

The Influence of Income, Family Consumption and Technology on the Welfare of Fishermen in Tanjung Benoa Bali



Putu Krisna Adwitya Sanjaya¹, Ni Kadek Eka Jayanthi², Ni Luh Mas Aprilia Pradnyani³,
Ni Kadek Anggita Dwi Cahyani⁴

^{1,2,3,4}Faculty of Economic and Business, Udayana University, Indonesia

ABSTRACT: The high potential of fishery resources owned by Tanjung Benoa Village is a positive thing and can be a good source of income for the community. However, the fact is that this potential has not been able to provide the expected welfare. The purpose of this study is to analyze 1) The simultaneous effect of income, family consumption, and technology on the welfare of fishing families; 2) Partial effect of income, family consumption, and technology on the welfare of fishing families; 3) Variables that have a dominant effect on the welfare of fishing families in Tanjung Benoa Village. This research uses an associative quantitative approach. The type of data used primary data with a population of 140 fishermen in Tanjung Benoa Village. Data analysis techniques included descriptive statistics and multiple linear regression analysis using Stata software. The results of the analysis showed that: 1) income, family consumption, and technology have a significant effect simultaneously on the welfare of fishing families; 2) income, family consumption, and technology have a significant effect partially on the welfare of fishing families; 3) the technology variable is the dominant variable affecting the welfare of fishing families. Technology variable is the variable that has a dominant effect on the welfare of fishing families in Tanjung Benoa Village. Based on the results of the study, it is expected that the fishing community is expected to pay attention to the technology variables used in helping the process of catching seafood owned in order to increase their income so as to be able to generate a general level of welfare.

KEYWORDS: Income, Family Consumption, Technology, Welfare

I. INTRODUCTION

The use of fish resources and marine life in Indonesia's waters has great potential to make a significant contribution to the welfare of coastal residents, especially fishermen. The role of the fisheries sector is crucial in efforts to improve the welfare of coastal communities, especially fishermen. The benefits obtained involve the provision of basic needs, increased income, job opportunities, foreign exchange receipts, and development progress in the region (Ahsan & Muhammad, 2017). The uncertain impact of climate change is a sign that nature has shown a very extreme situation and has an impact on the socio-economy that is getting worse (Sanjaya et al., 2020).

The welfare of fishermen is one of the problems in Indonesia that has not been solved until 2023. The word welfare cannot currently be described for fishing families because fishing families have a life that can be said to be far from the word prosperous. The welfare of fishermen and coastal communities and small islands in Indonesia, including in the province of Bali, is threatened by the impact of climate change. Improving the welfare of fishermen in Bali Province remains a concern, and various steps have been taken to improve the condition of fishermen. There are 9 (nine) districts in Bali Province, one of the districts that is respected thanks to its sea charm is Badung Regency, whose charm is not only radiated from the beauty of its beaches but also reflected in its population which reaches 521,996 people in 2022 (BPS, 2022). South Kuta District is a sub-district that has the highest population of fishermen in Badung Regency with 302 people.

South Kuta District has a Fish Landing Base (PPI) located in Tanjung Benoa Village. Based on the Bali Provincial Regulation Article 1 number 46, the Fish Landing Base (PPI) is a class D Fishing Port to serve fishing vessels that carry out fishing activities in Indonesia waters. The fishing community in Tanjung Benoa Village has a very low level of welfare, the low level of welfare of fishing families is indeed one of them due to the low level of income received. The high potential of fishery resources owned by Tanjung Benoa Village is a very positive thing and can be a good source of income for the community, however, the reality is that this potential has not been able to provide the expected welfare.

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Welfare is the goal of the whole family. It is undeniable that every household wants a prosperous life, but due to certain conditions, not all can realize it (Rusdiana et al., 2020). Family welfare is a dynamic family condition where all physical, mental, spiritual, and social needs are met (Rahim et al., 2018). Income is the most crucial component of well-being because of its various aspects, including family well-being depends on income (Lein & Setiawina, 2018). The income from working as a fisherman is not enough to meet the needs of the family to achieve welfare, the income of fishermen is low and cannot meet the needs of the family's life because the income of fishermen is very dependent on the catches that obtained every day (Astawa & Pramitha, n.d.).

Fishermen have done many things that they think can improve the welfare of their families, but unfortunately the methods taken by fishermen are not appropriate and there are times when the methods they take actually trap them in dependence with other parties while putting themselves in a position of dependency weak. This can happen due to the lack of knowledge by these fishermen about the development of existing supporting and renewable technologies and also due to a lack of attention from the government (Sanjaya et al., 2019). That factor causes the fishing community to get the view that they have not achieved the welfare they aspire to.

II. METHOD

This study uses an associative quantitative approach method. This quantitative research is conducted by collecting data in the form of numbers, from which the data is then processed and analyzed to obtain scientific information (Cresswell et al., 2020). The use of quantitative methods because the data in this study are in the form of numbers and the processing is carried out using statistical analysis. This research method is associative, because this research is used to look for the effect of the independent variable on the dependent variable (Krisna Adwitya, Dian Agustina, 2019). The analysis technique used in this research is multiple linear regression analysis to determine the relationship between the independent variables of income, family consumption, and technology on the variable welfare of fishermen in Tanjung Benoa Village. With this research, a theory can be built that serves to explain, predict and control a symptom.

This research will look at the application of the Ordinary Least Square (OLS) Econometric model or the least squares method on family welfare with the influence of each explanatory variable using the Stata software computer application. Before testing the regression model, first test the normality of the data and then test the classical assumptions which include multicollinearity, heteroscedasticity tests so that the model used meets the Best Linear Unbiased Estimator (BLUE) rules.

The data analysis technique used is Ordinary Least Square linear regression analysis with a logarithmic transformation model used to determine the effect of the independent variable on the dependent variable, the form is as follows.

$$LY_i = \beta_0 + \beta_1 LX_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + e_i \dots \dots \dots (1)$$

Description:

- LY_i = Fishermen's Family Welfare
- LX_{1i} = Income
- X_{2i} = Family Consumption
- X_{3i} = Technology
- β₁, β₂, β₃ = Regression Coefficient
- β₀ = Intercept
- e_i = Estimated Confounding Error (*error term*)
- i = Observation - i

III. RESULT AND DISCUSSION

A. Descriptive Statistics Results

Table 1. Descriptive Statistics Test Results

Variable	Obs	Mean	Std. Dev	Min	Max
Family Welfare	140	43.16429	9.773412	19	61
Income	140	55.18705	12.17808	22.36068	83.666
Family Consumption	140	53.64539	11.75924	22.36068	89.44272
Technology	140	1.240431	.3009154	1	2.236068

Source: Primary data processed, 2024

Descriptive statistical analysis in this study is used to describe the research data seen from the number of samples, maximum value, minimum value, average value and standard deviation. The income variable has an average of 55.18705, the family

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consumption variable has an average of 53.64539, the technology variable has an average of 1.240431, and the family welfare variable has an average of 43.16429 with a standard deviation of 9.773412.

B. Classical Assumption Analysis Results

Normality Test

The normality test aims to test whether the residuals of the regression model made are normally distributed or not (Utama, 2017). The normality test method used is the Shapiro-Francia (SF) test statistic to determine the normality of a population based on sample data. The regression model residuals are said to be normally distributed if the sig value is greater than the significance level (0.05).

Table 2. Normality Test Results before Transformation

Variable	Obs	W'	V'	z	Prob>z
Family Welfare	140	0.95870	4.971	3.240	0.00060
Income	140	0.97691	2.780	2.065	0.01944
Family Consumption	140	0.96071	4.729	3.139	0.00085
Technology	140	0.97473	3.042	2.248	0.01229

Source: Primary data processed, 2024

Based on Table 2 of the normality test, it can be concluded that the data is not normally distributed, which is indicated by the significance value of the variables of family welfare, income, family consumption and technology less than 0.05, this is what causes the data results not to be normally distributed. According to (Ghozali, 2017), data that is not normally distributed can be transformed to become normal. This aims to get a new data group so that later it can get the desired output. The results of the normality test after data transformation can be seen in Table 3 as follows:

Table 3. Normality Test Results after Transformation

Variable	Obs	W'	V'	z	Prob>z
Family Welfare	140	0.99586	0.181	-1.710	0.88097
Income	140	0.99770	0.277	-2.597	0.99530
Family Consumption	140	0.99426	0.691	-0.747	0.77242
Technology	140	0.99815	0.223	-3.031	0.99878

Source: Primary data processed, 2024

Based on Table 3, the normality test using Shapiro-Francia shows that the prob>z value of the family welfare variable is 0.88097, the income variable is 0.99530, the family consumption variable is 0.77242 and the technology variable is 0.99878, which has a sig value of more than 0.05, indicating that the data used in this study are normally distributed so it can be concluded that the model fulfills the normality assumption.

Multicollinearity Test

The multicollinearity test is used to determine whether there is a strong correlation between the independent variables in the regression model (Hausman & Palmer, 2021). In a good regression model, there should not be a strong correlation between the independent variables. If the variance inflation factor (VIF) value is smaller than 10 and the 1/VIF value is greater than 0.1, it can be concluded that there is no multicollinearity.

Table 4. Multicollinearity Test Results

Variable	VIF	1/VIF
Income	3.63	0.275540
Family Consumption	3.41	0.293587
Technology	1.65	0.605264

Source: Primary data processed, 2024

Based on table 4 above, the VIF value is smaller than 10 and the 1/VIF value is greater than 0.1, it can be seen that the income variable has a 1/VIF value of 0.275 and a VIF value of 3.63, a family consumption variable that has a 1/VIF value of 0.293 and a VIF

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value of 3.41 and a technology variable that has a 1/VIF value of 0.605 and a VIF value of 1.65. Thus it can be said that this regression model is free from multicolineartitas.

Heteroscedasticity Test

The Breusch Pagan test is a method that can be used to identify symptoms of heteroscedasticity in a regression model. If the p value in the results of this test is greater than 0.05, then the regression model is considered free from symptoms of heteroscedasticity or homoscedasticity.

Table 5. Heteroscedasticity Test Results

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	
Ho	Constant variance
Variables	fitted values of kesejahteraan keluarga
chi2(1)	3.63
Prob > chi2	0.0566

Source: Primary data processed, 2024

Based on the test results shown in Table 5, the p value is above 0.05 where the Prob> chi2 value is 0.0566. Thus, it can be said that in this regression model there are no symptoms of heteroscedasticity.

Simultaneous Regression Coefficient Test Results (F Test)

Number of obs	=	140
F (3, 136)	=	6.73
Prob > F	=	0.0003
R-squared	=	0.1292
Adj R-squared	=	0.1100
Root MSE	=	9.2201

Table 6. Simultaneous Test Results (F)

Source	SS	df	MS
Model	1715.78558	3	571.928525
Residual	11561.4359	136	85.0105577
Total	13277.2214	139	95.5195786

Source: Primary data processed, 2024

The simultaneous regression coefficient test (F test) is a test of the variables in the research data simultaneously. The F test was conducted to determine the variables of income, family consumption and technology simultaneously affect the welfare of fishing families in Tanjung Benoa Village. Based on the data above, it shows that the Prob> F value = 0.0003, meaning that the sig.0.0003 value < 0.05 so that H0 is rejected. This means that income, family consumption and technology simultaneously have a significant effect on the welfare of fishing families in Tanjung Benoa Village.

Partial Regression Coefficient Test Results (t Test)

Table 7. Partial Test Results (t)

Family Welfare	Koefisien	Std.Err	t	P> t	[95% Conf.	Interval]
Income	.0956139	.0010666	0.81	0.042	.0029622	.0012563
Familt Consumption	.4447705	.1266945	3.51	0.001	.1942244	.6953166
Technology	6.652887	3.340505	1.99	0.048	13.25894	.0468343
_cons	32.83349	3.964757	8.28	0.000	24.99294	40.67404

Sumber: Data primer diolah, 2024

The t test is conducted to determine how far the influence of the independent variable partially on the dependent variable. Based on Table 7 of the partial test results (t), the results are as follows:

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1. The effect of income on family welfare, based on the results of the analysis, the income variable has a sig value of 0.042 (p-value <0.05) so that H0 is rejected and H1 is accepted, which means that this result means that income has a positive and significant effect partially on the welfare of fishing families in Tanjung Benoa Village. The regression coefficient of the income variable of 0.0956139 means that if income increases by 1 percent, there will be an opportunity of 0.0956139 percent to be prosperous, assuming other variables remain constant.
2. The effect of family consumption on family welfare, based on the results of the analysis, the family consumption variable has a sig. 0.001 (p-value <0.05) so that H0 is rejected and H1 is accepted, which means that family consumption has a positive and significant effect partially on the welfare of fishing families in Tanjung Benoa Village. The regression coefficient of the family consumption variable of 0.4447705 means that if family consumption increases by 1 percent, there will be an opportunity of 0.4447705 percent to be prosperous, assuming other variables remain constant.
3. The effect of technology on family welfare, based on the results of the analysis, the technology variable has a sig. 0.048 (p-value <0.05) so that H0 is rejected and H1 is accepted, which means that technology has a positive and significant partial effect on the welfare of fishing families in Tanjung Benoa Village. The technology variable regression coefficient of 6.652887 means that if technology increases by 1 percent, there will be an opportunity of 6.652887 percent to be prosperous, assuming other variables remain constant.

Discussion of Research Results

1. The Effect of Income on Family Welfare

The results of this study show that the income variable has a positive and significant influence on the welfare of fishing families in Tanjung Benoa Village. This means that the increasing amount of income received will increase the level of welfare of fishing families, and vice versa, the decreasing amount of income received will reduce the level of welfare of fishing families. This is supported by research conducted by (Budhi et al., 2024), (Sukono et al., 2021) and (Ahsan & Muhammad, 2017) which states that income has a positive and significant effect on family welfare. This shows that income and consumption patterns have an important role in the level of family welfare. By increasing the amount of income and managing consumption patterns wisely, the level of needs will be met properly, which will have implications for the level of family welfare.

2. The Effect of Family Consumption on Family Welfare

The family consumption variable has a significant positive relationship with family welfare in Tanjung Benoa Village. The results show that by fulfilling the consumption needs of fishermen families in Tanjung Benoa Village, it will affect their welfare level. The more consumption needs are met, the higher the level of family welfare, and vice versa, the lower the consumption needs are met, the lower the level of family welfare. This is supported by research conducted by (Sapovadia, 2004), (Sudrajat et al., n.d.) and (Paramasivam, 2023) which states that family consumption has a positive and significant effect on family welfare. The more consumption needs are met, the higher the level of family welfare, and vice versa, the lower the consumption needs are met, the lower the level of family welfare. Where consumption is an absolute thing that is needed by everyone to fulfill all their needs and desires in an effort to maintain their welfare. Fishing families whose income depends on fishing are known to have unpredictable income fluctuations. Therefore, managing consumption expenditure effectively is very important, because families must be able to manage family consumption properly such as classifying needs must be prioritized and less important needs must be ignored in order to save the remaining funds.

3. The Effect of Technology on Family Welfare

The technology variable in this study has a positive and significant influence on the welfare of fishing families in Tanjung Benoa Village. This result shows that the more/varied the amount of technology used in the process of catching seafood can improve the welfare of fishing families. This is supported by research conducted by (Darma et al., 2020), (Hapsari et al., 2019) which states that technology has a positive and significant effect on family welfare (Paramasivam, 2023).

4. The Most Dominant Variable on Family Welfare

In this study, the most dominant variable or influence on the welfare of fishing families in Tanjung Benoa Village is technology (Wicaksono et al., 2021). This is evidenced by the beta coefficient value of the technology variable being the largest compared to other variables, which is 6.652887. This result provides empirical evidence that the greater the amount of technology used in the process of catching seafood can improve the welfare of fishing families. The consideration that with the increasing number of seafood production technology, the higher the possibility of achieving efficiency and productivity allows the welfare of the fishermen's family to increase.

IV. CONCLUSION

A. Conclusions

Based on the results and discussion of the research, the conclusions can be drawn as follows:

1. Income, family consumption and technology simultaneously have a significant effect on the welfare of fishing families in Tanjung Bena Village, Bali.
2. Income, family consumption and technology partially have a positive and significant effect on the welfare of fishing families in Tanjung Bena Village, Bali.
3. Technology is the most dominant or influential variable on the welfare of fishermen families in Tanjung Bena Village.

B. Suggestions

Based on the results and discussion of the research, suggestions can be proposed including:

1. The fishing community is expected to pay attention to the technological variables used in helping the process of catching seafood owned in order to increase their income.
2. Future research should consider variables outside of this study, because then future researchers will be able to provide a more specific picture of the welfare of fishing families in Tanjung Bena Village. For example, if considering the use of income variables outside of being a fisherman, it will describe more specifically what factors affect the welfare of fishing families in Tanjung Bena Village.

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