

## ECONOMIC VULNERABILITY OF FISHERMEN IN SOUTH GARUT TO WEATHER CHANGES AND MARKET PRICES

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### Abstract

The economic vulnerability of fishermen in South Garut is a critical issue, influenced by unpredictable weather changes and fluctuations in market prices for their catch. These conditions directly impact fishermen's income and welfare, leading to prolonged economic uncertainty. The urgency of this research lies in the need for a deeper understanding of the factors influencing this vulnerability in order to formulate appropriate strategies to improve fishermen's economic resilience. This study aims to analyze the forms of economic vulnerability of fishermen and their causal factors in the South Garut region. The research method used is a qualitative approach with a case study method. Data were collected through in-depth interviews with fishermen, field observations, and analysis of related documents. Data analysis techniques were carried out descriptively through data reduction, data presentation, and drawing conclusions. The results show that fishermen's economic vulnerability is influenced by high dependence on natural conditions, limited access to technology and weather information, and unstable market price fluctuations. Furthermore, minimal institutional support and access to capital also exacerbate these conditions. This study recommends increasing access to weather information, strengthening fishermen's institutions, and implementing price stabilization policies to improve fishermen's welfare.

**Keywords:** Economic Vulnerability, Fishermen, Weather Change, Market Prices, South Garut

### A. INTRODUCTION

Fishing communities are a group with a high level of economic vulnerability due to their dependence on natural conditions and market dynamics. Fishing activities are heavily influenced by weather and unpredictable marine environmental conditions, directly impacting catches and incomes. Unpredictable weather changes mean fishermen cannot always fish optimally; in adverse conditions, fishing time is severely limited and catches decline (Hajrina et al., 2024). Furthermore, fluctuations in market prices exacerbate income instability, leading to uncertainties in fishermen's well-being.

Several previous studies have shown that fishermen's economic vulnerability is influenced not only by natural factors but also by socioeconomic factors. Research by Gustika et al. (2023) found that climate variability puts significant pressure on the livelihoods of fishing households, particularly in terms of reduced income and limited access to resources. Meanwhile, Pelu (2024) emphasized that global climate change impacts marine ecosystems and indirectly impacts the well-being of coastal communities through declining fisheries productivity. Other research also shows that changes in weather and economic factors such as fuel prices and fish prices significantly impact fishermen's income (Lasut et al., 2016). This suggests that

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fishermen's vulnerability is multidimensional, encompassing both ecological and economic aspects.

However, most research still focuses on a single aspect, such as climate change or economic factors, separately. The novelty of this study lies in its simultaneous assessment of the influence of weather changes and market price fluctuations on fishermen's economic vulnerability, particularly in the South Garut region, which has coastal characteristics dominated by traditional fishermen. This approach is expected to provide a more comprehensive picture of the real conditions faced by fishermen.

The urgency of this research is based on the increasing uncertainty of weather conditions due to climate change and the instability of fishery product prices in the market, which directly impact fishermen's income. These conditions have the potential to exacerbate poverty and social inequality in coastal areas if not addressed appropriately. Furthermore, South Garut, as a coastal region, plays a vital role in the local fisheries sector, requiring more in-depth studies to support sustainable development policies. The purpose of this study is to analyze the level of economic vulnerability of fishermen in South Garut to changes in weather and market prices, and to identify the factors influencing these conditions. This research is expected to contribute academically to the development of coastal socioeconomic studies and, in practice, provide consideration for the government and stakeholders in formulating more adaptive policies that support the welfare of fishermen.

## **B. LITERATURE REVIEW**

The economic vulnerability of fishermen is a condition where fishing households face limitations in meeting their basic needs due to pressures from external and internal factors. In the context of coastal communities, this vulnerability is generally influenced by a high dependence on natural resources, particularly weather conditions and marine catches. Unpredictable weather changes can reduce the frequency of fishing and the quantity of catch, while fluctuations in market prices cause fishermen's incomes to become unstable. This condition indicates that the economic vulnerability of fishermen is complex because it involves the interaction of ecological and economic factors.

To understand this phenomenon, this study uses the embeddedness theory proposed by Mark Granovetter. This theory explains that economic activities do not exist in isolation but are embedded in social relationships that influence individual behavior in making economic decisions. In the context of fishermen, the decision to sell their catch is not solely based on considerations of the best price but is also influenced by social relationships such as trust, customs, and ties with middlemen or collectors.

The social relationship between fishermen and middlemen is one concrete manifestation of the concept of embeddedness. Fishermen often have long-term relationships with middlemen through a system of credit or capital assistance. This relationship creates strong bonds of trust, but on the other hand, it can also lead to economic dependency. As a result, fishermen tend to sell their catch to the same party even though the price offered is not always favorable. When market prices or catches decline due to bad weather, this situation further exacerbates fishermen's economic vulnerability, as their options are limited.

Furthermore, social networks within fishing communities also influence adaptation strategies to weather changes. Social solidarity can act as a coping mechanism through the sharing of information or assistance among fellow fishermen. However, closed social networks also have the potential to hinder access to broader markets or technological innovation. This demonstrates that embeddedness plays a dual role: as a source of strength and as a limiting factor in the economic development of fishermen.

Several studies over the past five years have shown that fisherman vulnerability is influenced by various interrelated factors. Sari et al. (2021) explain that climate change directly impacts the productivity of traditional fishers and increases income uncertainty. Furthermore, research by Rahman and Putri (2022) found that fluctuations in fishery product prices are a major factor affecting the economic stability of fishing households. Furthermore, Yusuf et al. (2023) showed that limited access to markets and capital strengthens fishers' dependence on middlemen, ultimately increasing their economic vulnerability.

Based on these studies, this research develops a conceptual framework that positions changes in weather and market prices as external factors affecting the economic conditions of fishers. Meanwhile, social relations, as explained through embeddedness theory, act as internal factors mediating the impact of these two factors. Using a qualitative approach, this research aims to explore in depth how social relations between fishers and other economic actors shape patterns of economic vulnerability in the South Garut region.

Thus, this literature review confirms that fishers' economic vulnerability cannot be understood solely through an economic approach but must be viewed within the surrounding social context. Embeddedness theory provides a strong foundation for explaining how social relations influence fishermen's economic decisions and strengthen their vulnerability to weather changes and market price fluctuations.

### **C. RESEARCH METHODOLOGY**

This study employed a qualitative, descriptive approach, aiming to deeply understand the phenomenon of economic vulnerability among fishermen within the surrounding social context. This approach was chosen because it allows for exploring the meaning behind fishermen's experiences, particularly regarding the social relationships that influence their economic activities, as explained in Mark Granovetter's theory of embeddedness. The research was conducted in the coastal area of South Garut, characterized by a traditional fishing community with a high level of dependence on natural conditions and markets. The research subjects included traditional fishermen, middlemen or fish collectors, coastal community leaders, and relevant parties such as village officials or the fisheries office. Informants were selected using purposive sampling, based on the assumption that informants had experience and knowledge relevant to the research focus.

The data used in this study consisted of primary and secondary data. Primary data were obtained directly through in-depth interviews and field observations of fishermen's activities and social interactions within the coastal economic system. Meanwhile, secondary data were obtained from official documents, government reports, and scientific literature relevant to the research topic. Data collection techniques included in-depth interviews to explore fishermen's experiences in dealing with weather changes and market price fluctuations, observations to directly observe fishing activities and catch distribution, and supporting documentation in the form of field notes and visual data.

The research model in this study utilizes a conceptual framework that positions weather changes and market price fluctuations as external factors influencing fishermen's economic vulnerability, while the social relationships inherent in economic activity (embeddedness) mediates these impacts. Thus, fishermen's economic vulnerability is influenced not only by natural and market factors but also by social relationships such as relationships with middlemen, levels of trust, and social networks formed within the fishing community. In this context, fishermen's economic vulnerability is defined as income instability and limited ability to meet basic needs; weather changes as uncertainty in natural conditions that affect fishing

activities; market price fluctuations as unstable changes in the selling price of catch; and embeddedness as the interconnectedness of economic activity within social relationships.

The data analysis technique in this study employed the interactive model of Miles and Huberman, which encompasses data reduction, data presentation, and conclusion drawing. Data reduction was carried out by sorting and simplifying the data obtained from the field, then presented in the form of descriptive narratives for easy understanding, and then conclusions were drawn to answer the research problem formulation. To maintain the validity of the data, this study used source triangulation and technical triangulation techniques, as well as conducting member checks with informants to ensure that the data obtained corresponded to actual conditions in the field. With this approach, it is hoped that the results of the study will be able to provide a comprehensive picture of the economic vulnerability of fishermen in South Garut in facing weather changes and market price fluctuations.

## D. RESULT AND DISCUSSION

### Research result

The research results show that the economic vulnerability of fishermen in the coastal area of South Garut is significantly affected by weather changes and market price fluctuations. Unpredictable weather changes cause fishermen to decrease their frequency of going out to sea, particularly during the high wave and strong wind seasons. This condition directly impacts the catch and daily income of fishermen. This finding aligns with research stating that climate change causes seasonal uncertainty, fish migration to deeper waters, and decreased catches, which impacts fishermen's welfare (Amanda et al., 2025).

In addition to weather factors, market price fluctuations are also a major cause of economic instability for fishermen. The volatility of fish prices makes fishermen's income difficult to predict, even when catches increase. Under certain conditions, fishermen still experience losses because low selling prices are not commensurate with operational costs, such as fuel and fishing gear maintenance. This situation indicates that market mechanisms play a significant role in determining fishermen's welfare (Rahman & Putri, 2022).

Other findings indicate a strong interdependence between fishermen and middlemen in the catch distribution system. Most fishermen sell their catch to the same middlemen due to long-standing relationships of debt, trust, and social customs. This situation limits fishermen's access to wider markets and reduces their chances of obtaining better prices. This demonstrates that social relationships are a crucial factor in shaping fishermen's economic patterns (Yusuf et al., 2023). The following is a summary of the research findings:

Table 1. Factors causing economic vulnerability of fishermen

No	Factor	Impact on Fishermen
1	Weather Changes	Decrease in fishing frequency and catches
2	Market Price Fluctuations	Unstable income
3	Dependence on Middlemen	Limited market access and low prices
5	High Operating Costs	Reduced profits for fishermen

Source: Researcher's processed results (2026)

## Discussion

The results of this study indicate that the economic vulnerability of fishers is a multidimensional phenomenon influenced not only by natural and economic factors but also by the social relationships inherent in economic activity. From the perspective of Mark Granovetter's embeddedness theory, individual economic actions are always influenced by social relations that shape patterns of interaction and economic decisions (Granovetter, 1985).

In the context of fishers, the relationship between fishers and middlemen reflects strong embeddedness. Fishermen are not completely free to choose who to sell their catch to due to social ties such as trust and economic dependence. When extreme weather changes occur, this condition exacerbates vulnerability because fishers remain in an unfavorable distribution system. This aligns with findings that climate change impacts income declines and increases economic uncertainty in coastal communities (Amanda et al., 2025).

Furthermore, market price fluctuations indicate inequality in the fisheries economic system, where fishers have a weak bargaining position. In this situation, embeddedness acts as a mechanism that reinforces dependency, making it difficult for fishers to access broader and more competitive markets (Yusuf et al., 2023). This situation demonstrates that social relationships are not always beneficial but can also be a limiting factor in improving economic well-being.

However, embeddedness also has a positive side. Social networks among fishermen can be a source of strength in the face of uncertainty, such as sharing information regarding weather conditions or fishing locations. Thus, social relationships play a dual role: they can both strengthen and reduce the economic vulnerability of fishermen, depending on how they are utilized.

Overall, the results of this study confirm that the economic vulnerability of fishermen in South Garut is the result of the interaction between weather changes, market price fluctuations, and the social relationships inherent in economic activity. Therefore, efforts to reduce vulnerability need to be implemented comprehensively, taking into account both economic and social aspects.

## E. CONCLUSION

This research shows that the economic life of fishermen in South Garut is highly vulnerable because it depends on two factors they cannot control: weather and market prices. When the weather is bad, fishermen cannot go out to sea to their full potential, resulting in a decline in catches. Conversely, when fish prices in the market are unstable, even the meager catches do not necessarily provide sufficient income. This situation makes fishermen's incomes uncertain and makes it difficult to meet their daily needs.

Furthermore, this research also found that the social relationships between fishermen and middlemen play a significant role in determining their economic condition. In accordance with Mark Granovetter's theory of embeddedness, fishermen's economic activities are inseparable from long-standing social relationships, such as trust and dependency. While these relationships help fishermen in certain situations, such as when they need loans, they also make it difficult for them to find more profitable market alternatives. As a result, fishermen remain vulnerable, especially during bad weather and falling fish prices.

Overall, it is clear that fishermen's economic vulnerability extends beyond their catch or fish prices, but also to the social relationships that bind them to a particular economic system. Therefore, efforts to improve the welfare of fishermen cannot simply be achieved by improving economic factors; they also require attention to the social relationships within them.

This research has limitations, primarily because it was conducted only in the South Garut region and used a qualitative approach with a limited number of informants. This makes the results difficult to generalize widely. Future research can be conducted in a larger area or with a different approach to achieve more comprehensive and in-depth results.

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