Analysis of The Influence of Ownership of Marine And Fisheries Business Actor Cards On The Welfare of Fishermen In Juru Banu Village Based On The Calculation of The Fishermen's Exchange Rate

Maulana Ihsan[1]*, Emmy Sri Mahreda[2], Irma Febrianty[3]

[1,2,3]Master of Fisheries Science, Lambung Mangkurat University, Banjarbaru, South Kalimantan, Indonesia
* Corresponding author:
Email: maulana27ihsan@gmail.com

Abstract.
Fishermen's welfare can be seen from the ability of fishing households to meet their basic needs, including food, education, health, housing, and production needs. This study aims to analyze the effect of ownership of a marine and fisheries business actor card on the welfare of fishermen in Juru Banu village based on calculations of the fishermen's exchange rate. This research will be conducted in Juru Banu village, Paju Epat sub-district, East Barito Regency, Central Kalimantan Province. The research sample consists of 63 respondents. The data analysis technique used simple linear regression analysis. The results of the simple regression analysis indicate that ownership of a marine and fisheries business actor card can affect the welfare of fishermen in Juru Banu village by 57.3% based on the fishermen's exchange rate. Meanwhile, 42.7% is influenced by other factors not examined in this study. The variable of ownership of a marine and fisheries business actor card has a significant effect of 99% on fishermen's welfare based on the fishermen's exchange rate calculation and has a positive direction. This means that if one additional fisherman owns a marine and fisheries business actor card, fishermen's welfare based on the fishermen's exchange rate calculation will increase by 0.350 units.
Keywords: *Economy; Business; Fisheries; Exchange Rate and Fishermen.*

I. INTRODUCTI

East Barito Regency is one of the regions in Central Kalimantan Province with significant potential for inland fisheries development. This potential is supported by the availability of aquatic resources in the form of rivers, swamps, ponds, and traditional fishing grounds, which serve as a source of livelihood for rural communities. One area with a high dependence on the fisheries sector is Juru Banu Village, Paju Epat District. The majority of villagers rely on fishing for their livelihoods, both as fishermen and fish farmers. This situation demonstrates that the fisheries sector serves not only as a source of income but also as a primary foundation for the socio-economic sustainability of the village community.

Fishing communities generally still face various structural issues that affect household welfare. Kusnadi (2009) explains that the lives of fishermen are closely related to limited access to capital, technology, markets, and economic institutions. This makes traditional fishermen vulnerable to changes in prices, seasons, and production costs. Susilo et al. (2013) also state that the dominance of small-scale fishermen contributes to low fisherman welfare due to their limited ability to increase business output. Manggabarani (2016) shows that coastal fishing communities still face socioeconomic limitations that affect their ability to meet household needs.

The welfare of fishermen can be seen from the ability of fishing households to meet their living needs, including food, education, health, housing, and production needs. The Central Statistics Agency (BPS) (2025), through the Barito Timur Regency People's Welfare Indicator, places income, expenditure, and access to basic services as important indicators in measuring community welfare. In the context of fishing households, welfare is determined not only by the size of the catch but also by the stability of fish selling prices, the amount of operational costs, and the fishermen's ability to obtain social protection and business assistance. Andriani and Nuraini (2021) explain that the welfare of fishing workers is greatly influenced by income received, household expenses, and dependence on daily work.

One indicator widely used to assess the welfare of fishermen is the Fishermen's Exchange Rate (FRR). The Fishermen's Exchange Rate (FRR) represents the ratio between the price index received by fishermen and the price index paid by fishermen. If the FRR is above 100, the income received by fishermen is

considered greater than the expenses incurred. Conversely, if the FRR is below 100, fishermen are not yet prosperous because the increase in income is not enough to cover the increase in living costs and production costs. Husni et al. (2018) stated that the FRR can be used as an indicator to assess the welfare of small-scale fishermen. This is also supported by Wahyuni et al. (2022) and Juanika et al. (2025), who used the FRR as the basis for analyzing the welfare of fishing households in certain regions and types of fishing gear.

The main problem faced by fishermen is high production costs, particularly fuel, fishing gear maintenance, boat repairs, and other operational costs. In production economics theory, increasing input costs will impact business efficiency and profitability if not offset by increased production output or adequate selling prices. Abubakar et al. (2021) explain that in production activities, the combination of inputs such as labor, capital, and technology significantly determines the amount of output produced. Shinta (2011) and Soekartawi (2013) also emphasize that business income is influenced by the difference between revenue and production costs. Therefore, if fishermen gain access to subsidies, fishing gear assistance, or financial support, production costs can be reduced and opportunities for improving welfare increase.

The government is striving to improve the targeting of aid and empowerment for fishermen through the Maritime Affairs and Fisheries Business Actor Card program. Based on Ministerial Regulation No. 14 of 2022 concerning Business Actor and Supporting Actor Cards for the Maritime Affairs and Fisheries Sector, this card serves as an official identification for business actors and supporting actors in the maritime and fisheries sector. The card also serves as a single database used to support program distribution, assistance, business protection, and institutional strengthening. Previously, data management in the maritime and fisheries sector was also directed through Ministerial Regulation No. 35 of 2014 concerning General Guidelines for Marine and Fisheries Data Architecture within the Ministry of Maritime Affairs and Fisheries. With a more integrated data collection system, fishermen are expected to have easier access to targeted government programs.

Several studies have shown that the Marine and Fisheries Business Actor Card (MBC) is beneficial in supporting the welfare of fishermen. Daniarsyah (2020) stated that the effectiveness of the implementation of the Marine and Fisheries Business Actor Card policy is largely determined by the program's ability to reach business actors appropriately, accurately, and sustainably. Viola and Arif (2022) explained that the implementation of the Marine and Fisheries Business Actor Card program for fishing communities can assist in the data collection process, access to assistance, and business protection. Azzahra et al., (2025) also showed that the implementation of the Marine and Fisheries Business Actor Card program plays a role in strengthening administration and fishermen's access to government programs. Azizah et al., (2025) stated that this card makes it easier for marine and fisheries business actors to access assistance, financing, online transactions, and apply for fisherman insurance.

Although the Marine and Fisheries Business Actor Card program has been running and has strategic benefits, its implementation at the village level still faces various obstacles. In Juru Banu Village, not all fishermen have the card, resulting in unequal access to assistance, subsidies, financing, and social protection. This situation raises important questions about the extent to which ownership of a Marine and Fisheries Business Actor Card affects fishermen's welfare, particularly when measured using the Fisherman's Exchange Rate. Nugraha et al., (2021) stated that an increase in the Fisherman's Exchange Rate is influenced by fishermen's ability to increase income from fisheries and non-fisheries businesses. Supriadi et al., (2020) emphasized that the dynamics of the Fisherman's Exchange Rate are significantly influenced by changes in prices, production costs, and household purchasing power. This study aims to analyze the effect of ownership of a Marine and Fisheries Business Actor Card on fishermen's welfare in Juru Banu Village based on the Fisherman's Exchange Rate calculation.

II. METHODS

Research Location and Time

This research will be conducted in Juru Banu Village, Paju Epat District, East Barito Regency, Central Kalimantan Province. The sample size was calculated using the Slovin method with an estimated error of 10% and a population of 167 fishermen. This resulted in a total of 63 respondents.

This study used two variables: an independent variable and a dependent variable:

- The independent variable is fishermen's ownership of a Marine and Fisheries Business Card.
- The dependent variable is the welfare of fishermen in Juru Banu Village based on the Fishermen's Exchange Rate.

Data Analysis Techniques

Simple Linear Regression Analysis

Simple linear regression analysis was used to determine the effect of ownership of a Marine and Fisheries Business Actor Card on the welfare of fishermen in Juru Banu Village based on the Fishermen's Exchange Rate. The independent variable in this study was ownership of a Marine and Fisheries Business Actor Card, while the dependent variable was fishermen's welfare based on the Fishermen's Exchange Rate. Card ownership was measured using categories: fishermen with a card and fishermen without a card. Meanwhile, fishermen's welfare was measured based on the Fishermen's Exchange Rate calculation for both cardholders and non-cardholders. The simple linear regression model used was:

$Y = a + bX + e$ 10

Information :

- Y= Fishermen's Welfare
- a = Intercept
- b = Regression Coefficient
- X = Card Ownership,
- e = Error Term

Fishermen's welfare reflects the welfare condition based on the Fishermen's Exchange Rate. The constant indicates the value of fishermen's welfare if the card ownership variable is considered constant. The regression coefficient indicates the magnitude of the influence of Maritime and Fisheries Business Actor Card ownership on fishermen's welfare. Errors indicate other factors outside the research model that may affect fishermen's welfare.

Hypothesis testing was conducted to determine whether ownership of a Marine and Fisheries Business Actor Card affects the welfare of fishermen. The research hypotheses are as follows:

- Null hypothesis: There is no effect of ownership of a Marine and Fisheries Business Actor Card on the welfare of fishermen in Juru Banu Village, Paju Epat District.
- Alternative hypothesis: There is an effect of ownership of a Marine and Fisheries Business Actor Card on the welfare of fishermen in Juru Banu Village, Paju Epat District.

Testing was conducted using the coefficient of determination, the overall effect test, and the partial effect test. The coefficient of determination was used to determine the extent to which ownership of a Marine and Fisheries Business Actor Card explains changes in fishermen's welfare. The higher the coefficient of determination, the greater the contribution of the independent variable to the dependent variable.

- The overall effect test was used to determine whether the regression model was appropriate for explaining the relationship between card ownership and fishermen's welfare. If the significance value was less than 0.05, the model was considered to have a significant effect. Conversely, if the significance value was greater than 0.05, the model was considered to have no significant effect.
- The partial effect test was used to determine the direct effect of ownership of a Marine and Fisheries Business Actor Card on fishermen's welfare. If the significance value was less than 0.05, card ownership had a significant effect on fishermen's welfare. However, if the significance value was greater than 0.05, card ownership had no significant effect on fishermen's welfare.

III. RESULT AND DISCUSSION

Simple Regression Analysis

Based on the research results, further calculations using SPSS version 27 software revealed the effect of ownership of a Marine and Fisheries Business Actor Card on the level of fisherman welfare based on the fisherman exchange rate, as shown in the table below.

Table 1. Results of Simple Regression Analysis

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.750	.027		27.613	<.001
	Kepemilikan KUSUKA	.350	.039	.757	9.039	<.001

The simple regression equation that can be created according to Table 4.4 is as follows:

$$Y = 0{,}750 + 0{,}350X + e$$

The simple regression results show a constant value of 0.750, which means that if the variable of ownership of the Marine and Fisheries Business Actor Card is considered constant or has a value of zero, then the Fishermen's Welfare value calculated based on the fishermen's exchange rate is estimated at 0.750. In other words, without the influence of ownership of the Marine and Fisheries Business Actor Card, the level of fishermen's welfare based on the fishermen's exchange rate is already at that number. Meanwhile, the regression coefficient value of the variable of ownership of the Marine and Fisheries Business Actor Card is 0.350, which means that the factor of ownership of the Marine and Fisheries Business Actor Card will increase the level of welfare based on the fishermen's exchange rate by 0.350 units. The better fishermen's access to the Marine and Fisheries Business Actor Card program, the tendency for fishermen's welfare to also increase. In accordance with the explanation from Daniarsyah (2020), the Marine and Fisheries Business Actor Card is one of the explanatory instruments for the government in supervising the main actors in the marine and fisheries sector so that it is right on target.

Field conditions also demonstrate that household incomes of fishermen with Marine and Fisheries Business Actor Cards can be significantly increased. Their active participation in outreach and training programs derived from the Marine and Fisheries Business Actor Card program has improved their understanding of financial management and how to effectively utilize their fishery assets. Unlike fishermen without cards, most still lack access to these activities. Furthermore, groups formed by field fisheries officers require a Marine and Fisheries Business Actor Card, while delays in issuing the cards by the central government remain a challenge. Daniarsyah (2020) also emphasized that the centralized printing of Marine and Fisheries Business Actor Cards has resulted in challenges in distribution in each region.

Hypothesis Testing

At the 95% confidence level, the research hypothesis can be described as follows:

- H_0 : There is no effect between ownership of a Marine and Fisheries Business Actor Card on the welfare of fishermen in Juru Banu Village, Paju Epat District.
- H_1: There is a significant effect between ownership of a Marine and Fisheries Business Actor Card on the welfare of fishermen in Juru Banu Village, Paju Epat District.

Coefficient of Determination (R2) Test

The results of the Coefficient of Determination (R2) test can be seen in the table below.

Table 2. Results of the Coefficient of Determination (R2) Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.757[a]	.573	.566	.1536

The R-squared (R^2) value of 0.557 indicates that marine and fisheries business actor card ownership can explain 57.3% of the influence on fishermen's exchange rates. In other words, 57.3% of changes or variations in fishermen's exchange rates can be explained by marine and fisheries business actor card ownership, while the remaining 42.7% is influenced by other factors outside the research model that were not examined, such as income level, number of dependents, weather conditions, catch, additional work, and other socioeconomic factors. The results of the coefficient of determination (R^2) test indicate that marine

and fisheries business actor card ownership has a significant contribution to changes in fishermen's exchange rates.

This confirms the results of previous regression tests, which showed that marine and fisheries business actor card ownership has a positive and significant impact on fishermen's welfare. The welfare of fishermen with a Maritime and Fisheries Business Actor Card (Kartu Usaha Kemarikan dan Perikanan) is slightly better than that of fishermen without one. The differences between the two groups of fishermen are due to each fishing household having a specific expenditure pattern or structure to meet daily needs. Different consumption and expenditure patterns across income groups, time periods, and ethnic groups contribute to the strong influence of the calculation of the fisherman's exchange rate in determining whether a family is prosperous or not (Andriani and Nuraini, 2021).

Simultaneous Significance Test (F-Test)

Table 3. Results of the Simultaneous Significance Test (F-Test)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.929	1	1.929	81.710	<.001[b]
	Residual	1.440	61	.024		
	Total	3.369	62			

Based on Table 3 the F-test is used to determine whether all independent variables included in the model have a significant or insignificant effect on the dependent variable, with an α value of 5%. To determine whether the independent variables can influence the dependent variable, the calculated F-value (81.710) is obtained with a significance level less than 0.05. Because this probability (significance level) is less than 0.05, this regression model can be used to predict the influence of Marine and Fisheries Business Actor Card ownership on fishermen's welfare based on the fishermen's exchange rate. This indicates that Ho is rejected and H1 is accepted. Therefore, it can be concluded that the Marine and Fisheries Business Actor Card ownership variable can influence fishermen's welfare based on the fishermen's exchange rate.

Individual Significance Test (t-Test)

The partial effect significance test (t-test) is used to determine whether the regression coefficients of the independent variables used in the model are individually significant. The results of the individual significance (t-test) in this study can be seen in the table below.

Table 4. t-Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.750	.027		27.613	<.001
	Kepemilikan KUSUKA	.350	.039	.757	9.039	<.001

The Sig. column for these variables, constant = 0.750 and marine and fisheries business actor card Ownership = 0.350, shows the same significance level, namely <0.001, or less than 0.05. Therefore, the ownership of a Marine and Fisheries Business Actor Card has a significant effect of 99% (>95%) on fisherman welfare, according to the fishermen's exchange rate calculation, and its value is positive. This means that if one additional fisherman owns a Marine and Fisheries Business Actor Card, it will increase fisher welfare by 0.350 units, based on the fishermen's exchange rate calculation.

The results of the F-test and t-test are in line with the field conditions explained in the previous discussion. Fishermen who have a Marine and Fisheries Business Actor Card are proven to have a higher average income from capture fisheries businesses, namely Rp 4,290,000 per month, while fishermen who do not have a marine and fisheries business actor card are only Rp 3,135,000 per month. In addition, fishermen who own a marine and fisheries business actor card also have a larger total business investment, namely Rp 12,111,000 compared to non- marine and fisheries business actor card fishermen of Rp 9,589,000. This difference indicates that marine and fisheries business actor card ownership helps fishermen obtain better fishing equipment so that it can increase the productivity of the fishing business. Differences are also seen in

the income of fishermen's households. Fishermen who own a marine and fisheries business actor card have an average income of Rp 1,941,774 per month, while fishermen who do not have a marine and fisheries business actor card have an average income of Rp 1,265,938 per month. This increase in income also affects the household's ability to meet daily food and non-food needs.

Household food expenditures for marine and fisheries business actor card cardholders also averaged Rp 1,439,000 per month, higher than those for fishermen without cards (Rp 1,306,000 per month). These expenses cover basic necessities such as rice, fish, eggs, cooking oil, and other household necessities. The high consumption expenditure indicates that marine and fisheries business actor card cardholders have better purchasing power. Similarly, for non-food expenditures, marine and fisheries business actor card cardholders average Rp 400,000 per month, compared to Rp 350,000 per month for fishermen without cards. The largest expenditures are children's education and other household needs.

marine and fisheries business actor card cardholders not only increase the yield of capture fisheries but also improve the ability of fishing households to meet their daily needs. With increased income and the ability to meet household consumption needs, the fishermen's exchange rate, which is an indicator of fishermen's welfare, will also improve. The capacity of a fisherman who is considered a producer, is calculated by the fisherman's exchange value against production costs and additional capital goods which in this case is assisted by access from ownership of the Maritime and Fisheries Business Actor Card, while as a consumer, the fisherman's exchange value is calculated against household consumption, and the size of the fisherman's exchange value index is the ratio between the price index received and the price index paid by fishermen in meeting household needs and/or needs in producing fishery goods which are also assisted by the benefits of the derivative program of the Maritime and Fisheries Business Actor Card (Budiono et al 2015).

A limitation of this study is the lack of previous research examining the impact and effectiveness of government programs, including the Maritime and Fisheries Business Card, on the welfare of fishermen. This finding can be confirmed by the increasing movement of the fishermen's exchange rate, which is associated with fishermen gaining access to government facilities, a benefit not enjoyed by other fishermen who do not yet have a Maritime and Fisheries Business Card. However, this study identified many factors influencing the fishermen's exchange rate, one of which is income from sectors other than the fisheries sector. This income has increased the consumption level of coastal communities. Although their income has increased from other sectors, knowledge of good family financial management is also needed to influence their consumption towards the income earned. This knowledge should be provided by local fisheries extension officers to continuously socialize and educate small-scale fishermen through capacity building programs. Coordination with the Fisheries and Animal Husbandry Office of East Barito Regency is mandatory to realize this so that regional and central government programs continue to run and provide benefits to coastal communities, especially fishermen in Juru Banu Village.

IV. CONCLUSION

The results of a simple regression analysis indicate that 57.3% of the ownership of a Marine and Fisheries Business Actor Card can affect the welfare of fishermen in Juru Banu Village based on the Fisherman's Exchange Rate. Meanwhile, 42.7% is influenced by other factors not examined in this study. The variable of ownership of a Marine and Fisheries Business Actor Card has a significant effect of 99% on the welfare of fishermen based on the Fisherman's Exchange Rate calculation and has a positive direction of influence. This means that if there is an increase in ownership of a Marine and Fisheries Business Actor Card by one fisherman, then the welfare of fishermen based on the Fisherman's Exchange Rate calculation will increase by 0.350 units.

REFERENCES

[1]. Abubakar, Wathoni, N., and Asnah. 2021. Production Economics: Theory and Application of the Cobb-Douglas Production Function in Agriculture. South Tangerang: Gaung Persada Press.

[2]. Andriani, I. W., and Nuraini, I. 2021. Analysis of the Welfare Level of Fishermen in Bantur District, Malang Regency. ***Journal of Economics***, 5(2), 202–216.

[3]. Azizah, N., Rawati, I., and Zahari, A. F. M. 2025. Effectiveness of the Maritime and Fisheries Business Card Program in Boepinang Barat Village, Poleang District, Bombana Regency. ***Arus Jurnal Sosial dan Humaniora***, 5(2), 1722–1730.

[4]. Azzahra, S., Uliria, W., and Ginting, S. 2025. Implementation of the Marine and Fisheries Business Card Program in Medang Deras District, Batubara Regency. ***Journal of Social Sciences, Humanities, and Engineering,*** 8(1), 101–117.

[5]. Central Bureau of Statistics. 2025. Indicators of Public Welfare in East Barito Regency. Central Bureau of Statistics.

[6]. Daniarsyah, D. 2020. Effectiveness of the Implementation of the Marine and Fisheries Business Card Program Policy at the Ministry of Maritime Affairs and Fisheries. ***Journal of Indonesian Public Administration and Governance Studies***.

[7]. Husni, S., Handoko, B., Abubakar, L., Sukardi, and Yusuf, M. 2018. Analysis of the Welfare Level of Small-Scale Fishermen Based on Fishermen's Exchange Rate Indicators: A Case Study in Tanjung Luar Village, East Lombok Regency. ***Agrimansion Journal***, 19(3), 206–217.

[8]. Juanika, T., Kurniawan, and Supratman, O. 2025. Analysis of the Exchange Rate of Gillnet Fishermen in Toboali District. ***Journal of Fishing & Fish Processing Technologies***, 1(1), 20–31.

[9]. Kusnadi, 2009. Fishermen's Empowerment and Coastal Economic Dynamics. Yogyakarta: Ar-Ruzz Media.

[10]. Manggabarani, I. 2016. Socioeconomic Study of Coastal Fishing Communities: A Case Study of the Luwaor Environment, Pamboang District, Majene Regency. Agrovital, 1(1), 27–33.

[11]. Nugraha, A., Kurniadi, B., and Permatasari, N. 2021. Strategies for Increasing the Exchange Rate of Traditional Fishermen in Sambas Regency. ***Indonesian Journal of Fisheries Policy***, 13(2), 95–102.

[12]. Regulation of the Minister of Maritime Affairs and Fisheries Number 14 of 2022 concerning Business Actor and Supporting Actor Cards for the Maritime Affairs and Fisheries Sector.