Economic Resilience of Fishermen Community During Covid-19 Pandemic

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Abstract. The Covid-19 pandemic has significant impact on the fisheries sector, especially the distribution process of fish, including the potential paralysis of economic life in the form of declining revenues due to the dissolution of the marketing chain of fish from the fishermen to consumers. This study aims to analyze the economic resilience of fishermen communities; and identifying their adaptation patterns. The method used in this research was qualitative descriptive analysis. The result divided into two acts, the act of fishing-related operations and actions outside the fishing activities. In the fishing activity, most actions performed by the fishermen were fishing frequency (33.6%), adjustment of fishing cost (28.9%) and the adjustment of the number of crew (37.5%). For actions outside of fishing activities, most fishermen during this pandemic often borrowed money from customers (48.7%) and from relatives (46.9%). In addition, some fishermen also pawned their assets (2.5%) and some even sold their assets (1.8%). Fishermen resilience actions in the Karangantu ANP are classified as low, namely 69.6%. The factors that influence the number of resilience measures are the government assistance dummy, ship/vessel ownership dummy, and there is a patron-client relationship.

1. Introduction
Coronaviruses Disease 2019 or better known as Covid-19 is a virus that was first discovered in Wuhan, China in December 2019, and spread in Indonesia in March 2019. Coronaviruses (CoV) is part of a family of viruses that cause diseases ranging from flu to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Covid-19 disease, is a new type that was discovered in 2019 and has never been identified as attacking humans before [1].

Coronaviruses can spread rapidly from human to human from droplets when sneezing and coughing. Due to the very fast transmission of the coronavirus, the World Health Organization (WHO) declared the corona virus a pandemic on March 11, 2020. The status of a pandemic or global epidemic indicates that the spread of COVID-19 is progressing so fast that almost no country in the world can ensure that it is spared. from the corona virus [2].

Anticipating and reducing the number of corona virus sufferers in Indonesia has been carried out in all regions. Among them by providing policies to limit activities outside the home, home school activities, work from home, even home worship activities.

This pattern of the spread of the corona virus has led to the implementation of social / physical distancing, Large-Scale Social Restrictions (PSBB) to Lockdown to break the chain of Covid-19 spread [3]. This policy can help prevent the spread of the corona virus to an area, so that people in that area are expected to be able to avoid the fast-spreading outbreak. This policy can only be carried out by the
government, by first conducting a rigorous inspection of several areas and considering the consequences carefully, both from an economic and social perspective. This policy is part of the laws and regulations contained in Law Number 6 of 2018 concerning Health Quarantine which discusses Health Quarantine at Entrance Gates and in areas carried out through monitoring of diseases and Public Health Risk Factors of transportation means, people, goods, and/or the environment, as well as responses to Public Health Emergencies in the form of Health Quarantine measures [4].

The implementation of social/physical distancing, PSBB, and lockdown causes limited movement of people and goods, resulting in a break in the marketing/distribution chain, one of which is fisheries. The impact that must be borne by fishermen's families and community fisheries actors due to the spread of the virus, among others, is the potential for economic life to be paralyzed in the form of decreased income due to the cut in the fish marketing chain from fishermen as producers to the wider community as consumers.

Fishermen are a group of people whose lives depend on marine products. The consequences can cause the economic level of a fisherman to be erratic, sometimes even nil. Thus, the fisherman's economy is experiencing instability. Considering the daily needs, over time household items are getting more expensive. This will motivate fishermen to take action aimed at improving their family's economy.

The Indonesian Traditional Fishermen Association (KNTI) stated that during the pandemic there had been a significant drop in fish prices in various regions. The sale of catch is also a big obstacle at this time, because many fish collectors do not serve or at least limit the purchase of fish from fishermen. This condition causes many fishermen to be overwhelmed to sell their catch, especially since Indonesia's fishery export destination countries are also “shutting down”. This condition occurs because of the decline in people's purchasing power so that the market/TPI is quiet, one of which is the result of the implementation of the physical distancing policy. This condition makes it difficult for fishermen to find buyers for their catch. If someone buys it, the price offered will definitely be very cheap, so that their capital for fishing will decrease and even suffer losses [5]. In addition, operational costs such as the price of fuel oil (BBM) are still scarce in some areas and are also quite expensive [6]. This makes it difficult for fishermen to carry out fishing operations. In addition, they need costs to live, such as buying food, which is currently soaring in price in several locations. One of those affected was a fisherman with a finishing base at PPN Karangantu. They experience what has been described above. This causes fishermen to be required to be able to survive and remain active, so that fishermen will try to adapt to the unknown end of the Covid-19 pandemic.

However, research on economic resilience in an atmosphere of a global pandemic, where almost all distribution and marketing access is hampered plus there is no certainty about the end of the pandemic, has not been done much, so research is needed on the adaptation and economic resilience of fishing communities during a global pandemic, so that it can become information important in the future.

This study aimed to analyze the economic resilience of fishing communities and the factors that influence resilience actions during the Covid-19 pandemic around PPN Karangantu.

2. Method

The research used case study to identify the economic resilience of fishing communities around PPN Karangantu during the Covid-19 pandemic.

Data collection was carried out through direct field observation and, in-depth interviews with key informan. Interviews were aimed at parties affected by the Covid-19 pandemic at PPN Karangantu. Interviews are aimed at stakeholders who are able to answer the research objectives, that was shipowner (Table 1). This research relates to fishing activity, therefore the fishing communities that made the object of research is the owner of the vessel. Preliminary research states that the ship's crew has guaranteed their daily needs by the ship owner. So, when a crisis or pandemic occurs like this happens, the party who feels the most is the ship owner. The data obtained were analyzed using descriptive methods.
Table 1. Number of Respondents

| Ship owner  | Units |
|------------|-------|
| Gillnet    | 12    |
| Boat Lift Net | 8     |
| Trammel Net | 8     |
| Dredge     | 3     |
| **Total**  | **31**|

3. Result and Discussion

3.1. Economic Resilience of the Fishing Community

Resilience is the ability of a system to withstand a change or disruption [14]. The level of economic resilience of fishermen around PPN Karangantu in the face of the Covid-19 pandemic was estimated by calculating the number of actions taken by fishermen. The more actions taken, the higher level of resilience [12]. Resilience actions taken by fishing communities around PPN Karangantu, in dealing with the impact of the Covid-19 pandemic can be seen in the table below.

Table-2 shows the actions taken by fishermen during the pandemic. Actions regarding fishing operations carried out include:

| Action Taken                                      | Number of People |
|--------------------------------------------------|------------------|
| Fishing Operation                                 |                  |
| 1. Frequency of fishing activity                  | 28               |
| 2. Adjustment of costs                            | 25               |
| 3. Adjustment of crew members                     | 28               |
| Others:                                          |                  |
| 1. Selling assets                                 | 10               |
| 2. Mortgadge Assets                               | 5                |
| 3. Borrowed from siblings                         | 7                |
| 4. Borrowed from other fishermen                  | 15               |

1) Reduce the frequency of fishing activity,

Before the covid-19 pandemic, fishermen at PPN Karangantu went to sea 6 times a week [11]. Only on Friday and religious holidays, fishermen do not catch fish. Since the pandemic happened, the frequency of fishing activity have decreased. This was because the fish caught are difficult to sell and accumulate in the freezer.

2) Adjusting the cost of going to sea and

The cost of going to sea has been adjusted, this was because the number of crew members usually carried has been reduced. The low selling price of fish makes it difficult to sell fish to local traders or consumers be the cause. Based on the results of the interview, the operational cost of fishing was reduced between 30% -50% or in rupiah, it was ranged Rp. 500,000 – Rp. 3,000,000.

3) Adjusting the number of crew members.

This is an accumulation of ship owner policies as a result of previous actions, namely reducing the frequency of fishing operations and reducing fishing costs which results in a reduction in the crew members being carried during fishing operations. The crew ship who were not included in the previous
fishing activity, will be involved in the next fishing activity, and so on. So that all the crew got the part at fishing activity.

Meanwhile, for actions outside of fishing activities, among others:
1) Selling assets,
2) Mortgaged assets,
3) Borrow from relatives,
4) Borrow from other fishermen.

The level of resilience of fishing communities around PPN Karangantu was determined from the number of actions taken [17], where in this study the farmers as a whole did three to four farmers which had a low resilience level of 69.6 percent, while the remaining 30.4 percent of respondents had a resilience level, very low, namely taking only one to two actions at the time of the Covid-19 Pandemic. The distribution of Fisherman household resilience levels can be seen in the Figure below.

![Figure 1. Distribution of fisherman household resilience levels](image)

3.2. Factors Affecting Resilience Actions During the Covid-19 Pandemic Around PPN Karangantu

The factors that influence the number of resilience measures were the government assistance dummy, ship/vessel ownership dummy, market connection dummy, and changes in household income.

1) The government aids dummy

During the pandemic, the Serang City Government in collaboration with PPN Karangantu provided various kinds of assistance for fishermen who were affected by the pandemic. The assistance provided was in the form of cash money, training in processing fish caught and empowering women so that fishermen's household income did not depend only on their husbands as fishermen.

The cash money was very useful to meet daily needs. As previously explained, the pandemic has an impact on decreasing fishermen's income. Based on the results of interviews, this cash distribution aimed to move the economy around [10].

Training on diversification of fishing businesses was the next focus to increase the resilience of fishing communities. Fishermen are asked not only to catch the fish they have caught, but also to carry out simple processing. The government emphasized the importance of family members being involved in the training. If it is illustrated, after fishermen carry out fishing activities, the fish they catch are processed by their family members, either by their wife or children. The fish caught could be processed into salted fish, crackers, meatballs and others according to the abilities of the fishermen's family members.

Government aid, is only temporary, while this pandemic, we never know when it will be over. Of course the government can not continue to provide cash money. In the initial phase, giving cash money is understandable, but in the future, government aid is needed regarding the use of cash so that fishing communities can get out of the current crisis.

The same thing for fisheries business diversification training activities for fisherman households, namely the need for assistance and follow-up. In fact, this type of training to make fishery products is
often done. Fishermen revealed that what they need more is the marketing procedure for the products that have been produced.

2) There is a patron-client relationship
The most striking thing that was seen during the pandemic was patron-client ties that occurred in PPN Karangantu fishermen. It was known as a *langgan / juragan* system.

The social structure in fishing communities is generally characterized by strong patron-client ties. Patron-clients are a general feature of the social structure of coastal communities. The strong patron-client bond is a consequence of the nature of fishing activities that are full of risks and uncertainties. For fishermen, establishing ties with patrons is an important step to maintain the continuity of their activities because the patron-client pattern is a social-economic security institution. This happens because until now fishermen have not found alternative institutions that are able to guarantee their socio-economic interests.

- Patron client relationship arrangements are generally related to [8] [15]:
  1) The relationship between actors who control resources is not the same.
  2) A special relationship which is a personal relationship and contains intimacy.
  3) Relationships based on mutual benefits.

Koentjaraningrat [7][15] looked at patron-client patterns in the framework of social networks. The patron-client pattern is a relationship pattern based on the principle of reciprocity.

A different view is expressed by Scott [7][15] where he sees the patron-client relationship is formed on the basis of dissimilarity and the nature of flexibility that is spread as a personal exchange system. In the exchange, there is a flow from patron to client and vice versa. According to Scott [15], flows from patron to client include:

- 1) Basic subsistence livelihood, in the form of provision of permanent workers, provision of production inputs, marketing services and technical assistance.
- 2) Subsistence crisis guarantees, in the form of loans when clients face economic difficulties,
- 3) Protection of clients both from personal threats and general threats,
- 4) Providing collective services, in the form of assistance to support local public facilities.

Meanwhile, the flow from client to patron, according to Scott, is difficult to categorize, because the client is the "person" of the patron, who provides his manpower and expertise for the benefit of the patron, whatever its form.

Based on the relationship structure, it can be explained that fishermen’s and their patrons control to the resources are not same. This means the patron control greater capital resources than fishermen. This inequality causes patron-client bonds to be formed. When the catch is poor, fishermen are short of money and end up releasing types of goods that are easily sold at lower prices. Furthermore, fishermen will seek debt from the patron with a guarantee of employment ties or their catch which is sold to the patron at a lower price than the market price and is determined unilaterally by the patron. For example in Karangantu, the catch of red snapper which was priced in the market for IDR 22,000 / kg have to be sold to the patron for IDR 15,000 / kg.

This patron-client pattern, clients are often faced with a number of problems, such as not ending credit repayments [16]. According to the patron, his clients were not disciplined and prioritized consumptive expenses such as purchasing electronic goods. On the other hand, fishermen (clients) consider it a patron's tactic to bind clients so that their business can continue.

Patron-client relationships have different characteristics in each region. This can be seen in the patron-client relationship pattern for capture fisheries in Karangantu. The patron-client relationship in this area was established between catch fishermen and customers or collecting traders, so that the system formed was called the subscriber system. This subscription system usually applies to net and chart fishermen. A customer is a person who provides financial assistance to fishermen for production activities as well as for household needs, and usually a customer works as a fish collector. In return, fishermen must sell their catch to customers.
The fishermen's obligation is to sell their catch to customers. If a fisherman who is attached to a customer does not sell his catch to that customer, he will immediately be reprimanded and warned by the customer.

The patron-client mechanism in these cases appears to be a “mutually beneficial” relationship arrangement. However, based on the study results, the degree of benefit was different, namely that the patrons reap more profits than the clients. This is the downside of the patron-client pattern. However, there is also a positive pattern because it is able to encourage vertical mobility of fishermen.

In previous research on the patron-client system in Palabuhanratu, there is a price difference between sales through patron-clients up to 15,000 per transaction compared to fishermen selling directly to buyers or consumers [8]. Thus, even though this system is good during a pandemic and low season, the government must be able to release fishermen from patron ties. In the patron-client system, fishermen are bound by debt without knowing when they can pay it off. This is done to minimize competition with other buyers and obtain relatively cheap prices for the continuation of the business. The government, either through the local or central government (PPN Karangantu), must be able to untie the ties between fishermen and patrons. Fishermen must be able to empower and have social security by being present through financial institutions that are able to accommodate fishermen's needs during a pandemic or even during the low season [8][13]. An institution that is capable of such a role has actually been around since the 1980s through the existence of a fisheries cooperative (KUD Mina) which has grown up among fishermen. Unfortunately, the mechanism for forming cooperatives tends to be top-down, whereas cooperatives must develop from the bottom up. The discourse on establishing a special bank for fishermen or farmers has been carried out since the 2000s, but until now it has not been realized. However, in the future the existence of cooperatives or other financial institutions must be present so that fishermen will no longer be bound by patron-clients.

4. Conclusion
Fishermen in PPN Karangantu have high level of economic resilience. The factors that influence the level of economic resilience of fishermen are influenced by 2 factors, namely the dummy of government aid and existing patron-client relationships.

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