

# The Effect of Catch Volume, Selling Price, and Operating Costs on Fishermen's Net Income

Aljabir <sup>1\*</sup> Ega Saiful Subhan <sup>2</sup> Sumarni <sup>3</sup>

<sup>1\*, 2, 3</sup> Department of Management, Sekolah Tinggi Ilmu Ekonomi Yapis, Dompu, Indonesia

Email: [aljabir64@gmail.com](mailto:aljabir64@gmail.com), [egasaifulsubhan@stieyapisdompupu.ac.id](mailto:egasaifulsubhan@stieyapisdompupu.ac.id), [sumarni@stieyapisdompupu.ac.id](mailto:sumarni@stieyapisdompupu.ac.id)

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## ABSTRACT

**Purpose:** This study aims to analyze the partial and simultaneous effects of catch volume, selling price, and operational costs on the net income of blue swimming crab (*rajungan*) fishermen.

**Research Method:** A quantitative explanatory approach was employed. Data were collected using Likert-scale questionnaires from 92 active fishermen in Mbawi Village, Dompu Regency, who were selected through probability sampling. The data were analyzed using multiple linear regression.

**Results and Discussion:** Catch volume and selling price have positive and significant effects on net income, whereas operational costs have a negative and significant effect. Simultaneously, these variables account for 71.8% of the variance in income.

**Implications:** Local authorities should implement price-stabilization policies, eliminate oligopsony chains, and provide targeted fuel subsidies. Future studies should explore external factors like weather anomalies and patron-client systems.

**Originality:** This research integrates sociological dimensions into microeconomic profit-margin calculations, offering a comprehensive evaluation of the systemic burdens faced by fishermen amid daily price uncertainties.

**Keywords:** blue swimming crab; catch volume; net income; operational costs; selling price.

## 1. Introduction

Indonesia, as an archipelagic nation with a predominantly maritime territory, possesses abundant marine resources, with the fisheries sector being one of the main contributors to the national Gross Domestic Product (GDP) (Rahim *et al.*, 2024). In a regional context, Mbawi Village in Dompu Regency has a strong economic dependence on the marine sector, particularly on the blue swimmer crab (*Portunus pelagicus*), which holds high economic value in global export markets (Hendarto, 2025). However, the economic reality in Mbawi Village reveals a significant contradiction. Although national and global market demand remains stable, fishermen's welfare has not improved (Jufri *et al.*, 2024). The phenomenon of abundance often occurs during the peak harvest season, where an increase in catch volume actually leads to a drastic drop in selling prices due to the dominance of intermediaries and limited storage infrastructure (Amahorseja *et al.*, 2025).



The fundamental, practical, and theoretical challenges faced by fishermen are the uncertainty surrounding their net income structure, which is the difference between total gross revenue and operational costs. This dynamic is exacerbated by climate change and coastal ecosystem degradation, which force fishermen to venture farther out to sea, thereby increasing operational costs, including fuel and fishing gear maintenance. Improved well-being is linearly correlated with catch volume and price stability. However, the oligopsonistic market structure and information asymmetry in Mbawi Village create barriers to the formation of a healthy market mechanism (Khadizah & Kurniati, 2025). Consequently, fishermen's bargaining power is eroded; while increased productivity clashes with the rigidity of operational costs and unilateral purchase prices set by intermediaries, making it difficult for fishermen to break the cycle of poverty (Intyas *et al.*, 2022; Nababan *et al.*, 2025).

Previous studies have sought to identify the determinants of fishermen's financial well-being but have yielded varying results. Several studies found that catch volume, fish prices, and operational costs have a positive and significant impact on fishermen's net income (Jaswara, 2017; Nugroho, 2017; Kurniati *et al.*, 2022; Sabu *et al.*, 2024). Similar findings by Shaleha and Pahlevi (2020) also confirm that experience, operational costs, and catch volume simultaneously influence income. This body of research establishes the state-of-the-art understanding that fishermen's economic success is largely determined by their ability to maximize catch volume, secure market prices, and achieve cost efficiency. There are anomalies and limitations in the prior literature; for instance, Juwita (2023) found that the selling price has a negative but insignificant effect on fishermen's income. In line with this, Tawa *et al.*, (2024) reported that capital, working hours, and fixed costs do not have a significant effect on income. The main limitation of previous studies is the tendency to view economic variables purely mathematically and to generalize fishery commodities. Most studies have not accounted for the specific characteristics of highly perishable commodities like blue swimmer crabs, which demand daily logistical cost efficiency—such as the highly dynamic supply of ice—nor have they considered the patron-client relationships that distort price formation at the local level.

The research gap between prior empirical studies and current realities lies in the disconnect between microeconomic theory and on-the-ground sociocultural conditions. This study challenges the linear assumptions of previous research, which posited that higher catch volumes automatically increase income, without accounting for the systemic burdens of social relations and the deeply entrenched patronage system in Dompou. Therefore, this study does not merely replicate previous mathematical models but expands the scope of analysis by highlighting the extent to which the economic resilience of local fishermen can withstand cost rigidities and price fluctuations under oligopsony control. The village of Mbawi urgently requires this comprehensive economic mapping so that government policy interventions, such as subsidies or minimum retail price regulations, can be effectively targeted (Widyatmoko *et al.*, 2022; Ferezagia *et al.*, 2024).

Based on this gap analysis, the novelty of this study lies in selecting the specific commodity, the blue swimmer crab (*Portunus pelagicus*), and integrating sociological dimensions into profit margin calculations, thereby presenting a comprehensive portrait of the systemic burdens faced by fishermen amid daily price uncertainty (Azizi *et al.*, 2025). Therefore, the research questions in this study are: (1) Does catch volume affect the net income of blue crab fishermen in Mbawi Village?; (2) Does selling price affect net income?; (3) Do operational costs affect net income? Moreover, (4) Do all three simultaneously affect net income? In line with these questions, this study aims to analyze and determine the significance of the influence of catch volume, selling price, and operational costs—both partially and



simultaneously—on the net income of mud crab fishermen in Mbawi Village, Dompu Regency, to serve as a reference for formulating policies to protect fishermen's economic well-being.

This article is organized into several main sections. Following the introduction, which outlines the problem context and objectives, the next section is Research Methodology, which explains the research design, data collection techniques, and data analysis methods. The Results and Discussion section will present the empirical findings in statistical terms and analyze them from economic and sociocultural perspectives. Finally, the Conclusion section will summarize the answers to the research questions along with managerial implications and recommendations for policymakers.

## 2. Literature Review and Hypothesis Development

### 2.1 Theoretical Framework (Grand Theory)

This study uses Production Theory and Cost-Profit Theory as its primary foundation within a microeconomic framework. According to Purnomo (2022), microeconomics views net profit not merely as a residual figure but as the result of an efficient combination of the quantity of goods produced, market prices, and costs incurred during the production process. This theory establishes that blue crab fishermen can achieve maximum income only by balancing two objectives: increasing catch volume while controlling fishing costs to remain efficient, regardless of prevailing price dynamics. Furthermore, the Cost-Profit Theory emphasizes that selling price and operational costs are key determinants of business profit (Banerjee, 2021). The selling price functions as an instrument that determines the economic value of revenue, while operational costs such as fuel, bait, and maintenance act as reducing variables that directly impact profitability (Hakimah, 2016; Iry & Rain, 2020). This theoretical foundation guides the research in examining how these three variables interact empirically in determining the welfare of fishermen in Mbawi Village.

### 2.2 Fishermen's Net Income

From an income-theory perspective, the value of fishermen's net income reflects business profits and serves as a fundamental indicator of the economic well-being of coastal households (Mulyaningtyas *et al.*, 2025). This figure is measured using indicators of average income, profits, and income stability. However, prior literature indicates complex dynamics in the field. (Amalia, 2024) found that income from the sea is often insufficient, forcing fishermen to seek side jobs to make ends meet. This disparity indicates that net income cannot be viewed merely as a mathematical formula but rather as a crucial parameter for evaluating fishermen's economic resilience. Therefore, analyzing the determinants of net income is essential for formulating appropriate intervention policies (Sabu *et al.*, 2024).

### 2.3 The Effect of Catch Volume on Net Revenue

Catch volume refers to the total production obtained by fishermen, reflecting the effectiveness of resource utilization and fishing technology (Purnomo, 2022). Specifically for the blue crab commodity, this volume is highly susceptible to external factors, including seasonality and stock availability (Husni *et al.*, 2025). Research (Yasrizal, 2016; Azhar *et al.*, 2022) has consistently found that an increase in catch volume has a positive impact on fishermen's total income, provided that catch quality is maintained.



These findings are also supported by Jaswara (2017) and Shaleha & Pahlevi (2020), who emphasize that catch yields are the primary driver of fishermen's economic well-being. Improvements in productivity and catch efficiency indicators will be directly proportional to increases in fishermen's income.

H1: The volume of the catch has a positive and significant effect on fishermen's net income.

## 2.4 The Effect of Selling Price on Net Revenue

The selling price is an economic exchange value that is highly sensitive in determining profit margins (Hendarto, 2025). The literature indicates inconsistencies regarding this variable. Kurniati *et al.*, (2022) and Sabu *et al.*, (2024) demonstrate that the selling price has a positive and significant effect on income, with stable prices directly boosting welfare. On the other hand, a study (Juwita, 2023) found that the selling price actually has a negative and insignificant effect due to market distortions. Jufri *et al.*, (2024) found that this anomaly often occurs due to fishermen's heavy reliance on intermediaries who monopolize price setting. Despite this debate, theoretically, favorable prices remain the primary prerequisite for profitability.

H2: Selling prices have a positive and significant effect on fishermen's net income

## 2.5 The Impact of Operating Expenses on Net Income

Operating costs include all expenses incurred to ensure smooth fishing operations, such as fuel, fishing gear, and provisions (Iry & Rain, 2020). In production theory, costs are treated as a factor of deduction. Studies by Yulianti *et al.*, (2023) and Sahubawa (2018) highlight that rising fuel costs, if not offset by higher selling prices, will directly reduce net income. Interestingly, some studies, such as those by Nugroho (2017) and Menase (2024), found that operational costs can have a positive effect: greater capital expenditure to fish farther out at sea results in significantly larger catches, so income ultimately continues to rise. However, if viewed purely as a rigid production cost, cost increases essentially squeeze profit margins.

H3: Operating costs have a significant negative impact on fishermen's net income.

## 2.5 Conceptual Framework and Simultaneous Effects

The conceptual framework of this study positions catch volume and selling price as driving variables (gross income), while operating costs act as a reducing factor. The integration of these three variables determines the threshold of fishermen's economic stability (Sabu *et al.*, 2024; Mulyaningtyas *et al.*, 2025). Given that fishermen in Mbawi Village operate within an ecosystem of fluctuating prices and rising costs, these three factors work together (simultaneously) to determine their financial structure.

H4: Catch volume, selling price, and operating costs simultaneously have a significant effect on fishermen's net income.

H1: (Yasrizal, 2016; Shaleha & Pahlevi, 2020; Sabu *et al.*, 2024)

H2: (Kurniati *et al.*, 2022; Juwita, 2023; Sabu *et al.*, 2024)

H3: (Nugroho, 2017; Iry & Rain, 2020; Menase, 2024)

H4: (Sabu *et al.*, 2024)



### 3. Research Method

This study employs a quantitative, descriptive-explanatory design to analyze and measure the effects of catch volume, selling price, and operational costs on the net income of mud crab fishermen in Mbawi Village, Dompu Regency (Sugiyono, 2019). This location was purposively selected, given the high intensity and dominance of the coastal community in Mbawi Village, whose economy relies on mud crab fishing.

The study population comprised 120 mud crab fishermen actively operating in Mbawi Village. The sample size was determined using the Slovin method with a 5% margin of error, resulting in a minimum sample size of 92 respondents (Ghozali, 2018). Sampling employed the probability sampling technique with specific inclusion criteria: (1) respondents' primary target catch is blue crab; (2) they are administratively registered or actively operate within the administrative area of Mbawi Village; and (3) they routinely engage in fishing activities for at least the past year to ensure the accuracy of reported average monthly income data.

Empirical data collection was conducted through field observations, interviews, and the distribution of a closed-ended Likert-scale questionnaire with a score range of 1–5 (Sugiyono, 2019). Details of the variables, codes, and indicators measured in this research instrument are summarized in Table 1.

**Table 1. Variables and Measurements**

Variable	Indicator	Source
Volume of Catch (X1)	Fishermen's productivity	(Amahorseja <i>et al.</i> , 2025),
	Production efficiency	
	Time at sea	
Selling Price (X2)	Average price per kilogram	(Sabu <i>et al.</i> , 2024; Mulyaningtyas <i>et al.</i> , 2025).
	Price fluctuations	
	Selling point	
Operating Costs (X3)	Fuel costs	(Banerjee, 2021).
	Maintenance/repair costs for fishing gear	
	Consumption needs	
Net Income (Y)	Average income	(Mulyaningtyas <i>et al.</i> , 2025).
	Benefits	
	Income stability	

**Source:** Previous Research (2026)

Data analysis was conducted using SPSS software via multiple linear regression, preceded by instrument validation (validity and reliability tests) and a series of classical assumption tests, including the Kolmogorov-Smirnov normality test, multicollinearity test, and Glejser heteroscedasticity test (Ghozali, 2018). Hypothesis testing was performed at a 5% significance level ( $\alpha = 0.05$ ) using t-tests to measure the partial effects of catch volume, selling price, and operating costs, and F-tests to assess their combined impact on fishermen's net income (Ghozali, 2018; Sugiyono, 2019). Furthermore, the combined contribution of all independent variables in predicting these income fluctuations was evaluated using the coefficient of determination (R-squared) or the adjusted R-squared (Ghozali, 2018).

## 4. Results and Discussion

### 4.1 Analysis Results

A descriptive analysis of 92 fishermen in Mbawi Village showed that catch volume (mean 23.79; SD 3.873) and selling price (mean 23.84; SD 3.608) were stable and tended to be uniform. Conversely, operational costs recorded the highest average (mean 24.40; SD 4.019) due to variations in the distance and duration of fishing trips, resulting in high fluctuations in net income (mean 23.89; SD 4.361). The high dispersion of data on net income confirms that the level of fishermen’s economic well-being varies significantly, depending on individual ability to balance catch optimization and fishing cost efficiency.

**Table 2. Descriptive Analysis**

	N	Minimum	Maximum	Mean	Std. Deviation
Catch Volume	92	9	30	23.79	3.873
Selling Price	92	7	30	23.84	3.608
Operating Costs	92	12	30	24.40	4.019
Fishermen’s Net Income	92	7	30	23.89	4.361
Valid N (listwise)	92				

Source: SPSS (2026)

**Table 3. Validity**

Variable	Item	r-calculated	r-estimated	Info
Catch Volume	X1.1	0,617	≥ 0,2050	Valid
	X1.2	0,797	≥ 0,2050	Valid
	X1.3	0,755	≥ 0,2050	Valid
	X1.4	0,728	≥ 0,2050	Valid
	X1.5	0,826	≥ 0,2050	Valid
	X1.6	0,746	≥ 0,2050	Valid
Selling Price	X2.1	0,707	≥ 0,2050	Valid
	X2.2	0,650	≥ 0,2050	Valid
	X2.3	0,753	≥ 0,2050	Valid
	X2.4	0,709	≥ 0,2050	Valid
	X2.5	0,748	≥ 0,2050	Valid
	X2.6	0,755	≥ 0,2050	Valid
Operating Costs	X3.1	0,776	≥ 0,2050	Valid
	X3.2	0,778	≥ 0,2050	Valid
	X3.3	0,759	≥ 0,2050	Valid
	X3.4	0,705	≥ 0,2050	Valid
	X3.5	0,744	≥ 0,2050	Valid
	X3.6	0,760	≥ 0,2050	Valid
Fishermen's Net Income	Y1	0,889	≥ 0,2050	Valid
	Y2	0,885	≥ 0,2050	Valid
	Y3	0,785	≥ 0,2050	Valid
	Y4	0,843	≥ 0,2050	Valid
	Y5	0,864	≥ 0,2050	Valid
	Y6	0,717	≥ 0,2050	Valid

Source: SPSS (2026)

Based on the validity test results in Table 3, all items in the variables catch volume (X1), selling price (X2), operating costs (X3), and fishermen’s net income (Y) have calculated r-values greater than the table r-value (0.2050). The table r-value was obtained from the degrees of freedom (df) calculation



(92 - 2 = 90) at a 5% significance level. Referring to the criteria for statistical decision-making (Ghozali, 2018), an instrument is considered valid if the calculated r-value is greater than the table r-value. Since all items met this criterion, the questionnaire used in this study is deemed valid and suitable for subsequent hypothesis testing.

**Table 4. Reliability**

Variable	Cronbach's Alpha	N of Items	Std. Reliabilitas	Info
Catch Volume	0,839	6	≥ 0,60	Reliable
Selling Price	0,813	6	≥ 0,60	Reliable
Operating Costs	0,847	6	≥ 0,60	Reliable
Fishermen's Net Income	0,910	6	≥ 0,60	Reliable

Source: SPSS (2026)

The results of the reliability test indicate that all research variables have Cronbach's alpha values > 0.60. Based on statistical criteria (Ghozali, 2018), this questionnaire is reliable, consistent, and suitable for subsequent hypothesis testing.

**Table 5. Normality**

		Unstandardized Residual
N		92
Normal Parameters <sup>a,b</sup>	Mean	.1890916
	Std. Deviation	2.28516314
	Absolute	.084
Most Extreme Differences	Positive	.078
	Negative	-.084
Test Statistic		.084
Asymp. Sig. (2-tailed)		.124 <sup>c</sup>
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: SPSS (2026)

Based on the One-Sample Kolmogorov-Smirnov normality test in Table 5, the Asymp. Sig. (2-tailed) value was 0.124 (> 0.05). In accordance with statistical testing criteria (Ghozali, 2018), this result indicates that the residual values are normally distributed. Thus, the regression model is deemed appropriate for use because the processed data is representative and evenly distributed, accurately reflecting the characteristics of the population.

**Table 6. Multicollinearity**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
(Constant)	2.728	2.201		1.239	.219			
1	Catch Volume	.274	.099	.243	2.768	.007	.401	2.492
	Selling Price	.777	.106	.643	7.307	.000	.400	2.498
	Operating Costs	-.159	.061	-.147	-2.620	.010	.991	1.009

a. Dependent Variable: Fishermen's Net Income

Source: SPSS (2026)



Based on the results of the multicollinearity test in Table 6, all independent variables have a Tolerance > 0.10 and a Variance Inflation Factor (VIF) < 10. Based on the statistical testing criteria (Ghozali, 2018), these results confirm that the regression model in this study is free of multicollinearity. Thus, there is no strong correlation or overlap among the independent variables so that each variable can predict the dependent variable independently.

**Table 7. Heteroscedasticity (Glejser)**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.444	2.207		-.201	.841
1 Catch Volume	-.011	.099	-.019	-.113	.910
Selling Price	.026	.107	.041	.241	.810
Operating Costs	.012	.061	.021	.193	.847

a. Dependent Variable: Unstandardized Residual

Source: SPSS (2026)

The results of the Glejser test indicate that all independent variables—catch volume (0.910), selling price (0.810), and operating costs (0.847)—are statistically significant, with p-values less than 0.05. This regression model is free from heteroscedasticity and has constant residual variance, ensuring that the estimation results are reliable and unbiased (Ghozali, 2018).

**Table 8. Multiple Linear Regression**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.728	2.201		1.239	.219
1 Catch Volume	.274	.099	.243	2.768	.007
Selling Price	.777	.106	.643	7.307	.000
Operating Costs	-.159	.061	-.147	-2.620	.010

a. Dependent Variable: Fishermen's Net Income

Source: SPSS (2026)

$$Y = 2,728 + 0,274X_1 + 0,777X_2 - 0,159X_3 + e$$

- Constant: A constant value of 2.728 indicates that if all independent variables—catch volume, selling price, and operating costs—are set to zero, the baseline value of fishermen’s net income remains at 2.728 units.
- Catch Volume (X1): The regression coefficient is positive (0.274). This means that every 1-unit increase in catch volume will boost fishermen’s net income by 0.274 units, assuming all other variables remain constant.
- Selling Price (X2): The regression coefficient is the highest positive value (0.777). This confirms that a 1-unit increase in market price has a very strong impact on improving well-being, increasing net income by 0.777 units.

- Operational Costs (X3): The regression coefficient is negative (-0.159). This indicates an inverse relationship; every 1-unit increase in capital costs (fuel, supplies) actually erodes fishermen’s net profit by 0.159 units.

**Table 9. Partial Test**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.728	2.201		1.239	.219
1 Catch Volume	.274	.099	.243	2.768	.007
Selling Price	.777	.106	.643	7.307	.000
Operating Costs	-.159	.061	-.147	2.620	.010

a. Dependent Variable: Fishermen's Net Income

Source: SPSS (2026)

- Catch Volume (X1): A calculated t-value of 2.768 (> table t-value of 1.662 with df = 90) and a significance value of 0.007 (< 0.05) were obtained. This indicates that the catch volume variable has a positive and significant effect on fishermen’s net income.
- Selling Price (X2): A calculated t-value of 7.307 (> critical t-value of 1.662) and a significance value of 0.000 (< 0.05) were obtained. This indicates that the selling price variable has a positive and significant effect on fishermen’s net income.
- Operating Costs (X3): A calculated t-value of -2.620 (absolute value > table t-value of 1.662) and a significance value of 0.010 (< 0.05) were obtained. Since the coefficient is negative, it is concluded that the operating costs variable has a negative and significant effect on fishermen’s net income.

**Table 10. Simultaneous Test**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1258.851	3	419.617	78.223	.000 <sup>b</sup>
Residual	472.062	88	5.364		
Total	1730.913	91			

a. Dependent Variable: Fishermen's Net Income  
b. Predictors: (Constant), Operating Costs, Catch Volume, Selling Price

Source: SPSS (2026)

Based on the results of the F-test in Table 10, the calculated F-value was 78.223 (> critical F-value of 2.71 with df1 = 3 and df2 = 88) and the significance level was 0.000 (< 0.05). This proves that simultaneously (collectively), the variables of catch volume, selling price, and operating costs have a significant effect on fishermen’s net income. This means that the dynamics of these three factors collectively constitute the primary determinants shaping the income structure of blue crab fishermen in Mbawi Village.

**Table 11. Coefficient of Determination (Adjusted R-Square)**

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate
1	.853 <sup>a</sup>	.727	.718	2.316

a. Predictors: (Constant), Operating Costs, Catch Volume, Selling Price

Source: SPSS (2026)



Based on Table 11, the Adjusted R-Square value was 0.718. This indicates that 71.8% of the variation in fishermen's net income in Mbawi Village is explained by the variables catch volume, selling price, and operating costs. Meanwhile, the remaining 28.2% is influenced by other factors outside the scope of this study, such as weather and oceanographic dynamics, fishing gear technology, social relationships with collectors, seafaring experience, and government fuel subsidy policies.

## 4.2 Discussion

### 4.2.1 The Effect of Catch Volume on Fishermen's Net Income

The results of the hypothesis test (H1) demonstrate that catch volume has a positive and significant effect on the net income of mud crab fishermen in Mbawi Village. This finding confirms the initial expectation that the higher the fishermen's productivity in optimizing fishing resources and technology, the greater the quantity of rajungan they bring home, thereby boosting their gross revenue. Theoretically, this aligns with the foundation of this study's grand theory—namely, Production Theory within the framework of Microeconomic Theory. According to Purnomo (2022), the quantity of production output is positioned as a fundamental variable in small-scale economic ecosystems, where each additional unit of blue crab produced (marginal product) is proven to contribute absolutely to an increase in total revenue, which in turn strengthens the financial resilience of fishing families amid the uncertainty of sea conditions.

Empirically, these findings consistently support previous studies conducted by Yasrizal (2016) and Azhar *et al.*, (2022), which affirm that an increase in catch volume is directly proportional to an increase in fishermen's net income, provided that catch quality is maintained. Furthermore, these results also validate the research by Jaswara (2017) and Shaleha & Pahlevi (2020), which identifies catch volume as the primary driver of the economic well-being of coastal communities. For fishermen in Mbawi Village, success in increasing catch volume serves as evidence of effective use of production factors, which ultimately strengthens their economic position and confirms that optimal production quantity is the primary prerequisite for achieving maximum profit.

### 4.2.2 The Effect of Selling Price on Fishermen's Net Income

The analysis confirms acceptance of the second hypothesis (H2), in which the selling price was found to have a positive and dominant effect on the net income of mud crab fishermen in Mbawi Village. Theoretically, this finding reinforces the foundations of the Cost-Profit Theory and the Microeconomic Theory framework proposed by Purnomo (2022) and Banerjee (2021), which assert that the selling price serves as the determining factor in the economic value of revenue and the primary parameter for profit margins. Given that fishermen are often marginalized and merely act as price takers, vulnerable to intermediaries' monopolies, high selling prices for export commodities serve as a crucial incentive for them to continue fishing. Price stability at this market level ultimately becomes the primary guarantor of the sustainability of purchasing power and the economic resilience of fishing households amidst coastal dynamics.

Empirically, the findings of this study align with those of Kurniati *et al.*, (2022) and Sabu *et al.*, (2024), which demonstrate that profitable selling prices have a positive and significant impact on directly boosting fishermen's well-being. Conversely, the data from Mbawi Village firmly refute the anomaly identified in Juwita's (2023) study, which previously claimed that selling prices actually have a negative



and insignificant effect due to high market distortions. Although Jufri *et al.*, (2024) found that dependence on intermediaries creates information asymmetry, the data in this study show that the exchange rate, or the price formed, remains linear and is an absolute prerequisite for increasing the residual profit received by blue crab fishermen.

#### 4.2.3 The Effect of Operational Costs on Fishermen's Net Income

The results of the hypothesis test (H3) demonstrate that operational costs have a significant negative effect on the net income of mud crab fishermen in Mbawi Village. This finding reveals economic vulnerability at the grassroots level; even abundant catches will not yield optimal profits if the costs of going to sea—such as fuel expenses, maintenance of fishing gear, and consumption of supplies—escalate uncontrollably. Theoretically, this finding is highly relevant and reinforces the foundation of Banerjee's (2021) Cost-Profit Theory. This theory explicitly positions operational costs as an absolute deduction in the production cycle, where net income, or residual profit, is essentially the residue after all such operational costs have been efficiently covered.

Empirically, this finding reinforces the arguments of Yuliarti *et al.*, (2023) and Sahubawa (2018), which assert that a surge in operational costs, if not offset by rising commodity selling prices, will directly erode fishermen's net income margins. On the other hand, the results of this study also firmly refute the previous views of Nugroho (2017) and Menase (2024), who found that operational costs could have a positive effect, assuming that larger capital for fishing farther out at sea would certainly result in massive catches. In the real-world case of blue crab fishermen in Mbawi Village, operational cost inefficiencies have proven to be a purely rigid burden that erodes profitability. Thus, the ability to control fishing expenses is the key to maintaining welfare levels.

#### 4.2.4 The Simultaneous Influence of Catch Volume, Selling Price, and Operational Costs

Simultaneous testing (H4) confirms that the dynamics of catch volume, selling price, and operational costs collectively constitute the primary determinants shaping fishermen's welfare in Mbawi Village. The interaction of these three variables validates the integration of the fundamental concepts of Production Theory and Cost-Benefit Theory. Fishermen cannot rely solely on one aspect of natural resource abundance. The integration of high catch volumes and stable selling prices at the collector level must go hand in hand with efficient management of operational costs. If one component is disrupted—for example, if blue crab prices plummet during the peak harvest season or fuel prices spike—profit margins will immediately shrink. Therefore, the sociocultural and economic realities in Mbawi Village underscore that fishermen's financial resilience depends heavily on their ability to balance all three factors simultaneously and sustainably.

## 5. Concluding Remarks and Recommendation

This study examines the income uncertainty faced by blue crab fishermen in Mbawi Village, Dompu District, West Nusa Tenggara, which is driven by price fluctuations and high fishing costs. Using multiple linear regression with 92 respondents, the results show that catch volume and selling price have a partial, positive, and significant impact on net income. In contrast, operational costs have a negative impact.



Simultaneously, these three variables were found to be the primary determinants shaping the fishermen's economic well-being.

The novelty of this study underscores that the abundance of marine resources does not guarantee well-being without being accompanied by expenditure efficiency and price equity. Theoretically, this enriches the microeconomic literature on the importance of daily cost management in traditional enterprises. As a practical implication, relevant authorities are recommended to implement price stabilization policies at the collector level immediately, break the oligopsony chain, and distribute fuel subsidies and assistance with fishing gear technology to reduce fishermen's operational costs.

The limitation of this study lies in the explanatory power of the statistical model, which accounts for only 71.8% of the variation in income, thereby failing to capture non-economic dynamics fully. Therefore, future research is advised to explore external variables such as weather anomalies, oceanographic conditions, and patron-client systems within the local supply chain. The inclusion of moderating variables such as government policies, as well as an expansion of the sample size and geographic scope, is also recommended to produce a more comprehensive portrait of coastal economic resilience.

## Statement of Use of Generative AI

During the preparation of this work, the author used generative artificial intelligence tools to support the scientific writing process. Grammarly was used to check grammar, refine writing style, and improve clarity in scientific writing. All interpretations, analyses, and conclusions presented in this study are the sole responsibility of the author.

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## Corresponding author

Aljabir can be contacted at: [aljabirjr64@gmail.com](mailto:aljabirjr64@gmail.com)

