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The Impact of Covid-19 on the Income of Fishermen Processing Anchovy (*Stolephorus* sp) in Hajoran Village, Pandan Subdistrict, Central Tapanuli Regency North Sumatra Province

Dampak Covid-19 terhadap Pendapatan Nelayan Pengolahan Ikan Teri (Stolephorus sp) di Desa Hajoran, Kecamatan Pandan, Kabupaten Tapanuli Tengah, Provinsi Sumatera Utara

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Abstract

The Covid-19 pandemic in Indonesia occurred in March 2019. The implementation of social and physical distancing has disrupted the economy, one of which is the fisheries sector. One example of the impact on the economic sector is the reduced income of fishermen's families, including anchovy processing fishermen in Hajoran Village. The purpose of this study was to analyze the impact of Covid-19 on anchovy income and marketing before and after the pandemic in Hajoran. This research was conducted from 21 June to 30 June 2022 in the Hajoran Village. The method used is a survey. Anchovy fishermen consist of 46 people. The research data were obtained through direct observation and documentary interviews. Based on the results of the analysis, it is known that both before and after the Covid-19 pandemic had an impact on the income of anchovy processing fishermen, where the average income before the pandemic was IDR 238,913 and after the pandemic was IDR 1,213,043. Apart from that, the Covid-19 pandemic also had an impact on the marketing of anchovies, where before the pandemic the price of anchovies was IDR 60,000/kg while during the Covid-19 it was only IDR 30,000/kg.

Keywords: Impact of Covid, Anchovy, Income, Marketing

Abstrak

Pandemi Covid-19 di Indonesia terjadi pada bulan Maret 2019. Penerapan PSBB dan sosial/*physical distancing* menyebabkan terganggunya perekonomian salah satunya sektor perikanan. Adapun dampak yang ditimbulakan berkurangnya pendapatan keluarga nelayan yaitu nelayan pengolah ikan teri yang ada di Kelurahan Hajoran. Penelitian ini dilaksanakan pada 21 Juni s/d 30 juni 2022 di Kelurahan Hajoran. Tujuan penelitian ini adalah menganalisis dampak Covid-19 terhadap pendapatan dan pemasaran ikan teri sebelum dan sesudah pandemi Covid-19 di Hajoran. Metode yang digunakan adalah metode survei. Nelayan ikan teri terdiri dari 46 orang. Data penelitian ini diperoleh melalui observasi langsung dan wawancara dokumenter. Berdasarkan hasil analisis diketahui bahwa baik sebelum maupun sesudah pandemi Covid-19 terdapat dampak terhadap pendapatan nelayan pengolahan ikan teri, dimana rata-rata pendapatan nelayan sebelum pandemi adalah Rp 238.913 dan sesudah. pandemi pendapatan rata-rata nelayan adalah Rp 1.213.043. Selain itu, pandemi Covid-19 juga berdampak berpengaruh terhadap pemasaran ikan teri yaitu dimana saat pandemi harga Ikan

teri sebesar Rp60.000/kg sedangkan saat pandemi Covid-19 sebesar Rp30.000/kg.

Kata Kunci: Dampak Covid, Ikan teri, Pendapatan, Pemasaran

1. Introduction

Anchovy is an economical fish that is also in demand by the upper class society because the price is relatively stable (Hutomo, 1987). The total production of anchovies landed in Sibolga was 377,980 kg in 2019 and 403,990 kg in 2020 (Data statistik PPN Sibolga, 2020). Fishermen catch anchovies using a bagan tancap. The fishing community is a group of people whose lives depend directly on the wealth of the sea. Fishermen's income is influenced by capital factors, season, climate, catch productivity, fishing area (Indara *et al.*, 2017), and the selling price of fish for the entire catch (Ridha, 2017).

Unfortunately, the Covid-19 pandemic hit Indonesia in March 2020. The outbreak of this pandemic forced the government to implement social and physical distancing to reduce the spread of Covid-19 (Nasruddin & Haq, 2020). The consequences of the Covid-19 pandemic are being felt including by the fisheries sector and causing a decrease in fishermen's income and a break in the fish trade chain. The next threat experienced by fishermen is a drastic reduction in the selling price of fish by up to 50% (Mubarok & Fajar, 2020). Another impact is that fishermen also limit fishing activities due to social distancing at the wharf and reduced revenue by processing factories (Sari *et al*., 2020). In addition, many fish warehouses (cold storages) store or have excess raw materials because they cannot be shipped outside the area in the usual way (Kalsaba *et al.*, 2021). If this pandemic continues, fishermen will suffer a lot (Kholis *et al.*, 2020).

Hajoran Village is one of the areas located in Central Pandan District with an altitude of 0-1,266 above sea level and a geographical location of 1°11'00" - 2°22'0" North Latitude and 98°07' - 98°12' East Longitude . The village is in coastal area thus it is very suitable for fishing. The population of Hajoran is dominated by traditional fishermen. Fishermen in there live by processing potential fishery products, such as Anchovy. The number of fishermen processing anchovies is 46 people with a total population of 2,514 people. Residents have carried out anchovy processing activities for generations. With uncertainty of when the pandemic will end, it is believed that it will affect the income of anchovy processing fishermen in Hajoran Village. That is why researchers are interested in conducting research on the impact of the Covid-19 pandemic on the income of anchovy processing fishermen in Hajoran Village.

In accordance with the background above, the research problem is formulated as follows: how was the influence of Covid-19 before and after the pandemic on the income and marketing of anchovies in Hajoran Village? The purpose of this study is to analyze the income and marketing of anchovies in the Hajoran Village so that the impact of Covid-19 on this aspect can be identified.

2. Material and Method

2.1. Place and Time

The time and place of this research was 21 June to 30 June 2022 in the Hajoran Village. Location determination is done *purposively*.

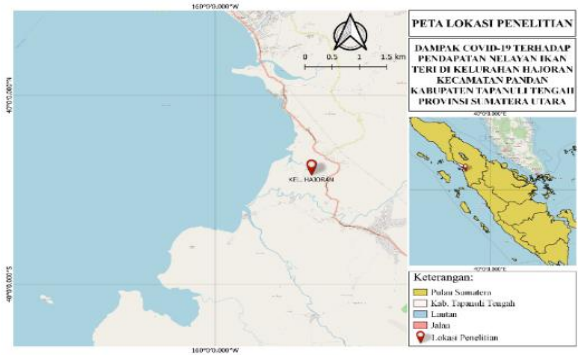


Figure 1. Research Location

2.2. Method

Surveys are a method used by researchers when carrying out the research.

2.3. Repondents

The respondents were 46 anchovy fishermen who did the fish processing. According to Arikunto (2012), if the total population is less than 100 people, the total sample is taken as a whole.

2.4. Data Collection

Primary and secondary data are used in this study. Primary data was collected through interviews, documentation, and observation of anchovy processing fishermen (Riduwan, 2009), while secondary data collection was obtained from Hajoran Village staff and other related literature.

2.5. Data Analysis

The purpose of data analysis in this study is to analyze the impact of Covid-19 on the income of anchovy processing fishermen before and after the pandemic. The mean difference test was carried out using *paired* sample t test analysis (Sudjiono, 2010). To analyze the impact of Covid-19 on the marketing of anchovies a qualitative descriptive analysis was used using the author's own words with information obtained systematically then connected with related theories.

3. Result and Discussion

3.1. Productivity of Anchovy Catches

Fisherman productivity is the ability of a fisherman to catch fish in a trip unit. From this research, it was obtained that the catch of fishermen before the pandemic was 24 kg/trip, during the Covid-19 pandemic 8 kg/trip and during the new normal 9 kg/trip with an average of 20 trips/month to go to the sea.

Table 1. Catch Productivity of Anchovy Processing Fishermen

Number of Catches (kg/Month)			Average Catch (kg/Trip)			Go to sea
Before Covid	During Covid	New Normal	Before Covid	During Covid	New Normal	(Month)
488,19	164,39	187,54	24,40	8,21	9,37	20

Table 1 shows the difference in total catch productivity where the highest catch occurred before Covid of 24.40 kg and the lowest occurred during the pandemic, which is 8.21 kg. This difference in catches was not influenced by the pandemic but by weather and fishing season. During the Covid-19 pandemic, fishermen continued to catch fish.

3.2. The Income of Anchovy Processing Fishermen in Hajoran Village

Income is the number of wages a person receives in the form of money. Fishermen's income is the amount of money earned from the catch of fish sold, influenced by the amount of fish caught and the total price of fish when landed (Wismaningrum *et al.*, 2013). After conducting research, it was found that the highest income occurred before the pandemic with an average income of IDR 2,309,783/ month and the lowest income occurred during the pandemic with an average of IDR 1,213,043/month. During the new normal period, the average income was IDR 1,792,391/month. Fishermen's income shows a decline triggered by a decrease in the selling price of fish due to the Covid-19 pandemic (Evanigtyas *et al*., 2019).

The description above is in line with research (Yuyun & Faizin, 2022) mentioning that after the Covid-19 pandemic, the economic sector including processed salted fish traders was affected, resulting in a decrease in income and affecting the fulfillment of daily needs. In addition, to find out whether there was an impact on the income of anchovy fishermen before and during Covid-19, a test was carried out with SPSS 26.0 software. The classic hypothesis test results and hypothesis testing are as follows:

Table 2. Normality Difference Test

		sebelum	sesudah
N		46	46
Normal Parameters[a,b]	Mean	2,348,913.04	1,213,043.48
	Std. Deviation	636,875.108	489,947.251
Most Extreme Differences	Absolute	.208	.190
	Positive	.208	.190
	Negative	-.108	-.134
Test Statistic		.208	.190
Asymp. Sig. (2-tailed)		.000[c]	.000[c]

The results of the different normality tests showed that the Kolmogorov-Smirnov test results before and after Covid-19 were 0.208 and 0.190, respectively. The significant value (Asymp. Sig 2 tailed) is both 0.000 where both are ≥ 0.05. For a different test on paired samples, a paired sample t-test was used. This test aims to determine whether the two population means are identical (have the same variance) or not from the several samples observed.

Table 3. Paired Samples t-Test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	sebelum	2,348,913.04	46	636,875.108	93,902.112
	sesudah	1,213,043.48	46	489,947.251	72,238.781

Based on Table 3, it can be seen that the income of anchovy fishermen before the Covid-19 pandemic had an average of IDR 2,348,913 with a standard deviation of IDR 636,875 and an average standard error of IDR 93,902. Meanwhile, the income of Anchovy fishermen after the Covid-19 pandemic has an average of IDR 1,213,043 with a standard deviation of IDR 489,947 and an average standard error of IDR 72,238. The total population used is as many as 46 people.

Table 4. Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	sebelum & sesudah	46	.295	.000

Paired Samples Correlations show correlation values that are interconnected between the two variables in paired samples. The correlation between the income of anchovy processing fishermen before and during the Covid-19 pandemic was 0.295 with a significance level of 0.000. If the correlation coefficient can be seen through the table with an error level of 5, at n = 46, then the r-table value is 0.290. Then 0.295 > 0.290 or there is an influence between the income of anchovy fishermen before and after Covid-19 so that H_a is accepted H_o is rejected.

Table 5. Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	sebelum - sesudah	1,135,869.565	710,607.177	104,773.312	924,845.282	1,346,893.849	10.841	45	.000

The difference in the income of anchovy fishermen before and during the Covid-19 pandemic was IDR 1,135,565, a standard deviation of IDR 704,607 and a standard error of IDR 104,773. T-test results that are above 1.96 are always accepted (Ghozali, 2016). In the t-test, the figure was obtained Rp. 10,841 where 10.841 > 1.96 so the conclusion is that there is a difference in the income of anchovy fishermen before and after the pandemic where the value is 10.841> 1.679 so the significance is ≤ 0.05. Therefore, Ha is accepted and Ho is rejected.

3.3. Impact of Covid-19 on Expenditure of Anchovy Fishermen in Hajoran Village

Fishermen's income is influenced by the size of the expenditure made. The higher the fishermen's income, the fishermen's expenses will be even greater. Based on research conducted, spending before Covid-19, during social distancing and new normal had no effect at all.

Table 6. Production Cost of Anchovy Fishermen in Hajoran Village

No	Expenditure	Average Spending/Production
1	Fuel	72.217
2	Processing	83.109
3	Meal	30.304
4	Labor	66.304
	Total	251.935

Table 7. Fixed Costs of Anchovy Fishermen in Hajoran Village

No	Expenditure	Total
1	Catching tool	97.239
2	Ship Maintenance	106.304
	Total	203.543

From Table 6 and Table 7, it is obtained that the highest expenditure is ship maintenance, which is IDR 106,304 and the lowest expenditure is meal as much as IDR 30,304. From the results of interviews conducted with anchovy processing fishermen in the Hajoran Village, they said that the Covid-19 pandemic did not affect their expenses and fishing activities were still carried out as usual.

3.4. Anchovy Processing Process (Stolephorus sp) in Hajoran Village

Processed fish is fresh fish that has changed its form by processing it into products such as salted fish, frozen fish, canned fish, smoked fish, fish crackers, and so on (Sari, 2011). The stages in processing anchovies in the Hajoran Village are as follows:

Boiling. Anchovy is boiled using salt water in boiling water with a concentration of 15-20% for 15 minutes. Drying. Drying is done to reduce the water content in the fish, the drying process takes about ½- 1 day depending on the weather. Sorting. Sorting is the process of separating the anchovies from other types of fish and separating the heads of the anchovies and the powder using a *tampi*. Packaging. Anchovy packaging is done using cardboard. After packing, the fish is ready to be marketed.

3.5. Impact of Covid-19 on Anchovy Marketing

Moving a product from producers to consumers is called marketing. Producers are people who produce and process raw materials into finished goods. Consumers are people who consume the goods (Aramana *et al.*, 2021)

Table 8. Selling Price of Anchovies

No	Before Covid (IDR/kg)	During Covid (IDR/kg)	New Normal (IDR/kg)
1	60.000	30.000	55.000

Based on Table 8 it is known that Covid-19 has had a major impact on the price of anchovies. This is proven by the decrease in the price of anchovies due to reduced purchasing power of the people. The decline in the price of anchovies greatly affected the income of fishermen processing anchovies (Kurniawansyah *et al.*, 2020). Before Covid-19 the price of anchovies was IDR 60,000/kg while during the pandemic the price dropped drastically to IDR 30,000/kg.

3.6. Anchovy Marketing Strategy in Hajoran Village during Covid-19 Pandemic

a) Selling Retail to Neighbors

The high level of public concern about direct contact has caused a quiet market. Therefore, fishermen choose to sell processed anchovies to neighbors around Hajoran Village

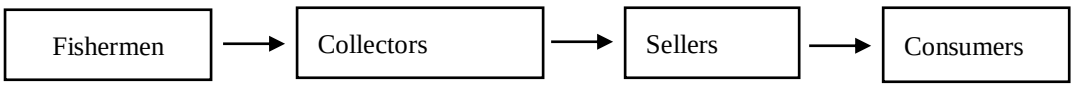
b) Sending Anchovies to Other Areas

Instead of selling the products in the market, fishermen preferred to send anchovies to several nearby areas that did not practice *social distancing*. This anchovy delivery is aimed at the Tarutung, Sidikalang, Sidempuan areas.

3.7. Distribution of Anchovy in Hajoran Village

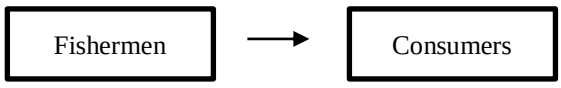
Distribution can be interpreted as the process of distributing a finished product originating from producers, which is distributed to consumers. The marketing channel is a product distribution network between suppliers and companies by carrying out logistics activities to consumers (Maupa, 2017).

a. Scheme I Anchovy Marketing Distribution Channel in Hajoran Village



In this channel there are institutions that play a role in marketing including fishermen, collectors, traders and consumers. Based on the anchovy marketing channel pattern above, it is clear that fishermen in marketing anchovies to consumers use the services of collectors (Swastha & Irawan, 2007).

b. Scheme II Anchovy Marketing Distribution Channel in Hajoran Village



In this pattern, marketing is carried out directly to consumers that fishermen directly sell to traditional markets in Hajoran Village, or, consumers come to the Anchovy processing area to buy the products. The price they offer is different compared to collectors because the purchase of anchovy products is only for consumer consumption needs.

4. Conclusion

The conclusions that can be drawn after the implementation of this research are:

1. The Covid-19 pandemic outbreak has greatly affected the income of fishermen who process anchovies. There was a significant change in income before Covid-19 to the social distancing period. Before the pandemic, the average income was IDR 2,309,783/month and during Covid-19 was IDR 1,213,043/month. The difference in fishermen's income is due to the declining price of anchovies. During the new normal period, the income of fishermen processing anchovies gradually improved

which was IDR 1,792,391/month because the price of anchovies got better, and also, there was government assistance in the form of groceries and direct cash assistance.

2. The outbreak of Covid-19 has had an impact on the marketing of anchovies. This is evidenced by the drastic decline in fish prices. Before the Covid-19 pandemic, the price of anchovies was IDR 60,000/kg, during the pandemic the price was IDR 30,000/kg and during the new normal period, it was IDR 50,000/kg. The change in the price of anchovies on the market was due to the implementation of social distancing to marketing destinations. The demand for anchovies on the market is declining and consumers who usually come directly to the anchovy processing site limit themselves to going out to interact for fear of being infected with Covid-19. The strategy adopted by fishermen in marketing the anchovies during the pandemic was to sell them to neighbors and send the anchovies to areas that did not implement social distancing.

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