

AN ANALYSIS OF FISHER HOUSEHOLD ECONOMIC BEHAVIORS IN GORONTALO CITY

Yuni Hagu¹, Aziz Salam¹, Rahim Husain²

¹Postgraduate Program of Marine Science and Fisheries, Gorontalo State University

²Faculty of Fisheries and Marine Science, Gorontalo State University

ABSTRACT

This research aims to analyze the age, education, number of dependent family members, asset, machine capacity, and working time factors which affect fisher household income and examine the number of dependent family members, education, age, asset, and selling price factors which affect fisher household expenditure. Data were analyzed descriptively using a linear regression analysis approach and a correlation test. The research population was 1,221 heads of the family. Sampling was conducted using Slovin's formula at a trust level of 15%, bringing about 100 respondents. The research findings indicate that factors had a significant impact on fishers' household income, statistically speaking, were education and working time. Elevated, the factors would increase the fisher household. The factor with a significant impact on fisher household expenditure was the catch selling price. A significant increase in a selling price indicated a high fisher income and hence an increase in expenditure. Using a diversification policy strategy, we formulated policy interventions in regard to fisher household economic behaviors in Gorontalo City, namely 1) Several programs and activities contributing to the social and economic welfare of the coastal community in Gorontalo City, 2) Profession-based entrepreneurship training for the coastal community, 3) Family Planning socialization focused on restricting the number of family members and providing education regarding household economic activity patterns, and 4) for stakeholders, bringing about alternative livelihoods other than fishery sectors and thereby encouraging fishers to be more productive and elevating their welfare.

Keywords: *Economic Behavior, Fisher Household Expenditure, Fisher Household Income*

INTRODUCTION

Fishery and marine sectors are two economic drivers in Gorontalo City. Due to their potencies, the Gorontalo government decides them as the development resources. The potencies lie in the coastal line of 655.8 km, comprising of a coastal line of 217.7 and 438.1 km in the north beach (Sulawesi Sea) and the south beach (Gulf of Tomini), respectively. Furthermore, the waters area of Gorontalo is 50,500 km², consisting of the waters of the Gulf of Tomini 7,400 km², Sulawesi Sea 3,100

km², and the Exclusive Economic Zone in Sulawesi Sea 40,000 km². Additionally, 131 coastal villages are distinguished features in the capture fishery and aquaculture business developments or other marine and fishery potency developments (Anonym, 2017). The coastal community of Gorontalo City largely uses the potency, making the two sectors capital to drive the fisher community economy there. As such, we need to develop investment/amplify capital, implement useful relevant technology, and

empower the community through integrated programs which enhance the community welfare and income as the main actor of business in marine and fishery. This development will later contribute significantly to the local and national economy. Gorontalo population, in terms of fishery business actors, is 19,013 in number. The number covers the number of full-time fishers, part-time fishers, and freelance fishers which are 10,028 (53%), 4,419 (23%), and 4,566 (24%), respectively. Built upon these numbers, the percentage of workforces working as fishers in Gorontalo is 0.0173%. Meanwhile, the number of fisher households per 2017 was 13,412, comprising the number of capture fisher households and aquaculture fisher households which was 7,067 and 6,345, respectively (Anonym, 2017). Gorontalo City, with its coastal areas, has 1,930 business actors in fisheries who are now holding the fisher card. 1,443 (75%) of whom are capture fishers, whereas the rest, 431 (8.3%) and 56 (1.1%) are aquaculture fishers and fishery product collectors, respectively. The number of capture fisher households per 2018 was 908.

Nevertheless, the high fishery potency does not correspond to the fisher

prosperity level. Studies of fishers, in general, highlight their impoverishment and economic uncertainty created by hardships they and their family are confronting (Kusnadi, 2000; Pretty *et al.*, 2003; Widodo, 2011). That situation is also generated by the relationship between fishers and the surrounding environment (coasts and sea), which is absolutely not certain (Adriati, 1992; Kusnadi, 2000; Satria, 2009). Accordingly, this research aims to investigate the factors for fisher household income and expenditure in Gorontalo.

RESEARCH METHODOLOGY

Time and Location

This research took one year to accomplish, starting from March 2019 to February 2020 in Gorontalo City. A field observation as preliminary research was conducted to acquire the information regarding the socio-economic condition of the coastal community. The observation was specifically targeted to those living in the coastal subdistricts in Gorontalo City, namely Hulonthalangi (Pole and Tanjung Kramat) and Dumbo Raya (Leato Utara and Leato Selatan). Figure 1 depicts the research location.

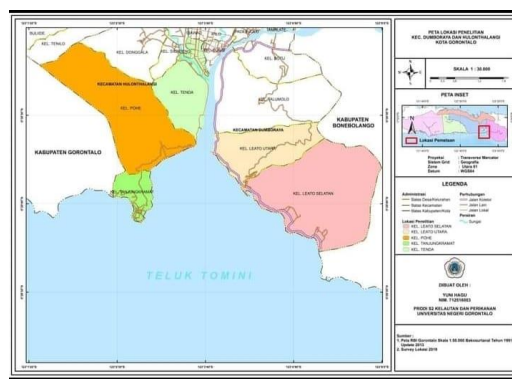


Figure 1. The Coastal Area of Gorontalo City

Research Design and Methods

The research method used was descriptive. A descriptive approach was typically used to define evidence regarding object researched and analyze the factors of fisher household income and expenditure (Singarimbun and Effendi, 1989). The research location was purposively determined, which was in Pohe, Tenda, Leato, and Tanjung Kramat, which were four sub-villages in Gorontalo City. Sampling was undertaken using a simple random sampling technique (Marzuki, 2005).

Research Population and Sample

The sample taken in two subdistricts, namely Hulondalangi (Tanjung Kramat, Tenda, and Pohe) and Dumbo Raya (Leato Selatan and Leato Utara) consisted of 1,221 people. 10% of the fishers, hence 100 in number, were regarded as a sample and represented the entire fisher population in Gorontalo City. The research sample comprised of capture fishers living in Pohe, Tenda, and Tanjung Kramat (Hulondalangi) and Leato (Dumbo Raya) acquired using Slovin's formula.

$$n = \frac{N}{Nd^2 + 1}$$

Where:

n : the amount of sample

N : the amount of population

$$PDM = \beta_0 + \beta_1 UN + \beta_2 PDD + \beta_3 PM + \beta_4 JAK + \beta_5 ASK + \beta_6 DM + \beta_7 CKM + \varepsilon$$

Where:

PDM : fishing income (IDR/year)	= Y
UN : fisher age (year)	= X1
PDD : education (year)	= X2
PM : fishing experience (year)	= X3
JAK : the number of dependent family members (person)	= X4
ASK : the worth of boat and fishing gear as assets	= X5
DM : engine power (PK)	= X6
CKM : the amount of time spent at sea (HOK)	= X7

D : standard deviation of the population or the desired precision degree 0.10

The research sampling technique exerted was simple random sampling. The technique allowed any fishers in any area in Dumbo Raya Gorontalo City had the same opportunity for being research samples or respondents.

Data Type and Source

This research used primary and secondary data sources. Primary data revealed the fishing gear conditions, including the type and the size/capacity, through direct interviews with fishers. The instrument used to collect the primary data was questionnaires. The questionnaires were distributed in accordance with the number of respondents which became the research population and sample. Meanwhile, secondary data were collected through literature studies and scientific journals.

Data Processing and Analysis Method

1. Factors for fisher household income

Factors for fisher household income were observed using descriptive technique. The technique enabled us to analyze factors for fisher income using a linear regression model (Sulaiman, 2004), which is as follows:

2. Factors for fisher household expenditure

Factors for fisher household expenditure were analyzed using a linear

regression analysis model (Rohmadi, 2010), which is as follows:

$$\varepsilon PRT = \beta_0 + \beta_1 JAK + \beta_2 PDD + \beta_3 UN + \beta_4 PDM + \varepsilon$$

Where:

PRT	: household expenditure (IDR/year)	= Y
JAK	: the number of dependent family members (person)	= X1
PDD	: education (year)	= X2
UN	: age (years old)	= X3
PDM	: fishing income (IDR/year)	= X4

FINDINGS AND DISCUSSION

Gorontalo City was the capital of Gorontalo Province and located between 00°28'17"-00°35'56" North Latitude and 122°59'44"-123°05'59" East Longitude. Gorontalo Province was bordered with the following districts and landmark:

- Bulango Utara Bone Bolango in the north.
- Kabila Bone Bolango in the east.
- The Gulf of Tomini in the south.
- Telaga and Batuda'a Gorontalo District in the west.

There were nine subdistricts and 50 sub-villages in Gorontalo and we selected Hulondalangi (Pole, Tenda, Tanjung Kramat) and Dumbo Raya (Leato) as our research locations. An economic condition of a region should be analyzed to manifest a sustainable

regional economy through an engagement of the local economy in a broader regional economic system. The analysis of economic behaviors, by definition, was oriented to get to know fisher consumption behaviors in Gorontalo City.

Respondent Fisher Characteristics

1. Respondent fisher age

Fishers who became the respondents of this research were 20-51 years old, implying that the youngest respondent was 20 years old, while the oldest was 51. The highest percentage was achieved by respondents aged 40-45 years old, which was 32%, followed by those aged 30-39, > 51, 46-50, and 20-29 years old, which was 24%, 26%, 14%, and 3%, respectively. The details of respondent age data are listed in Table 1.

Table 1. Respondent Age

No.	Respondent Age	Number of Respondent	Percentage (%)
1	20-29	3	3.00
2	30-39	24	24.00
3	40-45	32	32.00
4	46-50	14	14.00
5	≥ 51	26	26.00
Total		100	100.00

Source: Processed Data, 2019

2. Fisher respondents education level

Most respondents, 82 in number, had graduated from a senior high school, whereas 3 respondents came with a diploma and bachelor's degree. Observing these numbers, we can

conclude that the respondent education level at the location research was still low as most of them were only senior high school graduates. The finding also indicates a low participation rate in education.

Table 2. Respondent Education

No.	Respondent Education	M	F	Subtotal
1	Non-elementary school/equivalent graduate	-	-	-
2	Elementary school/equivalent graduates	-	-	-
3	Junior high school/equivalent graduates	10	5	15
4	Senior high school/equivalent graduates	79	3	82
5	Diploma	1	1	2
6	Bachelor	-	1	1
Total		78	22	100

Source: Processed Data, 2019

3. Fishing experience

78% of fishers admitted more than 5-year experiences. Fishing experiences significantly contributed to income earned by fishers. Foster

(2001:43) in Lamia (2013) argued that the length of time or work period that a person has taken can help him understand the duties of a job so that he is able to carry out the task properly.

Table 3. Fishing Experiences

No.	Year	Number (People)	Percentage (%)
1	1-2	-	-
2	2-3	2	2.00
3	3-4	-	-
4	4-5	20	20.00
5	> 5	78	78.00
Total		100	100.00

Source: Processed Data, 2019

4. The number of respondent fisher dependent family members

Evidence suggests that 30% of respondent fishers had more than five

dependent family members. Others had 4-5 (20%), 3-4 (18%), 2-3 (17%), and 1-2 (15%).

Table 4. The Number of Fisher Dependent Family Members

No.	Dependent Family Members	Number (People)	Percentage (%)
1	1-2	15	15.00
2	3-4	17	17.00
3	4-5	18	18.00
4	5-6	20	20.00
5	> 6	30	30.00
Total		100	100.00

Source: Processed Data, 2019

5. Fisher assets

Fisher assets were in the form of boats which were the boat type 1-5 GT-31 GT. Most fishers used boats with a

capacity of 10-20 GT (30%), the rest used 5-10 GT and 20-30 GT (23%) and 31 GT (4%).

Table 5. Fishing Boat Asset

No.	Fishing Boat Aset (GT)	Number	Percentage (%)
1	> 31	4	4.00
2	20-30	23	23.00
3	10-20	30	30.00
4	5-10	23	23.00
5	1-5	20	20.00
Total respondents		100	100.00

Source: Field Data Processed, 2019

6. Fishing boat engine power

There were two ship engines commonly used, namely marine engine and ordinary car machine (190 ps Mitsubishi). The respective boat owners had a different preference of engine power and selected it based on its brand and country where they were made. In general, fishers in Gorontalo City used

two types of engine produced by China, which was 170 HP and 160 HP, and others used Yanmar and Weichai.

7. Fishing time

Thirty eight, twenty seven, twenty one, and six respondents spent 24-48, 48-96, 12-24, 1-12, and > 96 hours of fishing, respectively.

Table 6. Fishing Time/hours

No.	Fishing Time (hours)	Number (people)	Percentage (%)
1	> 96	6	6.00
2	48-96	27	27.00
3	24-48	38	38.00
4	12-24	21	21.00
5	1-12	8	8.00
Total respondents		100	100.00

Source: Processed Data, 2019

8. Factors for fisher household income in Gorontalo City

Factors for fisher household income in this research were: Age (X₁), education (X₂), experience (X₃), the number of dependent family members (X₄), private equipment/assets (X₅), engine power (X₆), and fishing time (X₇). The analysis model used was double regression. Using the result of the regression coefficient in Appendix 1, we

acquired a regression equation as follows:

$$\hat{Y} = 0.398 + 0.060X_1 + 0.460X_2 - 0.200X_3 - 0.030X_4 - 0.007X_5 + 0.780X_6 + 0.620X_7$$

Factors with a significant effect on fisher household income, statistically reviewed, were education and fishing working time.

9. Factors for fisher household expenditure in Gorontalo City

Factors for fisher household expenditure in this research were: the number of dependent family members (X_1), education (X_2), age (X_3), and selling price (X_4). The analysis model used was double regression. Using the result of the regression coefficient in Appendix 2, we acquired a regression equation as follows:

$$\hat{Y} = 3.15 + 0.02X_1 + (-0.17)X_2 + 0.06X_3 + 0.25X_4$$

Factors with a significant effect on fisher expenditure, statistically reviewed, were fishing catch selling prices.

Fisher Household Economic Behaviors in Gorontalo City

In regard to fisher household economic behaviors in Gorontalo City, this research focused its analysis on how fisher households fulfilled their daily needs by examining factors for fisher household income and expenditure levels.

Factors for income level were age, education, fishing experience, the number of dependent family members (the family member participating in increasing fisher income, regardless of still being at a productive age or not), assets privately owned by fisher households which support their fishing activities (boats and catching tools), engine power, and fishing working time. Factors with a significant impact on fisher household income in Gorontalo City were education and fishing working time.

Furthermore, in terms of fisher household economic behaviors related to fisher expenditure, this research

investigated several factors, namely the number of dependent family members, educational level, age, and selling price. Our analysis indicates that all researched factors positively correlated with respondent expenditure levels. Among the factors, selling price is the factor with the most significant impact on expenditure. Meanwhile, other factors did not show any significant impact. This particular condition was brought about by the fact that the higher the selling price set by fishers, the higher the income. Furthermore, the higher the income, the higher the expenditure.

CONCLUSION

Referring to the analysis of fisher household economic behaviors made in the coastal area of Gorontalo City, we can conclude that:

1. Factors with a significant impact on fisher household income, statistically reviewed, were education and working time. If enhanced, the factors would likely increase fisher household income.
2. Factors with a significant impact on fisher household expenditure were fisher catch selling price. If enhanced, the factors would likely increase fisher household income. The higher the selling price set by fishers, the higher the income. The higher the income, the higher the expenditure.
3. To identify fisher household economic behaviors in Gorontalo City, this research analyzed income factors by considering the variable of age, education, experience, the number of dependent family

members, asset, engine power, fishing working time as well as expenditure factors by considering the variable of the number of dependent family members, education, age, and selling price.

meeting held by Tim Ahli Bimas Departemen Pertanian. Jakarta.

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