Factors affecting revenue of fisherman in Asamjawa Raya Village, South Labuhanbatu Regency, North Sumatra

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Abstract. South Labuhanbatu Regency has quite large water resources with the Barumun River which crosses Pasir Tuntung Village, Asamjawa Village, Kotapinang Village and Sisumut Village. This study aims to determine the factors that influence the income of fishermen in Asamjawa Village, South Labuhanbatu Regency. This research method is a descriptive method with a questionnaire tool and the data obtained were analyzed using SPSS software. The variables observed were fisherman's income, fisherman's education, length of time working as a fisherman, area of fishing location, daily working time, number of fishing gear and number of fisherman catches. The linear regression model of fishermen's income in Asamjawa Village was obtained as follows: \( Y = -19.344,10 + 392.699,10 X_1 - 5.024,53 X_2 + 73.255,48 X_3 + 16.349,29 X_4 + 135.819,41 X_5 + 12.465,72 X_6 \). The regression analysis results obtained three variables that significantly affect the income of fishermen in Asamjawa Village, Torgamba District, South Labuhanbatu Regency. Where the variables that have a significant effect are the education variable, the number of catches, and daily working time.

1. Introduction
Labuhanbatu Regency has a reasonably large capture fisheries potential. However, this potential has not been fully utilized by fishermen, tiny fishermen. Most fishermen carry out fishing activities around the coast with small and simple fishing gear so that this area becomes dense with fishing gear. Meanwhile, the wider sea area is dominated by fishermen who use large boats and most of their fishing gear is not environmentally friendly. The density of fishing gear around the coast results in fewer fish stocks, so production decreases [1].

Most of the social categories of Indonesian fishermen are traditional fishermen and labor fishermen. They are the main contributor to the quantity of national capture fisheries production. Nevertheless, their social position remains marginal in the process of unequal and exploitative economic transactions so that as producers, fishermen do not get a large share of income. The most fortunate are the large-scale
fish traders or middlemen. These traders are the economic rulers in the fishing villages. Such conditions continue to befall fishermen without having to know how to end it. This has given rise to a number of crucial socio-economic problems in fishing communities [2].

States [3] that the characteristics of fishing communities are sociologically different from those of farming communities in managing or using land to earn a living. Fishermen face uncontrolled resources where when the catch decreases, the fisherman must look for new land. The socio-economic study of fishermen is an interesting thing to do, especially in Asamjawa Raya Village. According to [4], socioeconomic is the position or position of a person in a human group, which is determined by the type of economic activity, income, level of education, age, type of residence, and wealth owned.

This research was conducted from August to September 2020. This research was conducted in Barumun River, Torgamba District, South Labuhanbatu Regency, North Sumatra Province. This study aims to (1) determine the social conditions of the fishing community in the Barumun River, Asamjawa Raya Village, Torgamba District, South Labuhanbatu Regency (2) To determine the factors that affect the income of fishermen in the Barumun River, Asamjawa Village, Torgamba District, South Labuhanbatu Regency.

2. Material and Methods

The research was conducted using direct interviews with 11 fishermen in the Asamjawa village data. The data collected in the form of primary data in the form of variables to be observed fisherman's income, education level, catch area, type of fishing gear, number of catches, length of time as a fisherman, the outpouring of fishermen's working time and social data of fishing communities.

The socio-economic analysis of fishermen was analyzed descriptively and described in the form of percentages. This research was conducted by analyzing and presenting facts that occurred in the field to get a picture of the condition of fishermen in the Barumun River, Torgamba District. A descriptive method is a method to describe a situation or phenomenon and to find out things related to certain circumstances according to what is in the field [5]. Data collection was carried out using the census method on 11 fishermen in Asamjawa Raya Village.

Data analysis was performed using SPSS software. The first step in compiling income results is to add up all variables [6].

\[ Y = a + b1 \times X1 + b2 \times X2 + b3 \times X3 + b4 \times X4 + b5 \times X5 + e \]

Note:

\( Y \) = fisherman's income
\( a \) = Constant
\( b1-b5 \) = Regression coefficient
\( X1 \) = Fisherman Education
\( X2 \) = Length of time working as a fisherman
\( X3 \) = Area of fishing grounds
\( X4 \) = Time spent working every day
\( X5 \) = Number of fishing gear
\( X6 \) = Total catch of fishermen

3. Results and Discussion

3.1. Education Fisherman

The lowest education of the fishing community is elementary school, while the highest education is senior high school from all fishermen in Asamjawa Raya Village. A total of 90.9% of the sample of fishermen in this study had the latest education level only up to elementary school (SD), while for people who graduated from junior high school only 9.1% this shows that the education level of the Barumun River fishing community is low due to the awareness of the fishing community. Of the importance of low education. Among fishermen, this profession is considered a way of life passed down from generation to generation. This is following [7], who said that the awareness of the fishing community
towards education is low because they do not understand the importance of formal education. According to [8] says that education is a process by which a person develops his abilities, attitudes and other forms of behavior in the society in which he lives.

3.2. Number of Fishing Gears
The number of fishing gear used by fishermen to catch fish are 1-2 types of fishing gear by 27.3%, 3-4 types of fishing gear by 63.7%, 5-6 types of fishing gear by 9.1% and 7-8 types of fishing gear by 0%. The number of fishing gear used by fishermen is dominated by 3-4 types of fishing gear by 63.7% and the highest number of fishing gear is 5 types, namely traps, nets, fishing rods, nets and hooks. The most common fishing gear used by fishermen are nets and fishing rods. The more fishing gear or the number of fishing gear used, the higher the catch. This is in accordance with [9] who said the number of fishing gear is the number of fishing gear used to carry out fishing operations. Is it by increasing the number of fishing gears or the number of fishing gear that is caught, so that the income increases.

3.3. Number of Fisherman Catches Every Day
The daily catch of fishermen is 1-5 kg/day at 63.7%, 6-10 kg/day at 27.3%, 11-15 kg/day at 9.1% and 16-20 kg/day at 0%. The average number of catches of the highest fishermen is 6-10kg/day, but fishermen can catch up to 15kg/day. The number of fish catches directly affects the income of fishing communities because income from fishermen is the main income of fishermen. According to [10], fishermen's income generally comes from the acquisition of fish obtained, which are then sold to earn income.

3.4. Length of time working as a fisherman
Fishermen who have worked for <1 year are 27.3%, fishermen who have worked for 1-5 years are 27.3%, fishermen who have worked for 5-10 years are 9.1%, and fishermen who have worked for >10 years by 36.4%. The longest working time for fishermen in this study was >10 years. The longer the duration of work of fishermen can increase fishing income. According to [11] the length of work shows the extent of a person's mastery of the field of work that has been occupied. The length of time a person works can be an advantage in choosing strategies and how to do his work and innovating in every job he does.

3.5. Daily Working Time
The working time of fishermen catches fish every day is for 1-2 hours by 27.3%, the highest length of time is at 3-4 hours at 45.5% and fishermen who catch fish for more than 6 hours are 27.3%. For fishermen who work every day for more than 6 hours is 27.3 and the rest is under 6 hours. This shows that the outpouring of fisherman'sed working time every day is short, so the production results willundoubtedly be less. The longer the outpouring of working time, the more fish will be caught.

3.6. Area of Fishing Location
The area of fishing locations on the Barumun River for fishermen who catch fish in an area of >3 Km is 36.4%, for fishermen who catch fish with an area of 3-5 Km is 27.3% and for fishermen who catch fish with an area of catching locations by 5-10 Km by 36.4%. The area of fishing grounds for fishermen in the Barumun River is still in the very narrow to moderate category. This will affect the number of fish catches obtained, where the wider the fishing location, the number of catches will also increase. According to [12], the farther the distance travelled by fishermen, the more catches they will produce to increase the income of fishermen.

3.7. Fisherman Family Income Level
The average income of fishermen in this study is IDR. 1.000.000- 2.000.000 every month by 72.7% and for an average income of IDR. 500.000- 1.000.000 by 27.3%. Based on [13] stated that income as a fisherman is uncertain throughout the year because most fishing activities are still traditional, so seasonal
changes strongly influence them. The economic condition of the fishing community in the Tasik River when viewed from the monthly income of fishermen, which is below the district/city wage of North Sumatra 2020, while according to the Central Statistics Agency, it is classified as low to medium income and income is influenced by the education variable, the number of catches, and daily working time.

Table 1. Results of linear regression analysis of fishermen's income in Asamjawa Village, Torgamba District, South Labuhanbatu Regency

| No | Variabel                          | Coefficient | t-Calculate | Sig.  | Note       |
|----|-----------------------------------|-------------|-------------|-------|------------|
| 1. | Education                         | -19.344,107 | 9,99        | 0,01  | Significant|
| 2. | Number of fishing gear             | -5.024,53   | -0,18       | 0,85  | Non significant |
| 3. | Number of catches                  | 73.255,48   | 9,67        | 0,01  | Significant |
| 4. | Long time working as fisherman     | 16.349,29   | 2,69        | 0,54  | Non significant |
| 5. | Daily working time                 | 135.819,41  | 7,09        | 0,02  | Significant |
| 6. | Size of the fishing ground         | 12.465,72   | 1,48        | 0,21  | Non significant |

Significant at alpha <0.05

The linear regression model of fishermen's income in Asamjawa Village is obtained as follows: = -19.344,107 + 392.699,10 X1 -5.024,53 X2 + 73.255,48 X3 + 16.349,29 X4 + 135.819,41 X5 + 12.465,72 X6

The regression analysis results obtained 3 variables that significantly affect the income of fishermen in Asamjawa Village, Torgamba District, South Labuhanbatu Regency. Where the variables that have a significant effect are the education variable, the number of catches, and the outpouring of working time every day. Meanwhile for the variable number of fishing gear, length of time working as a fisherman and area of fishing location has a sig value > 0.05 which means that these variables have no significant effect on fishermen’s income.

The coefficient value marked by the positive respondent (+) means that the higher the variable increases the Y value. If the education variable increases assuming the number of fishing gear, the number of catches, the length of work as a fisherman, the daily work time, the size of the fishing location, the income of village fishermen Asamjawa Raya will also increase.

4. Conclusions
The regression analysis results obtained 3 variables that significantly affect the income of fishermen in Asamjawa Village, Torgamba District, South Labuhanbatu Regency. The significant variables that affect the fishermen income are the education variable, the number of catches, and daily working time.

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