

# Parity in socio-economic status of fishers and primary producers of coastal India

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## Abstract

**Objective:** The comparison of the socio-economic status of fishers and primary producers of the coastal India would tried to find out the potential gaps and suggested the measures to be taken for improving their living standards.

**Methods:** The NSSO-68<sup>th</sup> round unit level data of fishers and primary producers for all the coastal states and UTs except Goa and Lakshadweep Islands was retrieved and used in the study. The results are represented with frequency tables and bar diagrams. The Z test to compare means and population proportions were used to test for its significant difference.

**Findings:** The results revealed that the parity is existed between the fishers and primary producers with respect to their family size, religion, social group, training, subsidiary activity, employment status, land ownership, savings account and membership with associations. However, there is no parity in the literacy, MGNREG beneficiaries, land utilising for cultivation and average monthly expenditure. The literates among fishers and agricultural households are found to be more than the rural average literacy rate. There is scope to increase the MGNREG beneficiaries among fishers through proper implementation of the scheme to reduce the unemployment during lean season as their percentage was found to be less than the agricultural households. The fishers engaged in subsidiary activity were found to be less. Since the average income of fishers was less than the agricultural households, motivation of fishers to take up subsidiary activities may provide them to earn additional income to overcome the debt trap and during lean seasons. The average monthly consumption expenditure of fishers was comparatively lesser than the agricultural households because of their poor accessibility to various goods and services.

**Application:** The living standards of agricultural dependent population are comparatively lower than the people of any other sectors. The fisheries sector, being the fastest growing sector among the allied sectors of agriculture, the benefits thus obtained can be distributed in favour of poor fishers to improve their living conditions by adopting proper policies.

**Key words:** Parity, Fishers, Primary producers, NSSO data, Data retrieval, Subsidiary activity, and MPCE.

## 1. Introduction

Agriculture is the major economic activity of the country from time immemorial. Even now more than 75% of our rural people are dependent on agriculture and its allied activities for their livelihood and they are often considered as unskilled labour [1]. Therefore the country remained agriculture based economy up to few decades even after the independence. Over time improvement in education, standard of living and technological changes shifted the agricultural dependent economy to industrial and service sectors dependent economy. It is clearly observed from their contributions to the country's GDP. The share (at current price) of agriculture decreased to 15.50% from 45.48% whereas the contributions of industrial and service sectors increased from 14.16% to 27.22% and 33.25% to 54.91% respectively between the years 1950-51 and 2011-12 [2]. This study compares the socio-economic status of primary producers and fishers.

The primary producers in this context refer to the people who are working in primary industries particularly agriculture and allied activities to produce raw materials for other industries (excluding fishing against this sector only comparison has been done). On the other hand, fishers are those (Men/Women) who are engaged in fishing activity or any other activity related with the marine fishery [3]. Considering the changes that are happening in the economy such as improvement in education, standard of living, diversification of economic activities and the Government policies, the socio-economic studies of any households will help to assess their current living conditions. The agricultural households earn relatively less income due to lack of any training or skill and they do not have any other alternative employment or livelihood option because they possess no additional skills [4]. The income of fishers is generally below the poverty line, especially during lean and ban periods. Due to the occurrence of seasonality in fishing, the income of fishers is not even throughout the year. Because of this imbalance in earnings and expenditures they fall under debt trap [5].

A family is considered as BPL family, if the average monthly per capita income is less than ₹356.30 [6]. It was reported that, about 61 % of fishers are living below the poverty line [3]. Agricultural households have been considered as economically better enough compared to the fisher households. Though the income of agricultural households is relatively lesser than the households of industrial and service sectors, their income is comparatively more than the fisher households. Due to the occurrence of seasonality in fishing, most of the fishers are unemployed during lean and ban periods and this unemployment rate is comparatively more than that of agricultural households. Therefore, in order to understand the parity among fishers and primary producers, their socio-economic status has been compared to suggest proper measures to improve the standard of living.

## 2. Methodology

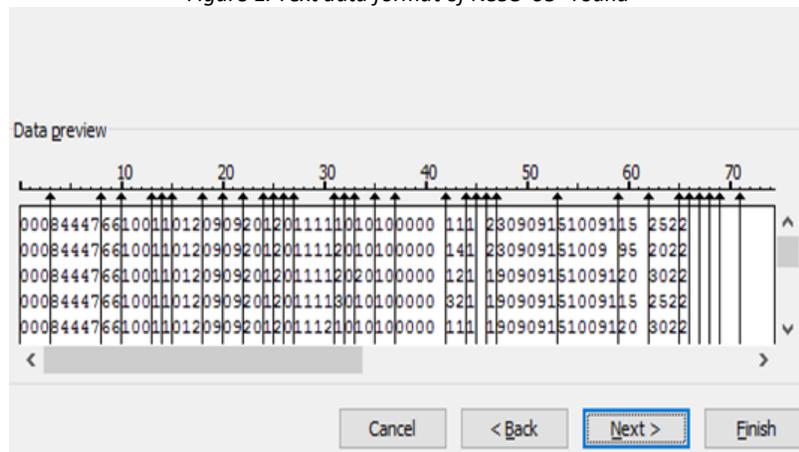
### 1. NSSO 68<sup>th</sup> round

The data for the study is taken from the NSSO 68<sup>th</sup> round conducted in 2011-2012 on “Household Consumer Expenditure” and “Employment and Unemployment” [7]. Different socio-economic variables are extracted by using MS excel with respect to fishers and agricultural households. There are 9 levels in NSSO 68<sup>th</sup> round with varying number of records in each. There are different blocks, in each level which contain different ITEMS (each ITEM is a variable). A link called the primary key is prepared by using certain variables (described in step by step procedure of extraction of data) and used to connect all the 9 levels in such a way that it provides complete information about a particular household. To isolate all items related to the fishers and agricultural households, different MS excel functions have been used and are explained systematically.

### 2. Retrieval of NSSO data for fishers and agricultural households

The 68<sup>th</sup> round of NSSO is in text format (each level). To read data the file has to be imported into the MS excel (go to Office Button-> Open -> Select the Text file name-> open) and then it has to be divided according to the number of bytes that each ITEM will take. This would be done by using support documents given in the text data layout for 68<sup>th</sup> round, schedule-10. The process has been shows in the Figure 1.

Figure 1. Text data format of NSSO-68<sup>th</sup> round



Once divide a text file into different ITEMS, headers will be given for each variables (ITEMS) manually. This has to be done for all the 9 levels and keep ready all the variables from each level. Once this process over, each file will appear in the way it is shown in the Figure 2. Once all the 9 levels converted into excel files, choose level 6 file in which each household is listed based on their occupation.

There is an ITEM called operation (only for rural households) which determines the occupation of the selected individual or household. The variable operation contains a list of occupations and they are coded with the numbers 01 to 15. Here the code given for fisheries is 11. (i.e. the operation 11 represent fisher households). These households are picked up by using MS excel utility called filter. To use this utility, go to home -> sort and filter -> filter, and then click on the downward arrow (∇) showed over the variable called operation. A dialog box with numbers (01-15) will appear. Select the number 11 which is given for fisher households and deselected all other numbers and then click ok. The total records in the level 6 will be filtered based on the operation 11 (selected number for filter). The process is depicted in the Figure 3.

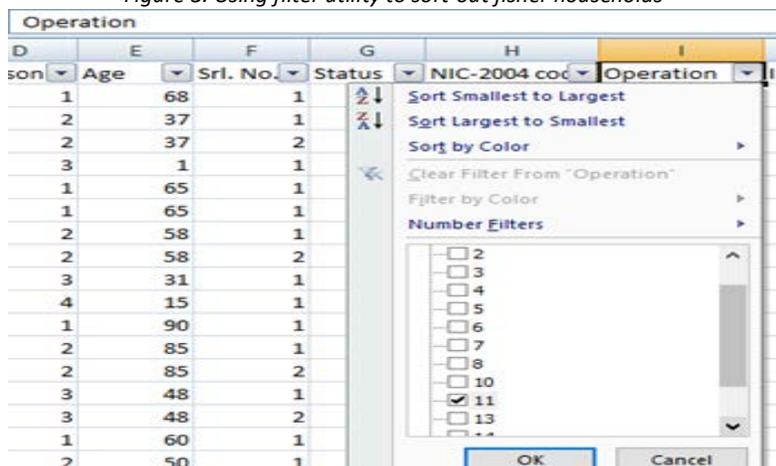
Figure 2. Text file after convert into excel file with headers

Round and Centre code	FSU Serial No.	Round	Schedule Number	Sample
0	84447	66	100	1
0	84447	66	100	1
0	84447	66	100	1
0	84447	66	100	1
0	84447	66	100	1
0	84447	66	100	1

After filtering, there were 262 records under operation 11 with all the variables of level 6. These 262 records (rows) represent not only the total number of individuals surveyed under fisheries activity but also the subsidiary activity (additional work that s/he carries along with the principal occupation) of the same individual if any. In order to get actual number of fisher households surveyed, the subsidiary activity record (duplicate row) has to be removed and that will be done after preparing a master file with the entire variables from each level.

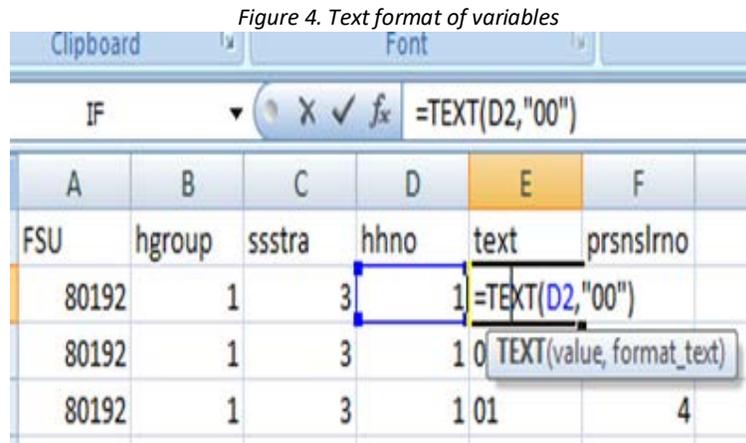
In order to get all the variables from each level, a primary key has to be prepared for these 262 records by using variables such as FSU code, hamlet group/sub block number, second stage stratum, sample household number and person serial number. But before making primary key, the variables chosen to make primary key will be converted into text format. This is because the data provided by the NSSO is in coded form and a fixed number of bytes will indicate a particular characteristic of the household. But while reading the data in excel, it only considers 01 as 1. If it is ignored, the data may be misinterpreted. For example, in the above mentioned variables, FSU is 5 digit number, sample household number and person serial number are 2 digit numbers. So care must be taken while retrieving data with excel.

Figure 3. Using filter utility to sort-out fisher households

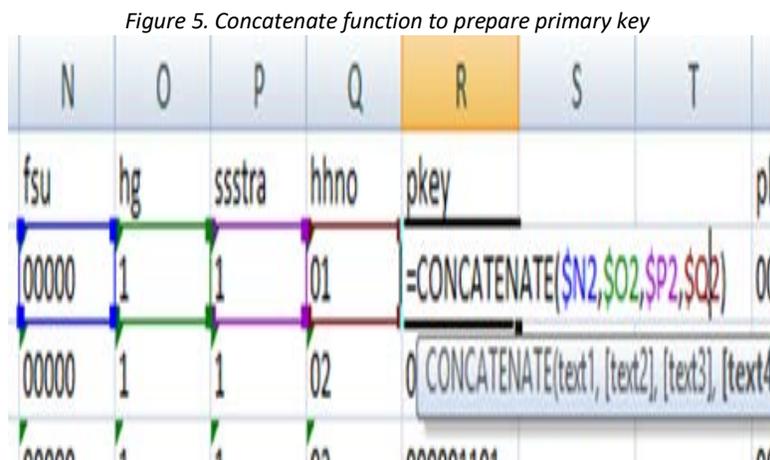


To avoid this problem and to arrive at correct primary key, the data should be read as 01 rather than 1. For that, the text function can be used to preserve 0s in the variables wherever they were present and the same is given in the Figure 4. The column D of the Figure 4 shows the household number which was actually a 2 digits number rather showing single digit numbers. This means excel reads 01 as 1 only. To make it 01, the text function can be used and the format text should be kept in the quotation marks. Likewise all the primary key variables are first converted to the text format and then they are used for making primary key.

The primary key will be prepared by using the function called concatenate which is meant to combine numbers of different rows/columns into a single cell (single number). To get the concatenate function, type = concatenate in any cell and double click the function (concatenate) then select the numbers/rows/columns which are to be concatenated and put the separated commas between each number. The dollar symbol (\$) should be kept in order to fix the cells. The process has been given in the Figure 5.



Now the primary key is ready for the 262 records of level 6 file. By using this primary key, all the variables from each level will be picked up. For that, primary keys has to be prepared separately for all the levels by using same variables listed above from the respective file, which are common variables (items) in all the levels. If the primary key is having more than ten digits, it is difficult to identify number of bytes that each variable has taken. So to make it simple and for better understanding of the primary key variables, text function is used again to distinguish each variable as shows in the Figure 6. By doing so it is easy to understand that the first five digits number is FSU, the next two single digits are hamlet group and second stage stratum respectively and so on.



It is now easy to check the repeated observations if any in the primary key. To retrieve the variables related to the fisheries activity from each level, the prepared primary key for each level would be inserted in the same sheet just before the entire variables. The primary key which is made for fisheries activity (primary key of 262 records) would be taken in the next sheet or in the fresh excel file. A function called vlookup is used to pick up variables from a selected file.

Figure 6. Convert primary key into text format

primary key	primary key
84447110101	=TEXT(K2,"00000-0-0-00-00")
84447120101	8 TEXT(value, format_text)
84447120201	84447-1-2-02-01
84447130103	84447-1-3-01-03
84447210101	84447-2-1-01-01
84447220101	84447-2-2-01-01

To proceed, take excel sheet where the primary key (primary key of 262 records) was saved and type =VLOOKUP in a cell next to the first primary key. Double click on the function and give the lookup value which is the reference value (first primary key out of 262). For the table array, select entire excel sheet from which variables are to be picked up along with its primary key (here sheet1!\$F\$2:\$M\$100958).

The column index number will be the column serial number right from the primary key of the table array (column number 4 is for district). For range look up; select FALSE- exact match in order to get exact match of both primary keys. Fix the array cells range by using dollar symbol (\$) as shown in the Figure 7 and then click enter to get the first look up value for the first primary key. In order to get the look up values for remain primary keys, just double click at the down-right side of the cell where the symbol (+) appears when bring mouse point near to it. Likewise the process has to be repeatedly done until all the variables of a selected file will be retrieved. In the same way variables from 9 levels will be retrieved. The Figure 7 explains the same.

Figure 7. Using vlookup function

IF		X ✓ fx		=VLOOKUP(A2,Sheet1!\$F\$2:\$M\$100958,4,FALSE)				
A	B	C	D	E	F	G	H	I
pkey_lv7	STATE	ZONE	district	level	hhldsize	hhtype	religion	
80192-1-3-01		10	1	=VLOOKUP(A2,Sheet1!\$F\$2:\$M\$100958,4,FALSE)				
80192-1-3-01		10	1	VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup])				
80192-1-3-01		10	1	21	2			
80192-1-3-01		10	1	21	2			
80274-1-3-01		10	1	21	2			

It is observed that there was no person serial number in level 2 hence the first four variables such as FSU code, hamlet group/ sub block number, second stage stratum, and sample household number are used to make its primary key. In order to retrieve variables from level-2, the primary key of fisheries activity (Operation 11) has to be modified accordingly by removing person serial number out of it. Then only the primary keys will be matched and the variables can be retrieved without any error. The Figure 7 shows the extraction process of level-2 file where only the first four variables are used in making primary key. In level-12 text file there were more than 26,00,000 records but the MS excel can take up to 10,00,000+ (no. of rows). For convenience, the level-12 text file was divided into six splits (each split contains 5,00,000 records) by using Em Editor. Em Editor is an extension for the MS excel available freely in the online (Install EM editor ->import text file in to EM editor->tools->split/combine ->enter no. of splits wanted). Then make primary key for all the split parts separately and retrieve the fisheries activity related information by using the primary key. Once retrieved all the variables, a master file will be prepared by copying all the variables from each level to a fresh excel sheet along with the primary key of 262 records.

The Figure 8 shows the master file of fisheries activity. As mentioned earlier, there are few repetitions in 262 records which are due to considering the subsidiary activity of the same individual as another record. There are 49 such repeated records in the master file.

To remove them, “Remove duplicates” utility will be used (go to data-> remove duplicates->a dialog box appears-> select primary key column and also mark the box given for my data has header-> click ok), by which duplications (the 49 repeated records) are removed from the master file. So the total number of fisher households surveyed in the NSSO 68<sup>th</sup> round was 213. The agricultural households engaged in manual works viz. ploughing (operation-1), sowing (operation-2), transplanting (operation-3), weeding (operation-4) and harvesting (operation-5) were selected. The data pertains to them was also retrieved in the same way as it is done for fisher households.

Figure 8. Master file for fisher’s households

pkey	prsnsimo	sex	age	relation to head	marital status	g.education	t.education	emp.exchange	v.training
80192-1-3-01-01	01	1	45	1	2	1	1	2	7
80192-1-3-01-03	03	1	22	5	1	1	1	2	7
80192-1-3-01-04	04	1	18	5	1	1	1	2	7
80192-1-3-01-05	05	1	14	5	1	1	1 #NULL!	#NULL!	
80274-1-3-01-01	01	1	30	1	2	7	1	2	7
81474-1-2-01-01	01	1	45	1	2	5	1	2	7
81499-2-2-02-05	05	1	19	5	1	7	1	2	7
81608-1-3-01-03	03	1	35	3	2	5	1	2	7
81625-1-1-01-01	01	1	58	1	2	7	1 #NULL!		7
81625-1-1-01-03	03	1	35	3	2	5	1	2	7
81625-1-1-01-05	05	1	28	3	2	5	1	2	7
81625-1-1-01-12	12	1	40	3	2	1	1	2	7

**3. Study area**

All the coastal states and Union Territories (UTs) except Goa and Lakshadweep Islands are considered for the study. The reason behind the non-selection of the state Goa and the UT Lakshadweep Islands was lack of sufficient data points. The sample size of agricultural households is quite larger than the fisher households hence, the results can be seen keeping the sample size in view.

**4. Statistical methods used**

The results are discussed with the help of Pie diagrams, bar diagrams and percentage tables. The Monthly Per capita Consumer Expenditure (MPCE) of fishers and agricultural households was multiplied with their respective household sizes in order to get average monthly consumption expenditure of the family. The average consumption was estimated after eliminating the extreme values (those households consumption was relatively higher than the other households).

In order to see whether there is any significant difference between average consumption expenditures of fishers and agricultural households, test for equality of two population means has been done [8].

Hypotheses:  $H_0: m_1 = m_2$  (No difference between the two population means)

$H_1: m_1 \neq m_2$  (There is a difference between the two populations means)

Test statistic:

$$Z = \frac{(\bar{x}_1 - \bar{x}_2)}{\sqrt{\left(\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}\right)}}$$

Notations:

$\bar{x}_1$  and  $\bar{x}_2$  are the means of two samples (fishers and agricultural households)

$\sigma_1^2$  and  $\sigma_2^2$  are the two sample variances

$n_1$  and  $n_2$  are the sample sizes of fishers and agricultural households

Decision criteria: If the Z calculated value is more than the Z table value,  $H_0$  is rejected. In order to see whether there is any significant difference between the fishers and agricultural households, test for equality of two population proportions has been done separately for the variable; level of education, number of beneficiaries under MGNREG scheme and the number of households used their land for cultivation.

Description of the test and notations

$P_1$  and  $P_2$ = Population proportions of fishers and agricultural households respectively

$p_1$  and  $p_2$  = Sample proportions

Where  $p_1 = \frac{x_1}{n_1}$  and  $p_2 = \frac{x_2}{n_2}$

$x_1$  and  $x_2$ = Number of fishers and agricultural households possessing a given attribute respectively

$n_1$  and  $n_2$ = Sample sizes that are drawn from the two populations with proportions  $P_1$  and  $P_2$  respectively.

Hypotheses:  $H_0: P_1 = P_2$  (No difference between the two population proportions)

$H_1: P_1 \neq P_2$  (There is a difference between the two population proportions)

Test statistic:

$$Z = \frac{(p_1 - p_2)}{\sqrt{\hat{P}\hat{Q}\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where  $\hat{P}$  an estimate of the population proportion under  $H_0$  which is computed by using the formula

$$\hat{P} = \frac{(n_1 p_1 + n_2 p_2)}{(n_1 + n_2)} \quad (\hat{Q} = 1 - \hat{P})$$

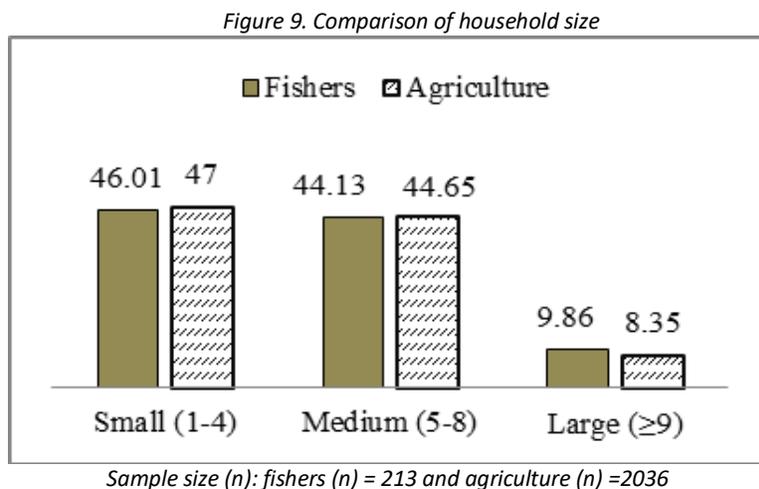
Decision criteria: If the Z calculated value for the given attribute is more than the Z table value,  $H_0$  is rejected.

### 3. Results and Discussion

The sample sizes of fishers and agricultural households were greatly vary hence the comparison may be viewed with that into consideration.

#### 1. Household size

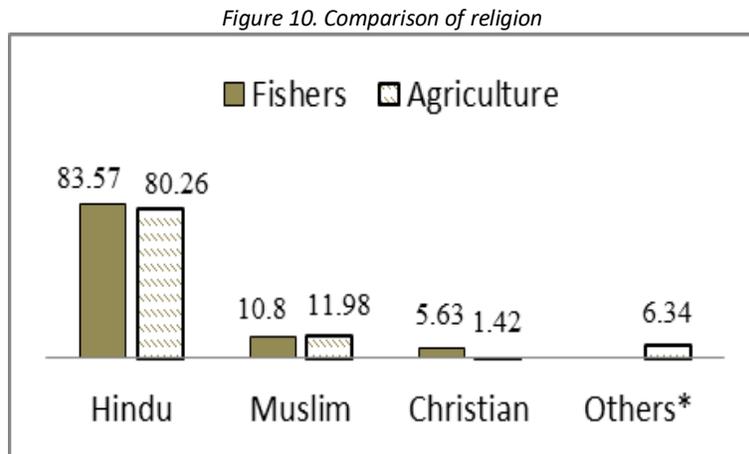
The size of fishers and agricultural households is grouped into three viz: small (1-4), medium (5-8) and large. (It was observed that the family size of fishers and agricultural households in each group was found to be almost same. There is parity in the household size of fishers and agricultural labourers. The Figure 9 depicts household size, their proportion in each group.



**2. Religion**

The results revealed that there is parity between fishers and agricultural households with respect to their religion. Hindus were dominating in the both the household groups with minimum percentage variation followed by Muslims. Fishers who belonged to the religion group Christian were found to be more than the agricultural households.

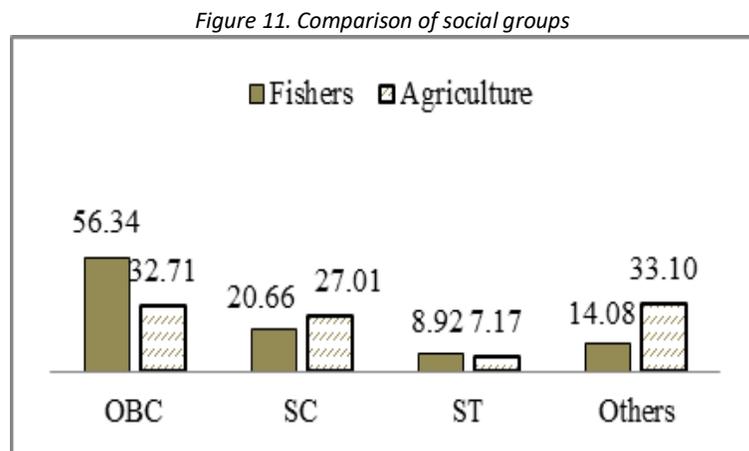
There were about 6.34% of agricultural households belonged to the other religion groups. Figure 10 represent the religion status of households.



*Note: Others\*: Sikhism, Jainism, Buddhism, Zoroastrianism, Others Sample size (n): fishers (n) = 213 and agriculture (n) =2036*

**3. Social group**

Though, the majority of fishers and agricultural households were belonged to the social group other backward classless, the percentage of agricultural households was comparatively less (32.71%) than the fishers (56.34%). So there is parity between the both households with respect to their social group OBC. However, agricultural households belonged to the other social groups found to be more than fisher households. The Figure 11 shows fishers and agricultural households belonged to various social groups.



*Sample size (n): fishers (n) = 213 and agriculture (n) =2036*

**4. General education**

There were 76.06% of fishers educated at different levels and their percentage was more than the agricultural households (65.23%). However the literacy rates of fishers as well agricultural households were found to be more than the literacy rate of rural India (62.6%) during the year 2011[9]. Table 1 compared the different levels of education attained by fishers and agricultural households. Since the literacy rate among the fishers was found to be more, in order to prove that the literacy rate of fishers is significantly different from the literacy rate of agricultural households test for equality of two population proportions has been done. Since, the Z calculated value (3.18) was more than the Z table value (1.96) at 5% level  $H_0$  is rejected.

Table 1. Comparison of education level

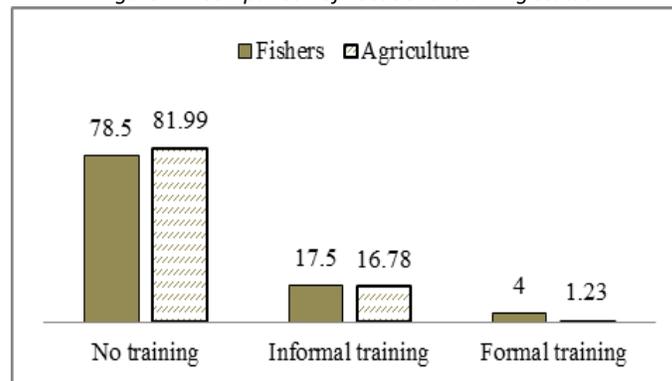
Education	Fishers	Agriculture
Illiterates	23.94	35.31
Up to Primary	37.56	27.75
Middle school –secondary	31.46	28.73
Higher secondary &above	7.04	8.20
Total	100	100

Sample size (n): fishers (n)=213 and agriculture (n)= 2036

**5. Vocational training**

Majority of fishers and agricultural households have not attended for any kind of vocational training to improve their skills with respect to their works. Out of 21.5% of fishers who have attended various vocational training programmes, only 4% of them have received formal training conducted by different Government and or private institutions. The percentage of fishers who have undergone formal training was more than that of agricultural households (1.23%). Most of the fisher and agricultural households have attended for informal training programmes and their percentages remain same for both the households at 17%. Figure 12 depicts the status of vocational training attained by fishers and primary agricultural households.

Figure 12. Comparison of vocational training status

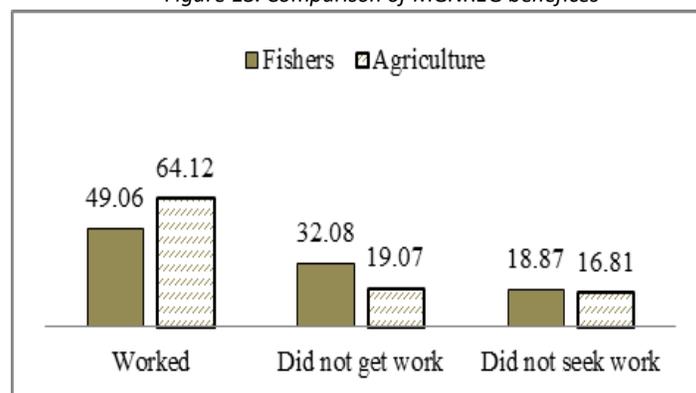


Sample size (n): fishers (n) = 200 and agriculture (n) = 1788

**6. MGNREG beneficiaries**

The most successful government programme to improve the rural economic conditions is the MGNREG, which provides guaranteed employment for them. It was observed that, nearly 56.99% of fishers (out of the sample size of 93) and 78.29% of agricultural households (out of the sample size 1074) registered under the scheme.

Figure 13. Comparison of MGNREG benefices



Sample size (n): fishers (n) = 53 and agriculture (n) =839

Out of registered fishers and agricultural households only about 49.06% of fishers and 64.12% of agricultural households have worked under the scheme. Among the fishers nearly 32.08% did not get work and 18.87% did not seek work.

In the case of agricultural households about 19.07% did not get work and 16.81% did not seek work. Figure 13 shows the benefitted fishers and agricultural households through the scheme. To test the significant difference between fishers and agricultural households who have been benefitted by the scheme, the test for equality of two population proportions test has been done. Since the Z calculated value (2.02) was more than the table value (1.96) at 5% level,  $H_0$  is rejected.

**7. Subsidiary activity**

There were nearly 22.54% of fishers (n= 213) and 36.98% of agricultural households (n= 2036) involved in subsidiary activity to gain additional income apart from their principal economic activity. Table 2 depicts various subsidiary activities and percentage of fishers and agricultural households involved in them.

Table 2. Comparison of various subsidiary activities

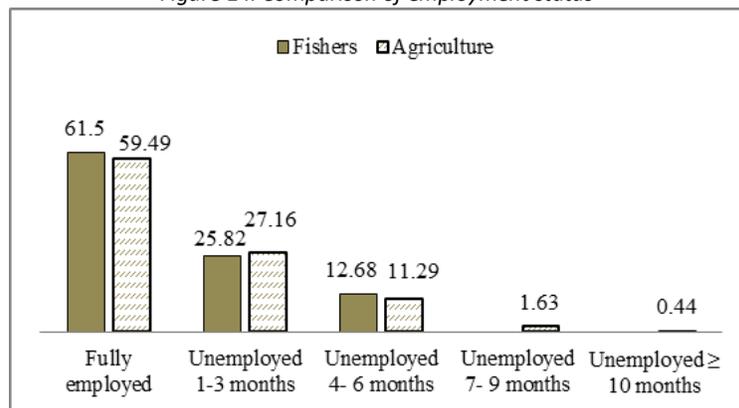
Subsidiary activity status	Fishers	Agriculture
Worked in household enterprise (self-employed) as own account worker	39.58	24.44
Worked in household enterprise (self-employed) as employer	4.17	1.99
Worked as helper in household enterprise (unpaid worker)	16.67	18.19
Worked as regular salaried/wage employed	0	0.13
Casual wage labour in public works & NREG	8.33	21.12
Casual wage labour in other types of work	31.25	34.13
Total (in percentage)	100	100

Sample size (n): fishers (n) = 48 and agriculture (n) = 753

**8. Employment status**

About 61.50% of fishers and 59.49% of agricultural households were fully employed during the economic year. The remaining fishers (38.50%) and agricultural households (40.51%) who were unemployed for few months due to various reasons categorised under number of months they were unemployed. The same was showed in the Figure 14. It was clear from the figure that no fisher was unemployed more than 6 months.

Figure 14. Comparison of employment status



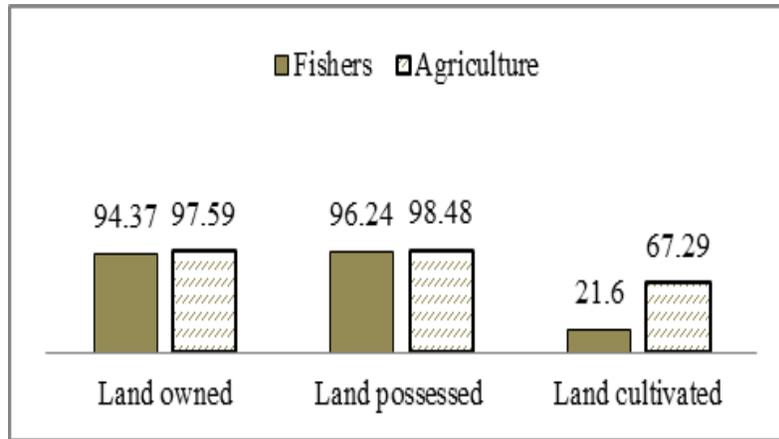
Sample size (n): fishers (n) = 213 and agriculture (n) = 2029

**9. Land possession and utility**

It was observed that more than 90% of fishers and agricultural households have own land and nearly 1-2% of fishers and agricultural households have possessed land (own land + lease in/out land). Though more than 95% of fishers and agricultural households possessed land, the land used for the cultivation among them was 21.60% and 67.29% respectively.

Figure 15 compared the land possession and utilisation for cultivation by them. In order to find the proportion of fishers and agricultural households used their land for cultivation was statistically different, the test for equality of two population proportions was applied. Since the Z calculated value (13.13) was found to be more than the Z table value (1.96) at 5% level,  $H_0$  is rejected.

Figure 15. Comparison of land ownership and cultivation



Sample size (n): fishers (n) = 213 and agriculture (n) = 2036

### 10. Monthly household consumption expenditure

The average monthly expenditure of fishers and agricultural households was calculated from their monthly per capita consumer expenditure (MPCE). The average monthly consumption expenditure of fisher households (₹3359.83) was less than agricultural households (₹3522.37). Since fishers are less accessible to various markets, goods and services, their consumption expenditure was usually lower than that of the agricultural households. Fishers are usually resides near to the coastal areas where the availability of markets for different goods and services are less which may be one of the reasons for their less accessibility.

But agricultural households are geographically distributed widely than fishers and are accessible to diversified goods and service including recreational services because of which the average consumption of the former was more. Test for equality of two population means was used to see the significant difference between the consumption expenditure of fishers and agricultural households. Since the Z calculated value (43.60) was more than the Z table value (1.96), the  $H_0$  is rejected.

### 11. Savings account details

About 83.67% of fishers and 82.45% of agricultural households were having either bank or post office savings accounts.

### 12. Member of Union or Association

It was observed that 78.49% of fishers and only 25.29% of agricultural households had membership with the union or association. Since most of the fishers were very poor and suffering even to meet basic requirements. They need financial support and assistance for performing fishing activity. Since the fishing activity is seasonal and uncertain, the fishers are not sure whether they get fish or not every day. Their repayment capacity for various debts may be dependent on the amount of catch they get.

In order to minimize the risk, the fishers usually join in the union or associations where they are provided their common needs like credit, fishing equipment at cheap prices. The fishers are also suffering from the like lack of skills to handle fish, exploitation by middlemen and distress sale of fish etc. which can be eliminated by having membership with the unions or associations and enable them to get maximum share in the consumer's rupee.

## 4. Conclusion

The study highlighted the retrieval of NSSO-68<sup>th</sup> round unit level data with the help of using various excel functions and utilities and compared socio-economic status of fishers and primary producers of coastal India to observe the parity among them.

There was parity among them in the socio-economic variables such as family size, religion, social group, whether training received or not, involvement in subsidiary activity, employment status, land ownership, savings account and membership in union or association.

However there was significant difference between fishers and agricultural households with respect to their literacy rates, MGNREG beneficiaries, land utilising for cultivation and the average monthly household expenditure which are statistically proved. Though the literacy rates are satisfactory, the percentage of higher education among the fishers and primary producers is unsatisfactory. The percentage of fishers and primary producers attended for various institutional training programmes was poor. There must be a provision for the farming communities for achieving higher education.

The linkage of various research and extension oriented institutions may help them to seek skills in order to increase efficiency in their respective works. The MGNREG scheme must cover more fisher population and the number days of guaranteed employment must be increased by which their income can be increased. The adverse effects of ban and lean seasons on fishers can also be minimised. Development of cottage industries near coastal areas may increase the employment opportunities for local people and increase their income so that the problem of indebtedness will be avoided.

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## 6. References

1. S. Thenmozhi, P. Thilagavathi. Impact of agriculture on Indian Economy. *International Research Journal of Agriculture and Rural Development*. 2014; 96-105.
2. Sector wise contribution of GDP of India. <http://statisticstimes.com/economy/sectorwise-gdp-contribution-of-india.php>. Date accessed: 21/03/2017.
3. Central Marine Fisheries Research Institute. <http://www.cmfri.org.in/>. Date accessed: 08/08/2018.
4. K. Padhi. Agricultural labour in India: A close look. *Orissa Review*. 2007; 23-28.
5. S. Rameshkumar, A.J. Excelce, G. Padma Parvathy, T. Priyanka. Income and expenditure pattern of fisher folk in selected rural coastal villages of Tuticorin in Tamil Nadu. *Indian Journal of Fisheries*. 2011; 58(3), 153-155.
6. S. Chattergee. Estimation of rural poverty: A discussion with reference to India. *WYE City Group on Rural Development and Agriculture Household Income*, at FAO Headquarters, Rome. 2009.
7. National Sample Survey Organisation 68<sup>th</sup> round. <http://www.ilo.org/surveydata/index.php/catalog/339/study-description>. Date accessed: 16/06/2017.
8. R.S. Biradar. Fisheries statistics, course manual, Second Edition. Central Institute of Fisheries Education, Mumbai. 2002; 159-165.
9. Ministry of statistics and programme implementation. [https://en.wikipedia.org/wiki/Ministry\\_of\\_Statistics\\_and\\_Programme\\_Implementation](https://en.wikipedia.org/wiki/Ministry_of_Statistics_and_Programme_Implementation). Date accessed: 20/03/2018.

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