probability of remaining in fishery sector is high. However, together all the regressors have a significant impact, as the LR statistic is 330.9, whose p value is 0.00. A more meaningful interpretation is in terms of odds, which are obtained by taking the antilog of the various slope coefficients. If we take the antilog of these coefficients, we can learn that a year of additional education is more than 3 times likely to shift to non-fishery sector, other things remaining the same.

5. CONCLUSION

The study revolved mainly on one objective,to analyses the reasons for intergenerational mobility of employment in fishery sector. From an analysis of 300 respondents, the study observed that compared to non-fishery community, fishery communities are following joint family system and their average monthly salary is below 15000 rupees. Similarly the education level of fishery community is very low and most of them having the education below matriculation level and they are having less access to bank for credit and relying on money lenders and friends.

There is no doubt that the young generation is willing to mobilize to other sector and this study concluded that education and income variations are the major reasons for this mobility.An additional year of education is more than three times than other factors is likely to shift the people from fishery to non-fishery sector.

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