



HOW FINANCIAL AND INSTITUTIONAL SUPPORT STRUCTURES AFFECT WELFARE OF TRADITIONAL FISHERS IN MATTIROSOMPE ?

Suharwan Hamzah^{1*}, Maryunani Maryunani², Multifiah Multifiah³, Dias Satria⁴

¹Hasanuddin University, Makassar, Indonesia

^{2,3,4}Brawijaya University, Malang, Indonesia

suharwanhamzah@fe.unhas.ac.id

Abstract:

This study aims to analyze the influence of fisher organizations, financial institutions, extension services, and mentoring on the welfare of traditional capture fishermen in Mattirosompe District, Pinrang Regency, South Sulawesi. Fishermen in this area typically use simple equipment and small boats that accommodate 2-4 people. A total of 100 traditional fishermen were selected as the research sample. Linear regression was used to measure the influence of the four independent variables on fishermen's welfare.

The results show that financial institutions and mentoring have a significant positive effect on fishermen's welfare, with coefficients of 0.576 and 0.868, respectively, indicating that these factors are the main determinants of welfare improvement. Conversely, extension services have a significant negative effect with a coefficient of -0.560, while fisher organizations show no statistically significant influence. The model's R-square value of 0.718 indicates that 71.8% of the variance in fishermen's welfare can be explained by the independent variables studied.

This research concludes that financial institutions and mentoring programs play a crucial role in improving the welfare of traditional fishermen, while extension services require re-evaluation to ensure more positive impacts in the future. The study provides recommendations for the government and relevant agencies to strengthen the role of financial institutions and mentoring in enhancing the quality of life of traditional fishermen.

Keywords: Traditional Fishermen Welfare, Financial Institutions Impact, Mentoring Programs for Fishermen, Fisher Organizations, Extension Services Effect on Fishermen

1. Introduction

The welfare of traditional fishers in Indonesia is a multifaceted issue affected by various institutional, economic, and social factors, especially in regions like South Sulawesi. Mattirosompe District, located in Pinrang Regency, serves as a vital fishing area where traditional fishers rely on small boats and simple equipment, highlighting the need for targeted interventions to improve their welfare. However, these fishers continue to face challenges in accessing essential support such as organizational backing, financial assistance, extension programs, and mentoring. This research examines how these factors impact fisher welfare, aiming to identify key interventions that could help enhance the economic stability and social welfare of these communities.

Traditional fishing communities across Indonesia remain crucial to local economies and food security, with South Sulawesi contributing significantly to the country's fishing production. In 2021, South Sulawesi's fishing production value reached Rp 7,828,560,547, with various districts contributing to this figure (see Table 1). Specifically, Pinrang, with a production value of Rp 317,608,235, stands as a prominent district, emphasizing its importance within South Sulawesi's fishing industry (Badan Pusat Statistik Sulawesi Selatan, 2021). Despite these numbers, many fishers in Mattirosompe continue to struggle due to inadequate financial resources, lack of effective organizational support, and insufficient training or outreach programs. Traditional fishers' reliance on small boats and minimal fishing equipment further limits their productivity, making it essential to assess how support systems can be optimized to enhance their welfare.

Importance of Financial Institutions for Fisher Welfare

Access to financial resources is critical for traditional fishers, who often lack the capital to improve their fishing operations or acquire more advanced equipment. Financial institutions, both formal (such as banks) and informal (like local moneylenders), play an essential role in providing this capital. However, stringent requirements by formal financial institutions hinder traditional fishers from securing loans, with only 7%–10% of small-scale fishers having access to these institutions (Muhartono et al [1]) This lack of financial inclusion restricts fishers from enhancing their productivity and ultimately limits their economic growth. Conversely, informal financial institutions, though more accessible, typically charge high-interest rates, which can exacerbate financial instability among fishers (Hamka & Danarti,[2])

Innovative financial approaches tailored to traditional fishers' needs could bridge this gap. Financial literacy programs and mentoring in financial management have shown promise in similar contexts. For example, in Banda Aceh, a program initiated by the Koperasi Nelayan Pintar increased fishers' access to microcredit schemes such as the Kredit Usaha Rakyat (KUR), enabling them to improve their income and manage resources better (Hamdani et al., [3]). Through effective financial education, fishers learn the importance of budgeting, investment, and efficient

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resource management, fostering long-term economic stability (Apituley, [4]). Enhanced financial inclusion, combined with education and accessible loans, therefore, holds significant potential for improving the welfare of traditional fishers in Mattirosombe.

The Role of Fisher Organizations in Supporting Welfare

Fisher organizations provide a platform for collective action, where members can gain access to resources, advocacy, and training. These organizations play a vital role in enhancing fishers’ welfare by offering support that individual fishers might struggle to access independently. Organizational support can increase members’ commitment and resilience, which subsequently enhances productivity and welfare (Salim & Tjalla, [5]). Studies indicate that when fishers feel supported by their organizations, they are more likely to participate in activities that improve their skills and income, thereby contributing positively to their welfare (Juaris, [6]).

The effectiveness of fisher organizations largely depends on their financial management capacity and organizational structure. Organizations with transparent financial practices and a clear governance structure can attract external support, including government assistance and donor funding. For example, organizations with robust financial reporting can build member trust, enabling them to pool resources effectively and improve collective bargaining power (Sriyono & Dewi, [7]). Strong institutional capacity is therefore crucial to the success of fisher organizations, as it enables them to function as effective intermediaries between fishers and financial institutions, enhancing access to necessary support (Azizah, [8]). However, many organizations in traditional fishing communities lack such capacity, necessitating targeted programs to strengthen organizational governance and financial transparency.

Impact of Outreach and Mentoring Programs on Fisher Welfare

Outreach and mentoring programs are essential in imparting skills, knowledge, and confidence among traditional fishers, enabling them to manage resources more effectively and increase productivity. Successful outreach initiatives often focus on providing fishers with improved fishing techniques, sustainable practices, and business skills. For instance, studies reveal that outreach programs have led to greater adoption of modern fishing technologies and more efficient practices, which directly enhance household income (Wossen et al., [9]). In this regard, Mattirosombe fishers could significantly benefit from similar outreach efforts tailored to their specific needs and challenges.

However, the impact of outreach programs on fisher welfare depends on several factors, including the program’s design, the involvement level of fishers, and the program’s relevance to their local context. For example, outreach programs that do not consider seasonal variations in fishing conditions may fail to resonate with fishers, reducing their overall effectiveness (Magdalena, [10]). On the other hand, mentoring initiatives focusing on financial management, product marketing, and network building have shown to be highly effective in helping fishers optimize their operations and improve their livelihoods (Kangogo et al., [11]). Therefore, comprehensive outreach and mentoring programs, designed to account for fishers’ specific needs and environmental conditions, can be pivotal in enhancing their welfare.

Local Fisheries Production Data

Understanding local fisheries production is vital to contextualizing fisher welfare. Table 2 below provides a monthly overview of capture fisheries production in Pinrang for the year 2021, illustrating the seasonal variations and potential income fluctuations faced by traditional fishers (Dinas Perikanan Kab. Pinrang, 2021). For instance, the peak production months, such as May and August, contrast sharply with the low-production months like December, indicating income inconsistencies that traditional fishers must manage. These fluctuations underline the importance of financial stability and support mechanisms that enable fishers to sustain their welfare during low-yield periods.

Table 1. Capture Fisheries Production in Pinrang by Month, 2021

Month	Production (ton)	Month	Production (ton)
January	889,50	February	641,50
March	847,10	April	1.589,40
May	1.965,10	June	1.699,10
July	1.328,00	August	1.655,90
September	1.617,20	October	848,20
November	502,40	December	302,40
Total 2021 = 13.885,80			
2020 = 13.334,80			
2019 = 13.096,30			

(Data Source: Pinrang Fisheries Office)

In summary, the welfare of traditional fishers in Mattirosompe hinges on access to a combination of financial, organizational, and mentoring support. Financial institutions and fisher organizations can provide essential resources and structure, while outreach and mentoring efforts impart vital skills and knowledge. However, the fluctuating nature of fisheries production in Pinrang also calls for financial mechanisms that stabilize fishers' incomes throughout the year. Addressing these factors collectively can foster more resilient and sustainable livelihoods for traditional fishing communities in the region.

The primary issue affecting the welfare of traditional fishers in Mattirosompe District is the inadequacy of support structures in meeting their economic, social, and quality of life needs. Despite the crucial role of fishers in the local economy, they face significant barriers to accessing resources that would allow them to improve their livelihoods. Key support mechanisms—including fisher organizations, financial institutions, outreach, and mentoring—remain insufficiently coordinated, hindering their impact on welfare outcomes. Many fishers rely on informal financial options, with high-interest loans that often exacerbate their economic difficulties rather than alleviate them (Hamka & Danarti, [2]). Moreover, fisher organizations frequently lack the structural capacity to provide effective financial and social support, diminishing their potential to uplift their members (Prayitno et al., [12]).

The lack of accessible and affordable financial services further limits fishers' ability to invest in essential equipment and resources, crucial for sustaining and expanding their operations (Muhartono et al., [13]). Formal financial institutions, with their stringent requirements, are often out of reach for these small-scale operators, leaving them dependent on less formal yet more costly alternatives. Additionally, the absence of cohesive mentoring and outreach programs means fishers miss opportunities to enhance their skills and adopt sustainable fishing practices. Thus, there is a critical need for coordinated support that addresses both financial and skill-building gaps, fostering improved income stability and social welfare (Elshifa, [14]).

This study explores a holistic approach to addressing these challenges by examining the combined influence of fisher organizations, financial institutions, outreach, and mentoring on welfare. Integrating these components can provide a robust support framework to enhance fishers' economic resilience and social security. A structured synergy between financial support, organizational empowerment, and targeted training programs could empower fishers to manage resources more effectively, improve productivity, and foster long-term welfare improvements. Through a systematic analysis of these factors, this study aims to present an evidence-based model that can guide policy recommendations, focusing on how financial inclusivity, organizational strength, and capacity-building initiatives can collectively elevate the welfare of traditional fishers in Mattirosompe.

2. Literature Review

Addressing welfare challenges for traditional fishers in areas like Mattirosompe District requires a well-integrated approach involving fisher organizations, financial institutions, outreach, and mentoring. These four support pillars each play distinct yet interdependent roles in enhancing fishers' socioeconomic outcomes, as substantiated by scientific literature. Studies highlight the critical contributions these factors make in enabling fishers to overcome barriers in accessing resources, improving productivity, and achieving economic stability.

Fisher Organizations

Fisher organizations provide a foundational support system by facilitating collective action, advocating for members' rights, and improving resource access. Well-structured organizations often exhibit financial transparency, effective management, and strong member engagement, which are essential for fostering trust and maximizing their utility. For instance, research has shown that organizations with clear financial policies can significantly bolster the welfare of their members (Yuliyarningsih, [15]). In these organizations, transparent financial reporting enables members to understand resource allocation, which strengthens their commitment and participation in organizational activities (Sriyono & Dewi, 2021). Moreover, an organization's credibility in managing resources often attracts external support from government or donor agencies, further amplifying the benefits to its members.

An exemplary case of a successful fisher organization can be seen in coastal regions where organizations have implemented internal saving and loan schemes to support members' financial needs. For example, the cooperative model employed by the Koperasi Nelayan Pintar in Banda Aceh demonstrated significant success by not only providing direct financial assistance but also by empowering fishers with financial management training (Hamdani et al., [16]). This training encouraged fishers to develop budgeting skills and understand financial sustainability, which helped them better manage seasonal income fluctuations and improve overall welfare. These findings underscore the need for robust fisher organizations that can support financial literacy and accountability, which are vital to fostering long-term stability and member trust.

Financial Institutions

Access to financial institutions is fundamental for traditional fishers to secure necessary capital, allowing them to invest in better equipment, expand operations, and increase productivity. However, limited financial inclusion remains a pressing issue for many fishers. Studies show that a very small percentage of small-scale fishers can access formal credit due to stringent collateral requirements, often leaving them dependent on high-interest

informal loans (Muhartono et al., [13]). This financial gap has led to increased interest in developing tailored financial products to meet the unique needs of fishers.

Effective financial interventions can address these challenges. For example, low-interest loans tailored for fishers can help them purchase essential fishing equipment and materials. In regions like Pinrang, where fishers rely heavily on simple tools and small boats, such loans can significantly enhance their operational efficiency and income stability. Studies by (Atmadjaja [17]) emphasize the importance of low-interest microcredit in improving fishers' financial resilience, with evidence showing that financial literacy, when paired with accessible loans, enables fishers to make better financial decisions that directly improve their welfare. Similarly, Hutajulu [18] found that small, flexible loan schemes, combined with financial education, empower fishers to allocate their income effectively, thereby reducing reliance on informal lenders.

Outreach Programs

Outreach programs play a critical role in educating fishers on sustainable practices, efficient resource use, and technological advancements. Outreach initiatives often focus on equipping fishers with knowledge about modern fishing techniques, which can increase yields and reduce operational costs. Studies show that successful outreach can lead to the adoption of more efficient methods, fostering greater resilience within fishing communities (Wossen et al., [19]). However, the effectiveness of outreach is closely tied to its relevance and adaptability to the local context; poorly adapted programs can lead to low participation and reduced impact.

In the context of Mattirosompe, outreach programs that educate fishers on sustainable resource management and seasonal variations in fish populations are particularly valuable. For example, in communities where traditional fishing practices dominate, outreach efforts aimed at promoting environmentally sustainable practices have not only improved income stability but also preserved local ecosystems (Manzilati et al., [20]). Furthermore, outreach initiatives that focus on building networks between fishers and market access points are equally impactful. By creating connections with suppliers and buyers, fishers can secure better prices and reduce income volatility. Therefore, outreach programs, especially those that incorporate networking, contribute positively to fishers' socioeconomic welfare by fostering knowledge sharing and promoting environmental awareness.

Mentoring

Mentoring is a crucial component of fisher support, providing personalized guidance and skill-building to enhance their economic and social capabilities. Mentoring programs often include training in areas like financial management, business operations, and product diversification, which are essential for long-term economic growth. Research indicates that mentoring improves fishers' adaptability, fostering resilience in the face of market and environmental changes (Kusumayanti et al., [21]).

For instance, mentoring programs that teach financial planning skills have proven effective in helping fishers manage fluctuating incomes. In coastal areas where fishers experience seasonal variations in productivity, the ability to budget and save for leaner months is vital for maintaining economic stability. Mentoring programs that also incorporate knowledge exchange among fishers have shown substantial benefits. These programs create social networks that enable the sharing of market information, resource access tips, and technical skills. For example, a mentoring initiative in East Java supported fishers by establishing peer support groups that facilitated knowledge transfer, leading to improved financial outcomes and increased social cohesion within the community (Kusumayanti et al., [21]). These findings highlight the importance of personalized mentoring in creating adaptive, resilient communities where fishers can rely on both individual skills and collective knowledge.

Integrated Support Model for Fishers

The literature supports a comprehensive model that combines organizational, financial, outreach, and mentoring support to effectively enhance fisher welfare. This integrated approach has proven successful in multiple case studies. By aligning organizational structure with financial accessibility and educational outreach, traditional fishers can achieve a level of security and resilience that is otherwise unattainable. This model also ensures that fishers not only gain access to resources but also learn to manage and sustain them effectively over time (Prayitno et al., [12]).

In Mattirosompe, where traditional fishing practices and limited resources prevail, implementing a cohesive model is particularly relevant. Such a model would encourage stronger fisher organizations that serve as intermediaries between fishers and financial institutions, enabling more secure and beneficial financial access. Simultaneously, outreach programs tailored to the community's specific environmental and economic conditions would help fishers adopt more productive and sustainable practices. Mentoring, as a continuous process, would further reinforce these efforts by providing fishers with the tools and social networks necessary to adapt and thrive amidst economic fluctuations.

In summary, the integration of fisher organizations, financial support, outreach, and mentoring forms a powerful framework for improving the welfare of traditional fishers. As demonstrated by case studies across Indonesia, the collective impact of these support mechanisms significantly enhances fishers' economic stability and social well-

being. This study seeks to apply these findings to the traditional fishing communities in Mattirosompe, exploring how a holistic approach can address the unique challenges they face and lead to sustainable welfare improvements.

3. Materials and Methods

A. Materials

This study employed a quantitative survey-based approach to analyze the impact of fisher organizations, financial institutions, outreach programs, and mentoring on the welfare of traditional fishers in Mattirosompe District, Pinrang Regency, South Sulawesi. The primary data source was a structured questionnaire distributed to traditional fishers, with questions specifically designed to capture relevant variables associated with fisher welfare. The questionnaire focused on five main sections: demographic information, organizational involvement, financial support, outreach engagement, and mentoring experiences. Each section aimed to gather data that could provide insight into how these elements individually and collectively contribute to fishers' economic, social, and quality-of-life improvements.

The questionnaire was developed in consultation with experts in fisheries and social sciences, ensuring that it was tailored to the specific context of traditional fishers. Data collected was subsequently entered and analyzed using SPSS (Statistical Package for the Social Sciences) software, which facilitated statistical operations such as regression analysis, correlation coefficients, and multicollinearity diagnostics. The choice of SPSS was due to its reliability and comprehensive toolset for handling social science data. For the purposes of this study, SPSS enabled the calculation of essential metrics like R-squared values, p-values, and variable coefficients that determine the relationships between independent variables (fisher organizations, financial institutions, outreach, and mentoring) and the dependent variable (fisher welfare).

Institutional support played a critical role in data collection, as local government and fisher organizations were instrumental in facilitating access to the fisher community in Mattirosompe District. Partnerships with the Department of Fisheries in Pinrang Regency and local fisher cooperatives provided credibility and logistical support, especially in navigating the community and gathering authentic responses. Furthermore, support from these institutions helped improve survey response rates, as community members were more likely to participate with endorsements from familiar organizations. This institutional collaboration also added validity to the data collection process by ensuring the research adhered to ethical guidelines and respected local norms.

B. Sample Preparation

The sampling method employed in this study was stratified random sampling, aimed at ensuring representative coverage of the traditional fisher population in Mattirosompe District. The study focused on a sample size of 100 traditional fishers, which was deemed sufficient for achieving statistical significance based on power analysis. Stratification was done by boat size and fishing equipment, with respondents categorized by whether they used small motorized boats (2-5 people capacity) and simple fishing gear. This categorization was essential for capturing differences in welfare related to varying levels of resources and operational capacity among fishers.

Respondent recruitment was carried out with the assistance of local fisher organizations, which allowed the research team to access fishers directly. Recruitment took place at community gathering points and during scheduled meetings, maximizing reach to fishers who regularly engage in these forums. One potential limitation of the sampling process was seasonal variation in fishing activities, which could affect fishers' availability. For instance, certain fishers may be less accessible during peak fishing months, leading to potential sampling biases. To mitigate this, data collection was timed to avoid peak seasons as much as possible, ensuring that fishers from all operational backgrounds were represented.

C. Experimental Setup

This study utilized a linear regression model to determine the relationships between the four independent variables (fisher organizations, financial institutions, outreach programs, and mentoring) and the dependent variable (fisher welfare). The general form of the regression model used in this study is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

Y = Fisher welfare (dependent variable)

X₁ = Fisher organizations (independent variable)

X₂ = Financial institutions (independent variable)

X₃ = Outreach programs (independent variable)

X₄ = Mentoring (independent variable)

α = Intercept

β₁, β₂, β₃, β₄ = Coefficients representing the impact of each independent variable

ε = Error term

To operationalize these variables, fisher welfare was measured as an index derived from survey responses covering economic stability, quality of life, and social well-being. The index was calculated by aggregating responses on income level improvements, ability to access essential resources, and perceptions of well-being. Fisher organizations, financial institutions, outreach, and mentoring were measured on Likert scales based on participants' level of engagement, satisfaction, and perceived utility of each support mechanism.

Data cleaning was a critical part of preparing the dataset for analysis. Incomplete surveys were excluded from the dataset to maintain data integrity. For instance, responses with missing values for more than 20% of the questions were discarded, while surveys with minor missing entries were treated through mean substitution, which preserves the variability of the dataset. Further, to address outliers, Z-scores were used to standardize the variables, with any cases falling beyond ± 3 standard deviations considered as outliers and removed to prevent skewing the regression results.

Multicollinearity was evaluated by calculating the Variance Inflation Factor (VIF) and tolerance levels for each variable. A VIF above 5 would indicate multicollinearity; however, the values were found to be within an acceptable range, confirming that multicollinearity was not a concern in this model. This assessment helped ensure the reliability of the regression results by verifying that each independent variable contributed distinct information to the analysis.

D. Parameters and Statistical Analysis

The statistical analysis aimed to determine the significance of each independent variable's impact on fisher welfare. The primary statistical significance level was set at $p < 0.05$, meaning results with a p-value below this threshold would indicate statistically significant relationships between the independent and dependent variables.

The correlation coefficients for each pair of variables were calculated to observe the relationships between fisher organizations, financial institutions, outreach programs, mentoring, and welfare. The correlation values ranged between -1 and +1, with values closer to ± 1 indicating stronger relationships. Positive correlations suggested a direct relationship, whereas negative values indicated an inverse relationship. For example, if financial support was positively correlated with fisher welfare, it implied that as financial support increased, so did welfare indicators.

To validate the model's fit, the R-squared (R^2) value was assessed. The R^2 value explains the proportion of variance in the dependent variable that is predictable from the independent variables. In this study, an R^2 of 0.70 or higher would suggest a good model fit, indicating that the independent variables collectively account for a substantial proportion of the variance in fisher welfare. Additionally, Adjusted R-squared was reviewed to adjust for the number of predictors, providing a more accurate measure of model fit in the context of multiple variables.

Diagnostics tests such as the Durbin-Watson statistic were also applied to detect any autocorrelation in the residuals, which could compromise the reliability of the regression outcomes. A value close to 2 in the Durbin-Watson statistic would confirm the absence of autocorrelation. Furthermore, any observed heteroskedasticity (unequal variances in the residuals) was examined using the Breusch-Pagan test, ensuring homogeneity of variance and, thus, robustness of the regression model.

In addition to the regression model, t-tests were conducted on each coefficient to determine the individual significance of fisher organizations, financial institutions, outreach programs, and mentoring on welfare. A significant t-test for any coefficient, indicated by a p-value < 0.05 , would imply that the corresponding variable has a substantial impact on fisher welfare.

In summary, this study's methodological rigor ensures the reliability and validity of findings regarding the role of fisher organizations, financial institutions, outreach programs, and mentoring in enhancing welfare. Through comprehensive data collection, meticulous sampling, detailed regression analysis, and extensive diagnostics, this approach effectively captures the complex dynamics influencing the welfare of traditional fishers in Mattirosompe District.

4. Results and Discussion

A. Findings and Interpretation

The analysis of data from the survey conducted with 100 traditional fishers in Mattirosompe District provides insight into the relationships between four primary support variables—fisher organizations, financial institutions, outreach programs, and mentoring—and fisher welfare. Descriptive statistics for each variable are summarized in Table 1, which provides the mean and standard deviation (SD) values, offering a baseline understanding of each factor's distribution among respondents.

Table 2. Descriptive Statistics Variables

Variable	Mean	Standard Deviation	N
Fisher Welfare	23.41	1.97	100

Variable	Mean	Standard Deviation	N
Fisher Organizations	14.63	1.62	100
Financial Institutions	12.44	1.49	100
Outreach Programs	10.99	1.12	100
Mentoring	10.70	1.16	100

Source : Data Processed (2024)

The regression analysis yielded an R-squared (R^2) value of 0.718, indicating that approximately 71.8% of the variance in fisher welfare is explained by the model comprising fisher organizations, financial institutions, outreach, and mentoring. This high R^2 value suggests a robust relationship between these variables and fisher welfare. In terms of individual contributions, financial institutions (X2) and mentoring (X4) emerged as the most significant factors, with both variables showing strong positive correlations with fisher welfare. Conversely, the variable outreach programs (X3) showed a negative coefficient, indicating an inverse relationship with welfare in this context.

Table 2 presents the regression coefficients, t-values, and significance levels for each variable, which provide further detail on the statistical impact of each support mechanism.

Table 3. Regression Coefficients

Variable	Coefficient (B)	Standard Error	t-value	p-value	Significance
Constant	12.314	1.356	9.079	0.000	Significant
Fisher Organizations	0.055	0.077	0.712	0.478	Not Significant
Financial Institutions	0.576	0.122	4.711	0.000	Significant
Outreach Programs	-0.560	0.107	-5.260	0.000	Significant
Mentoring	0.868	0.145	5.977	0.000	Significant

Source : Data Processed (2024)

This table demonstrates that fisher organizations do not significantly influence welfare, with a p-value exceeding the 0.05 threshold. Meanwhile, financial institutions, outreach programs, and mentoring are statistically significant contributors to fisher welfare, with p-values below 0.05, underscoring their substantive roles.

B. Detailed Results by Each Variable

Fisher Organizations

Fisher organizations play a central role in promoting welfare among fishers through community engagement, collective bargaining, and resource sharing. In Mattirosompe, fisher organizations, although varied in structure, serve as platforms for fishers to pool resources, share information, and advocate for their rights. These organizations encourage collective action, which can improve fishers' economic stability by strengthening their bargaining power and ensuring fair pricing for fish. Although the regression results in this study indicated a coefficient of 0.055 for fisher organizations ($p = 0.478$), suggesting an insignificant direct impact on welfare (Table 4), their role remains critical in other indirect ways, such as providing a sense of community and mutual support.

Studies have shown that effective fisher organizations enhance members' welfare by improving access to resources and training (Salim & Tjalla [5]) highlighted that fisher organizations with strong leadership and clear governance structures promote higher engagement among members, increasing their resilience in economic downturns. Moreover, a study by (Azizah [8]) found that fisher organizations that prioritize financial transparency and

member participation experience higher levels of trust, enabling them to negotiate better terms with financial institutions and buyers. This finding aligns with the observed positive, though weak, relationship between fisher organizations and welfare in Mattirosompe. While fisher organizations here may not directly influence welfare as strongly as financial institutions or mentoring, their collective action fosters an environment where fishers can collaborate to overcome common challenges.

Table 4. Regression Coefficients for Fisher Organizations and Welfare

Variable	Coefficient (B)	Standard Error	t-Value	Significance (p-value)
Fisher Organizations	0.055	0.077	0.712	0.478

Source : Data Prosesed (2024)

A closer look at the activities within these organizations highlights their importance beyond financial metrics. Organizations frequently conduct skill-building sessions, allowing fishers to share best practices and technical knowledge relevant to fishing operations. Through regular meetings and workshops, fishers learn resource management techniques, which indirectly improves their income stability. Additionally, the organizations help facilitate group purchases of equipment, thereby reducing individual costs and improving profit margins—a key finding also supported by (Yuliyansih [15]), who found that well-organized groups lead to improved operational efficiency and economic benefits.

Financial Institutions

Access to financial institutions is crucial for traditional fishers, as it provides the capital needed to invest in tools and expand operations. In this study, the coefficient for financial institutions was 0.576 with a significant p-value ($p < 0.001$), indicating a strong positive impact on fisher welfare (Table 2). Financial support allows fishers to purchase better equipment and access capital for expansion, both of which are vital for increasing income and enhancing welfare. The standardized beta coefficient of 0.435 further emphasizes financial institutions' substantial role in improving welfare outcomes.

Financial literacy plays an essential mediating role in the relationship between financial institutions and welfare. Fishers who receive training on financial management, such as budgeting, saving, and investment, are better able to utilize financial resources effectively. The findings of Hutajulu [18] align with these results, as his research suggests that financial literacy programs tailored for fishers improve resource allocation, helping them manage their finances better, especially during low fishing seasons. Additionally, (Atmadjaja [17]) demonstrated that fishers with access to low-interest, flexible loans exhibit greater resilience during economic downturns, suggesting that tailored loan programs could further improve welfare by reducing reliance on high-interest, informal lenders.

Table 5. Regression Coefficients for Financial Institutions and Welfare

Variable	Coefficient (B)	Standard Error	t-Value	Significance (p-value)
Financial Institutions	0.576	0.122	4.711	0.000

Source : Data Prosesed (2024)

Despite the positive impact, barriers still exist. Formal financial institutions often impose strict conditions, making access challenging for fishers with limited collateral. However, local cooperative banks or microfinance options that cater to small-scale fishers offer a solution, as they typically require minimal guarantees. Strengthening fishers' financial literacy through tailored programs, as seen in Pinrang, could significantly amplify the positive outcomes of financial support on welfare.

Outreach Programs

Outreach programs serve as a conduit for imparting knowledge and skills, enabling fishers to adopt sustainable practices and optimize fishing techniques. This study found a negative coefficient for outreach programs at -0.560 ($p < 0.001$), suggesting an inverse relationship with welfare (Table 3). This unexpected finding may be attributed to a misalignment between the content of outreach programs and the specific needs of fishers in Mattirosompe. For instance, outreach efforts that do not consider the local fishing calendar or resource limitations may fail to resonate, causing frustration rather than the intended empowerment.

The literature highlights the importance of context-specific outreach. (Wossen et al. [19]) emphasize that outreach programs that cater to the unique environmental and economic conditions of fishers are more successful in promoting welfare. Effective outreach programs frequently involve periodic training on sustainable fishing

practices, resource management, and modern fishing tools. In contrast, generic programs with limited engagement may inadvertently increase operational stress by imposing unsuitable methods.

Table 6. Regression Coefficients for Outreach Programs and Welfare

Variable	Coefficient (B)	Standard Error	t-Value	Significance (p-value)
Outreach Programs	-0.560	0.107	-5.260	0.000

Source : Data Processed (2024)

Participation also plays a role in outreach effectiveness. (Kangogo et al. [11]) report that outreach programs which involve fishers in the planning process are more effective, as they tailor content to community-specific needs. In Mattirosompe, adjusting outreach to address local challenges—such as market access and seasonal fishing limitations—could turn the negative impact into a positive one, aligning outreach with the direct welfare benefits that fishers seek.

Mentoring

Mentoring shows a strong, positive relationship with welfare, as indicated by the 0.868 coefficient ($p < 0.001$), making it the most significant variable in this study (Table 4). Mentoring provides personalized guidance, enabling fishers to develop skills and improve their social and economic capabilities. Through mentoring, fishers acquire practical skills such as budgeting, cost management, and strategic planning, which enhance their ability to manage resources and stabilize income.

Effective mentoring models often involve regular, hands-on training sessions that cover both technical and business skills. According to (Kusumayanti et al. [21]), mentoring that emphasizes social network building enhances welfare by fostering stronger support systems within the fishing community. In Mattirosompe, mentoring not only provides fishers with actionable skills but also connects them with broader networks, enabling resource sharing and collaborative problem-solving. This social support bolsters individual welfare by creating a more resilient community where members can share resources and knowledge.

Table 7. Regression Coefficients for Mentoring and Welfare

Variable	Coefficient (B)	Standard Error	t-Value	Significance (p-value)
Mentoring	0.868	0.145	5.977	0.000

Source : Data Processed (2024)

Mentoring also enhances financial literacy, helping fishers apply for loans and manage debt responsibly. By imparting these skills, mentoring ensures that fishers are equipped to handle economic fluctuations and make informed financial decisions. The findings of (Manzilati [20]) align with this, noting that mentoring leads to sustainable income improvements as fishers gain confidence in their economic strategies. Given its profound impact on welfare in Mattirosompe, strengthening mentoring initiatives, with a focus on adaptive learning and skill-sharing networks, could offer significant improvements to fisher welfare in the district.

In summary, each variable examined has demonstrated a distinct impact on the welfare of fishers in Mattirosompe. While financial institutions and mentoring show direct positive influences, the effectiveness of fisher organizations and outreach could be improved by addressing structural gaps and aligning programs with local needs. These findings suggest a multi-faceted approach that combines institutional support, financial access, adaptive outreach, and personalized mentoring as an integrated model for advancing fisher welfare in traditional fishing communities.

C. Comparative Analysis with Literature

The findings of this study align with and diverge from existing literature on the welfare of traditional fishing communities worldwide, providing valuable insights into how regional policies and support structures shape fisher welfare. Globally, the role of fisher organizations in promoting welfare through collective action is well-documented. For instance, studies from coastal communities in Southeast Asia reveal that fisher organizations significantly enhance income stability and bargaining power by pooling resources and facilitating collective sales (Salim & Tjalla, [5]). This is consistent with our study's findings that fisher organizations contribute to welfare improvement, albeit indirectly, by creating a sense of community and mutual support rather than through direct economic benefits. However, our study noted a weaker statistical impact on welfare, possibly due to the organizational limitations specific to Mattirosompe, where fisher organizations lack the financial transparency and

management efficiency seen in more developed cooperatives in regions like the Philippines or Thailand (Azizah, [8]).

On the role of financial institutions, this study's findings align with those of studies from Africa and Latin America, where access to tailored financial support has been linked to substantial welfare improvements in fishing communities. For example, research from Kenya demonstrates that microcredit programs and cooperative savings schemes significantly increase fishers' financial resilience by reducing their reliance on high-interest informal lenders (Prayitno et al., [12]). Similarly, in Latin America, small-scale fishers benefiting from low-interest loans report increased productivity due to investments in better equipment and training. This aligns with the significant positive relationship observed in this study, where tailored financial support facilitated access to capital for fishers in Mattirosompe, driving welfare improvements. However, a notable divergence exists in the financial literacy levels among communities. While some regions integrate financial education into credit programs, fishers in Mattirosompe still face financial literacy challenges, highlighting an area for improvement.

Outreach programs, surprisingly, demonstrated a negative correlation with welfare in this study, which contrasts with positive impacts reported in studies from India and other parts of Southeast Asia. Research in India's coastal regions reveals that well-structured outreach initiatives on sustainable fishing and market access significantly enhance fishers' livelihoods by equipping them with valuable skills and connections (Wossen et al., [19]). In comparison, the negative impact found in Mattirosompe may be attributed to misalignment between outreach content and fishers' immediate needs. Studies suggest that successful outreach requires adaptation to local contexts; programs that fail to address specific environmental and operational challenges are less effective, potentially leading to frustration and disengagement (Manzilati et al., [20]). This highlights a regional disparity in program design and suggests that outreach in Mattirosompe could be enhanced by tailoring content to address fishers' unique needs, such as seasonal fluctuations and limited market access.

Mentoring displayed the strongest positive impact on welfare, consistent with literature from regions where mentorship programs are integral to fisher support systems. In South Africa, for example, mentoring programs that focus on imparting financial management and technical skills have proven effective in increasing fishers' financial resilience, a finding echoed in this study (Kusumayanti et al., [21]). Similar initiatives in Latin America emphasize the role of mentoring in building social networks and fostering resource sharing, which enhances welfare by creating stronger community ties and mutual support mechanisms. The study's results align well with these findings, indicating that tailored mentoring has the potential to create sustainable welfare improvements in Mattirosompe. However, unlike in regions where mentorship programs are state-sponsored, the mentoring initiatives in Mattirosompe are largely community-driven, indicating a need for institutional support to expand the reach and impact of these programs.

The unexpected negative correlation between outreach programs and welfare, as observed in this study, also invites a re-evaluation of outreach practices in Mattirosompe. Literature suggests that outreach needs to be highly adaptive, considering local socioeconomic and environmental factors. For instance, programs in Vietnam emphasize adaptive content based on seasonal fishing patterns and current market demands, ensuring that training remains relevant to fishers' livelihoods (Begum et al., [22]). The frustration and perceived ineffectiveness of outreach programs in Mattirosompe may stem from a lack of this adaptability, leading to a perceived disconnect between training and practical outcomes. Future outreach programs should consider these factors to better align program goals with the realities faced by fishers.

D. Implications of Findings

The findings from this study provide several practical and policy implications aimed at improving welfare among small-scale fishers in Mattirosompe. First, the significant positive impact of financial institutions on welfare highlights the need for expanded access to affordable credit options specifically tailored for fishers. Policymakers could consider subsidized microcredit programs and financial literacy training integrated into credit offerings to enhance fishers' financial management skills. Regional banks or cooperative credit unions could collaborate with local governments to provide loan products with flexible terms, reducing the dependence on high-interest informal lenders and promoting economic stability among fishers.

The strong influence of mentoring on welfare suggests the potential benefits of formalizing mentoring programs in Mattirosompe. Given that mentoring currently occurs on a community-driven basis, government intervention could help institutionalize these efforts by establishing partnerships between fisher organizations, NGOs, and local leaders. Programs could focus on empowering fishers through both technical and business skills training, enhancing long-term welfare outcomes. Mentorship programs, if standardized, can also improve resource-sharing practices, fostering stronger social networks within the community.

Finally, the observed negative impact of outreach programs on welfare highlights a need for greater adaptability in outreach program design. To address this, policy interventions could mandate periodic reviews and evaluations of outreach content, ensuring alignment with fishers' real-world challenges, such as seasonal fishing patterns and local market demands. Regional authorities could collaborate with local organizations to deliver context-sensitive training that is more attuned to the specific economic and environmental conditions of Mattirosompe. This would

increase fishers' engagement and improve program efficacy, ultimately aligning outreach initiatives more closely with welfare objectives and fostering sustainable development within fishing communities.

5. Conclusion

This study examined the impact of fisher organizations, financial institutions, outreach programs, and mentoring on the welfare of traditional fishers in Mattirosompe District, Pinrang Regency, South Sulawesi. The analysis revealed distinct effects of each variable, highlighting financial institutions and mentoring as the most dominant influences on fisher welfare. Financial access emerged as a crucial driver, significantly improving fishers' economic stability and enabling investment in necessary resources and equipment. Mentoring, similarly impactful, enhanced welfare by providing fishers with essential skills in financial management, technical operations, and networking, creating resilient, sustainable livelihoods. Conversely, fisher organizations and outreach programs had less direct impact on welfare, though they served valuable roles in community engagement and knowledge sharing. Notably, outreach programs presented a negative correlation with welfare, suggesting that misaligned training and program content may frustrate fishers rather than aid them.

Given these findings, several policy recommendations can be made to enhance welfare outcomes among small-scale fishers in the region. Strengthening fisher organizations is essential for fostering more effective collective action and better advocacy. Local governments could support fisher organizations by providing governance training, increasing their capacity to manage resources, and facilitating partnerships with other institutions. Furthermore, enhancing financial inclusion for traditional fishers remains vital. Policymakers might consider implementing subsidized loan schemes or microcredit programs with tailored, low-interest loan products that address the seasonal nature of fishing. Additionally, integrating financial literacy training with credit access could empower fishers to make informed financial decisions, thereby boosting economic resilience.

Expanding formal mentoring programs offers another viable approach to support fishers' welfare. Mentoring initiatives that cover technical, business, and financial management skills could be institutionalized in collaboration with NGOs, fisher organizations, and local government bodies. Mentorship programs that emphasize skill-building and community support would strengthen fishers' capacities and provide a long-term approach to economic empowerment. This would promote sustainable welfare outcomes by equipping fishers with adaptable skills suited to evolving industry and market demands.

Future research could further explore these dynamics by conducting longitudinal studies to assess welfare changes over time, offering a deeper understanding of how specific support mechanisms evolve and impact fisher communities. Expanding the study to other fishing regions could also yield comparative insights, enhancing the generalizability of these findings and informing regional policy design. Such research would not only validate the efficacy of support interventions in Mattirosompe but also contribute to a broader framework for sustaining traditional fishing communities across Indonesia. By aligning support structures with fishers' unique needs, these initiatives have the potential to elevate welfare and foster a resilient, self-sufficient fishing community in Mattirosompe and beyond.

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