



ANALYSIS OF FACTORS AFFECTING TUNA FISHERMEN'S INCOME IN GALALA VILLAGE, MANDIOLI SELATAN DISTRICT SOUTH HALMAHERA REGENCY

AUTHORS INFO

Lasandri Abudu
Student at Department of Geography,
Khairun University
lasandriabudu17@gmail.com

Hernita Pasongli
Lecturer at Department of Geography,
Khairun University
mukhtarnita@gmail.com

Yuni Andriyani Safitri
Lecturer at Department of geography,
Khairun University
yuniandriyani@unkhair.ac.id

Vrita Tri Aryuni
Lecturer at Department of geography,
Khairun University
vritaaryuni@gmail.com

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Abstract

Capture fisheries are inherently risky considering the resources used are shared, open management, and dependent on weather, seasons, migration patterns, and fish characteristics. This uncertainty can cause income fluctuations both in terms of time and quantity, which have a significant impact on the quality of life of fishing communities, including in the research location. With this background, research related to the analysis of factors that influence the income of tuna fishermen is very important. The method used in this study is descriptive qualitative with a snowball sampling technique totaling 11 people. The data collection instrument uses observation sheets, documentation and open interviews as primary data sources in this study. Based on the results of research conducted by researchers in Galala Village, it was found that in sequence the most influential factors were fishermen's working capital, followed by fuel oil, tuna prices, fishermen's labor, fishermen's work experience on their income. Weather factors, fish prices, tend to fluctuate so that it is difficult to predict the catch that fishermen will get after going to sea. However, other factors can be managed well through investment in operational costs and adequate fishing equipment by the government so that the volume of catch increases.

Keywords: Capital; Labor; Fuel; Tuna Prices; Work Experiences

A. Introduction

Fishing communities in many developing countries, including Indonesia, rely heavily on capture fisheries as their primary source of livelihood. The income of fishing communities is directly related to their ability to exploit the potential of marine fishery resources, which are highly volatile and unpredictable (Fauziah et al., 2023). The tuna industry is a significant contributor to the Indonesian economy, accounting for around 3% of the country's GDP in 2012 (Buana et al., 2018). However, the factors that influence the income levels of tuna fishing communities specifically in Indonesia are still not well understood.

Fisheries are an important component of the renewable natural resource sector in many developing countries, providing the basis for the livelihoods of thousands of rural communities (Olale & Henson, 2012). Previous research has identified several key factors that may influence the income levels of fishing communities. In particular, research findings indicate that education level, access to credit, and association membership are determinants of income diversification behavior among fisheries workers, in this case fishermen. (Olale & Henson, 2012)

The income of fishing communities also depends heavily on the potential and utilization of fishery resources in the ocean. (Fauziah et al., 2023) Capture fisheries are inherently risky, given the shared resources, open management, and dependence on weather, seasons, migration patterns, and fish characteristics. This uncertainty can cause fluctuations in income both in terms of time and quantity, which can have a significant impact on the quality of life of fishing communities.

Fishing technology used, such as the type of vessel and fishing gear, also plays a significant role in determining the efficiency and productivity of fishing operations (Kasmawati et al., 2022; Adani et al., 2024). Increasing investment in fishing equipment and technology significantly increases operating income and profitability (Siaila, 2019). Operating costs, including fuel and maintenance, have a direct impact on the net income of fishermen, with higher costs leading to lower profitability if not managed effectively (Siaila, 2019)

Economic factors such as the selling price of tuna in the market, operational costs (including fuel and equipment maintenance), and access to markets and storage facilities also greatly affect fishermen's net income. In addition, government policies related to fisheries management, such as catch quota restrictions and fishing zone regulations, can affect the opportunities and limitations for fishermen in carrying out their activities. The skills and experience of fishermen in determining the right fishing location and their ability to manage risks and face challenges at sea also contribute to their level of success and income.

South Halmahera Regency has quite large marine resources with marine fisheries production in 2022 amounting to 60,240 tons and is the largest contributor in the provincial fisheries sector. This is supported by fishermen from BPS in 2018 at the research location totaling 2270 people consisting of full-time fishermen, nine main fishermen, nine additional fishermen (Mandioli District in Figures, 2022). However, quite high production results do not guarantee the welfare of tuna fishermen in South Mandioli District. Moreover, fishermen are often used as a source of final livelihood for some people as seen from the high number of part-time fishermen 3x the number of full-time fishermen. Based on the results of initial observations, community groups tend to earn low incomes and are in the lower middle income group. With great fisheries potential, it is very unfortunate if the number of fishermen decreases, especially in terms of quantity and capability of fishermen, as well as supporting infrastructure. Therefore, research related to factors that influence the income level of tuna fishermen is very important to be carried out.

B. Methodology

1. Research Design

The case study design was chosen because it allows us to focus on one particular group of fishermen, namely tuna fishermen. Thus, we can obtain richer and more relevant data to the specific context of tuna fishermen. Qualitative methods were chosen because they allow us to dig deeply and comprehensively into the experiences and perspectives of fishermen. With this method, we can better understand the complexity of the factors that influence their income such as capital, labor, fuel prices, fish prices and fishing experience. This research was conducted during the period of January to February 2024 in Galala Village, Mandioli Selatan District, South Halmahera.

2. Instruments

The instruments used in the main data collection were in-depth interviews and observations. In-depth interviews allow us to obtain direct information from fishermen about

their experiences, knowledge of fisheries, and the factors they consider important in determining income. Observation, non-participatory, allows researchers to directly observe the daily activities of fishermen and understand the social and environmental context of fishermen. The sampling used in the study used snowball with the number of fishermen interviewed totaling 11 people consisting of bosses, individual fishermen and fishermen's laborers.

3. Technique of Data Analysis

Data analysis was conducted using narrative analysis and triangulation. Narrative analysis was used to build a coherent story from the data. Triangulation was used to increase the validity of the findings by comparing data from various sources.

C. Findings and Discussion

1. Findings

The fishing community in Galala Village has a habit of starting the day by looking for tuna since 05.30 WIT. This early time was chosen with careful consideration, namely taking into account the travel time to the sea and the time needed to find squid bait. By starting their activities early, the fishermen hope to get an abundant catch. Usually, they will return to the village around 18.00 WIT after being active for 11 hours. However, if the bait they bring runs out before that time, they do not hesitate to immediately return to land. Thus, the length of time they spend at sea is very flexible and depends on the supply of bait they have. The tuna catch in the research area is very abundant, especially during the peak season such as October, so it directly contributes to increasing income (Taeran, 2007).

Tuna fishing equipment used by fishermen in Galala Village is still relatively simple. They rely on traditional fishing gear such as fishing lines, spears, and kites equipped with stone or lead weights. Injection lamps are also often used as aids. To move the boat, they use 1 or 2 gasoline-powered outboard engines. The catch they get is quite varied. On average, they can catch a minimum of 5 tuna weighing around 20 kg, and a maximum of 80-100 kg. However, the maximum number of fish caught is usually between 5 and 10. Unfortunately, bad weather often becomes an obstacle that makes them go home without bringing home the catch. The type of boat used by fishermen in Galala Village is generally around 8 meters long and 2.5 meters wide. Almost all boats are equipped with 1 to 2 outboard engines, adjusted to the size of the boat.

Fishermen's income is influenced by various complex interrelated factors. In addition to natural factors such as weather and sea conditions, human factors also play a very important role. Experience as a fisherman is an important factor. The more experienced a fisherman is, the more adept they are at finding good fishing locations, using effective fishing gear, and dealing with various sea conditions. The capital owned also has a great influence, including the type and size of the boat, as well as the fishing equipment used. The workforce that helps in the fishing process is also a determining factor. In addition, market factors such as fluctuations in fish prices and market demand also greatly affect fishermen's income. The distance traveled at sea and environmental conditions can also be considered. In other words, fishermen's income is the result of the interaction between various factors that influence each other.

1) Capital

Fishermen in Galala Village divide their capital into two types: fixed capital and movable capital. Fixed capital is a long-term investment such as boats and engines that are not used up in one trip to sea. Meanwhile, movable capital is the cost incurred every time they go to sea, such as fuel and ice. Both types of capital are equally important for the success of a fishing business. Everyone has assets or capital that can be used to survive. These assets can be in the form of property, health, or social relationships. In the context of fishermen, the most important capital is money. Fishermen in Galala Village spend around IDR 2,000,000 to buy fishing equipment. In addition, they also need additional costs of around IDR 500,000 to IDR 1,500,000 each time they go to sea. Research shows that the more capital fishermen have, the higher their productivity. This is because with sufficient capital, they can buy better equipment and go to sea to further places, so the opportunity to catch fish is greater.

2) Labor.

Labor is the key to every production activity. Without labor to operate machines, process raw materials, or sell products, the production process will not run. This also applies to fishing activities in Galala Village. The more labor involved, the greater the catch that can be obtained. The labor used in fishing activities is not only limited to family members, but also involves freelancers who are paid based on the catch. These

labor costs are generally borne by the workers themselves, such as to buy necessities while at sea.

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3) BBM (Fuel)

This study aims to analyze the impact of rising gasoline prices on fishermen's income in Galala Village. Research data were obtained through surveys, direct observations, and interviews with fishermen. Data analysis shows that on average each fishing boat in the village uses 2 gallons of gasoline and 2 liters of oil/lubricant per trip to sea with a total of around Rp. 450,000. The fairly high price of gasoline, coupled with the cost of oil, makes fishermen's expenditure on fuel quite large. As a result, fishermen need to increase their catch in order to continue to make a profit.

4) Fish Prices

The fishermen in Galala Village are currently experiencing difficulties due to the drastic decline in fish prices. They are disappointed because their catch is abundant, but the selling price is very low. Previously, the price of tuna could reach IDR 19,000 to IDR 20,000 per kilogram, but now it is only around IDR 13,000 per kilogram. In addition, the increase in fuel prices has also burdened fishermen because it increases their operational costs, such as the cost of buying fuel, food, and other necessities while at sea.

5) Experience at Sea

Experience as a fisherman greatly influences the catch. Fishermen with 5 years of experience usually catch around 3 tuna. However, fishermen with 10-20 years of experience can catch up to 5-10 tuna weighing up to 80-100 kg each. This shows that the longer someone has been a fisherman, the better their ability to catch fish, so their income tends to be higher.

2. Discussion

The results of various studies show that there are several factors that significantly affect fishermen's income. Experience at sea, length of time at sea, and working hours have consistently been shown to be positively correlated with increased income (Debie, et.al 2023). This indicates that high expertise and dedication in fishing activities will have a direct impact on the results obtained. In addition, capital factors, both in the form of fishing gear and financial resources, also play an important role in increasing the productivity and income of fishermen (Kasmawati, et.al 2022). In addition, large labor, capital, and appropriate technology can produce more catches and higher incomes (Ilyaza & Nasikh, 2022). However, interestingly, several studies show that education level is not always the main determinant of fishermen's income (Aning, et.al 2020). Factors such as fish prices in the market and favorable weather conditions are also important variables that need to be considered (Maghfira, et.al 2023). Thus, it can be concluded that fishermen's income is the result of complex interactions of various factors, both internal (skills, capital) and external (market, environment).

Based on research findings showing that experience, capital, catches, and fish prices significantly affect fishermen's income, several efforts need to be made to improve fishermen's welfare. **First**, there needs to be a training and capacity building program for fishermen, especially in terms of more efficient and environmentally friendly fishing techniques. **Second**, access to capital needs to be facilitated, either through subsidized fisheries credit programs or partnerships with financial institutions. **Third**, efforts need to be made to increase the added value of the catch through better processing and marketing. Fourth, the government needs to create stable policies and support the fisheries sector, including regulating fish prices at the consumer level so that fishermen get fair prices. Finally, there needs to be efforts to maintain the sustainability of fish resources through sustainable fisheries management. Thus, it is hoped that fishermen's welfare can increase significantly and sustainably.

D. Conclusion

Based on the results of research conducted by researchers in Galala Village, it was found that sequentially the most influential factors are fishermen's working capital, followed by fuel oil, tuna prices, fishermen's labor, fishermen's work experience on their income. Weather factors, fish prices, tend to fluctuate so that it is difficult to predict the catch that fishermen will get after going to sea. However, other factors can be managed well through investment in operational costs and adequate fishing equipment by the government so that the volume of catch increases.

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