

Analysis of the Role and Contribution of Fishermen's Wives to Family Income in Likupang Barat District, North Minahasa Regency

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Received: 27 Aug 2023; Received in revised form: 28 Sep 2023; Accepted: 04 Oct 2023; Available online: 14 Oct 2023

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Abstract— Jayakarsa Village is a coastal village located in West Likupang District which is one of the tourist destinations in North Sulawesi and even in Indonesia. In this village there are still fishing communities who use the traditional fishing gear *jubi* or arrows to meet their needs. The aim of the research is to identify and analyze the amount and sources of income of *jubi* fishermen in Jayakarsa Village, West Likupang District, and analyze the amount and type of expenditure of *jubi* fishermen in Jayakarsa Village, West Likupang District, as well as analyze the standard of living of *jubi* fishermen in Jayakarsa Village, West Likupang District. The research location was carried out in Jayakarsa Village, West Likupang District using basic survey methods. The population in this research is *jubi* fishermen who have families in Jayakarsa Village totaling 30 people. The data collection method uses the census method, namely taking the entire population to be used as respondents. Data consists of primary data and secondary data. Primary data collection was carried out by means of interviews using questionnaires and observations. Collecting secondary data is by quoting data from related agencies or data from previous research results. The data obtained will be processed and analyzed descriptively qualitatively and descriptively quantitatively. Qualitative descriptive analysis is used to provide discussions of qualitative data related to existing theory. The data is analyzed and then interpreted as research results. The research results show that the income of *jubi* fishermen in Jayakarsa Village comes from their main job as crew members on the Pajeko Ship and side jobs. *Jubi* fishermen's expenditure consists of total food expenditure plus total non-food expenditure. Analysis of the Engel Index obtained was 65.9%, which means that 65.9% of the total income of *jubi* fishermen in Jayakarsa Village is used to meet food needs. This means that the level of welfare of *jubi* fishermen in Jayakarsa Village is still relatively low.

Keywords— Standard of living, *Jubi* Fishermen, West Likupang, Tourism

I. INTRODUCTION

Fishermen are people who live in coastal areas whose lives depend on marine products by carrying out fishing or cultivating fish at sea. Fishing activities carried out by fishermen depend on sea conditions, climate change which affects environmental conditions such as waves or strong winds, causing fishermen to postpone fishing activities. Fishermen fulfill their living needs from the catch they obtain, the large number of fishermen's catch affects the

level of income of the fisherman so that the fisherman's income is uncertain (Sadiyah, et al, 2019).

Standard of living is one aspect that must be looked at in improving the quality of life. Assessment of the family's standard of living, namely the fulfillment of various needs, both primary and secondary needs. The low standard of living is caused by the low level of family income as well as the fulfillment of large and different families according to the needs of each family, thus affecting their standard of living (Retno, 2013). Indicators of the living standards of

fishing communities are needed to provide a clear and accurate picture of fulfilling their needs until they are fulfilled and then prosperous (Tifa, et al, 2022).

According to Puspita and Agustina (2018), the proportion of consumption expenditure on food can be used as a measure of a good standard of living so that it reflects the level of welfare in accordance with Engel's Law. Engel's law states that as income increases, the percentage of consumption expenditure for food will decrease assuming a constant or constant price level.

Jubi or arrow fishing gear is a traditional fishing gear that is still widely used by fishermen in Jayakarsa Village. This fishing tool is shaped like a gun with varying lengths, made of iron and has a pointed and sharp tip. Jayakarsa Village fishermen still use this fishing gear from generation to generation and use it as a source of income to meet their needs.

Jayakarsa Village is one of the coastal villages in West Likupang District which is one of the tourism destination areas in North Sulawesi where there are still fishing communities using the traditional jubi or arrow fishing gear as their livelihood.

In accordance with the Unsrat Research Strategic Plan for 2021-20255 in the maritime focus area, especially on the topic of economics and human resources supporting tourism, research on the living standards of fishermen who catch fish with the traditional jubi or arrow fishing gear needs to be carried out. The importance of this research is to see what the standard of living of fishing communities is in the tourist destination area that is expected to become a region. Tourism destinations in North Sulawesi will improve the standard of living of its people

II. RESEARCH METHODS

Basic Research Methods

The method that will be used in this research is the survey method. The survey method is a critical observation or investigation to obtain good information about a particular problem in a particular area or location which is designed to obtain the information needed. Surveys are research techniques that provide clear boundaries for data, investigation and review. A survey is research carried out by collecting data, investigating and interpreting general data as available in the field (Creswell, 2009).

Method of collecting data

This research will be carried out in Jayakarsa Village, West Likupang District, where the population in this study is all fishermen who catch fish using jubi or arrow fishing gear who are registered as residents of Jayakarsa Village.

Data collection will be carried out by census on the entire population of 30 jubi fishermen. Census taking is data collection when all elements of the population are investigated one by one. The data collected consists of primary data and secondary data. Primary data collection techniques include observations and interviews using questionnaires. Secondary data is obtained by quoting existing data from relevant agencies or from the results of previous research.

Data analysis

The data obtained will be processed and analyzed descriptively qualitatively and descriptively quantitatively. Qualitative descriptive analysis is used to provide discussions of qualitative data using the author's own sentences related to existing theory. The analyzed data is then interpreted as research results.

III. RESEARCH RESULT

General Condition of Research Location

Jayakarsa Village has an area of 178 Ha with 4 areas called guard areas. The regional boundaries are as follows: - North side is bordered by Papatungan Village - South side is bordered by Teremaal Village - East side is bordered by Papatungan Village and Tanah Putih Village - West side is bordered by the Sulawesi Sea

The vision of Jayakarsa Village is: A just and prosperous society through improving the quality of human resources in the field of fisheries and maritime affairs. North Minahasa Regency (2018) can be read in the history of Jayakarsa Village, which began with the arrival of a group of people from Siau Island and Tagulandang Island in 1924. This group came together. their respective families and live in family, community, Sangihe backgrounds and there are also some with Minahasa backgrounds. They formed a village which at that time was still part of the Papatungan Village government area. Community leaders called their village Kualamati. This name is related to the existence of two water streams (gullies) which during the rainy season flow very quickly. The first water flow is in the East and flows towards the South. Meanwhile, the second water flow is in the south and flows towards the east before emptying into the west. During the dry season, these two waterways dry up, which is why the village is called Kualamati.

Respondent Profile

The respondents in this study were fishermen who caught fish using jubi fishing gear in Jayakarsa Village.

The age distribution of respondents can be seen in the following table.

Table 1. Age distribution of respondents

No	Age (Years)	Total	Percentage (%)
1	30-40	3	30
2	41-50	4	40
3	51-60	2	20
4	61-70	1	10
Total		30	100%

Source: Primary Data, 2023.

Table 1 shows that the largest distribution of respondents was in the age range 41-50 years, amounting to 4 respondents or 40% of the total respondents. This shows that potential age still dominates the fishermen who catch fish with jubi in Jayakarsa Village.

The education level of respondents can be seen in the following table.

Table 2. Respondents' Educational Level

No	Education	Total	Percentage (%)
1	Elementary school	5	50
2	Junior High School	4	40
3	Senior High School	1	10
Total		10	100%

Source: Primary Data, 2023.

Table 2 shows that the education level of the largest respondents was elementary school graduates, amounting to 5 respondents or 50% of the total respondents. This shows that the quality of the respondent's education is still low.

The respondents' business experience can be seen in the following table.

Table 3. Respondents' Business Experience

No	Business Experience	Total	Percentage (%)
1	1-5	1	10
2	6-10	3	30
3	11-15	6	60
Total		10	100%

Source: Primary Data, 2023.

Table 3 shows that the largest number of respondents had 11-15 years of experience in running a business, namely 6 respondents or 60%. This illustrates that the respondents are very experienced in business and that they are still surviving until now shows that there is a contribution of income to family income which will help meet family needs.

Jubi Fishermen's Income

The Jubi fishermen who were respondents in this study are married so their income is used to meet the needs of their family members. Apart from the income that comes from catching fish with jubi, jubi fishermen also receive income from other sources, namely working as farmers. The income derived from the jubi fishing business will later be divided into 7 parts. The boat owner gets 4 shares while 3 shares are divided among the boat crew.

Catches that depend on natural conditions greatly affect the income of jubi fishermen and usually in a year they only carry out fishing efforts for 10 months. If during a fishing operation they get a large catch, they will also get a large share, but on the other hand, if the catch is small, they will get a small income and perhaps even no income because the catch is only enough to cover operational costs. The income of jubi fishermen in Jayakarsa Village can be seen in the following table.

Table 4. Income of Jubi Fishermen in Jayakarsa Village

No	Respondent	Income / Month	Income / Year
1	R1	10.160.000	101.160.000
2	R2	12.200.000	122.000.000
3	R3	11.500.000	115.000.000
4	R4	13.200.000	132.200.000
5	R5	12.300.000	123.000.000
6	R6	9.700.000	97.000.000
7	R7	10.150.000	101.500.000
8	R8	12.000.000	120.000.000
9	R9	10.500.000	105.000.000
10	R10	11.200.000	112.000.000
Total		112.910.000	1.129.100.000
Average		9.409.166	94.091.666

Source: Primary Data, 2023.

Table 4 shows that the average income of jubi fishermen in a year is IDR 94,091,666 or in a month it is IDR 9,409,166

where this amount of income will still be divided into 7 parts with the following distribution of results: 4 parts or 40% for the owner boat while 3 parts or 30% are for boat crew. In a year, jubi fishermen only carry out fishing operations for 10 months because they adapt to the weather. When the weather is not good, fishermen do not fish.

In this research, the income of jubi fishermen is also calculated which comes from non-fishing business or non-fisheries income which can be seen in the following table.

Table 5. Total income of Jubi fishing families per year

N o	Responden ts	Basic Income	Non-Fishing Income	Total Family Income
1	R1	101.160.000	0	101.160.000
2	R2	122.000.000	0	122.000.000
3	R3	115.000.000	0	115.000.000
4	R4	132.200.000	0	132.200.000
5	R5	123.000.000	750.000	123.750.000
6	R6	97.000.000	0	97.000.000
7	R7	101.500.000	850.000	102.350.000
8	R8	120.000.000	0	120.000.000
9	R9	105.000.000	0	105.000.000
10	R10	112.000.000	0	112.000.000
Total		1.129.100.000	1.600.000	1.130.700.000
Average		94.091.666	800.000	94.225.000

Source: Primary Data, 2023.

Based on Table 5, it can be seen that the average basic income of jubi fishermen in Jayakarsa Village is IDR. 94,091,666 per year with an average monthly income of IDR 9.409166. This income only comes from the basic income as a jubi fisherman. The average income per year from the main job as a jubi fisherman plus non-fishing income is IDR. 94,225,000 . This non-fisheries income comes from the side job of jubi fishermen who work as farmers.

The income of jubi fishermen is the sum of all income, both generated from main work and other work that supports economic activities. The calculation of jubi fishermen's income is calculated using the formula (Fadilah, et al, 2014):

$$Prt = Pon\ farm + Pnon\ farm$$

Information:

Prt: Jubi fishermen's income per year

P on farm: Income from working as a jubi fisherman

P non-farm: Income outside the fishing business

$$Prt = Pon\ farm + Pnon\ farm$$

$$= IDR\ 94,091.66 + IDR\ 800,000$$

$$= IDR\ 94,225,000$$

The average annual income of jubi fishermen in Jayakarsa Village is IDR. 94,091,666, while income outside the fisheries sector averages IDR 800,000. The average total income of jubi fishermen in Jayakarsa Village is IDR 94,225,000. For more details, see the following table.

Table 6. Income of Jubi Fishermen in Jayakarsa Village

Basic Income	Non-Fisheries Income	Total
94.091.666	800.000	94.225.000

Jubi Fishermen's Expenditures

Jubi fishermen's expenses consist of food and non-food expenses. Food expenditure is expenditure for the daily food and drink needs of jubi fishermen, while non-food needs are used to pay for school needs, pay electricity bills, health, transportation, credit, etc.

The food needs of jubi fishermen vary according to the size of the family's dependents and the income of jubi fishermen. Apart from that, the amount and type of food also varies according to the family income earned. Families with large incomes and a number of family dependents have a slightly easier time managing finances.

Based on the research results, it was found that the average food expenditure for jubi fishermen in Jayakarsa Village per year was IDR. 34,500,000. These costs are paid for food and drink costs for jubi fishermen on average per year.

Apart from expenses for food, there are non-food expenses for jubi fishermen, namely expenses for buying clothes, house repair costs, education costs for children or grandchildren who are still at school, health costs for family members, paying electricity bills every month, transportation costs for traveling, and expenses. for long distance communication needs such as credit. Apart from the needs above, there are many other needs of a social nature, such as social gatherings, worship activities or assemblies held at home, the need for diapers and milk for babies, etc., so they are included in other expenses. The non-food expenditure of jubi fishermen in Jayakarsa Village can be seen below.

Table 7. Non-Food Expenditures of Jubi Fishermen in Jayakarsa Village per Year

No	Respondent	Clothing	Housing	Education	Health	Electricity	Transportation	Credit	Others	Total
1	R1	1.500.000	500.000	0	750.000	3.000.000	1.200.000	1.200.000	28.000.000	33.000.000
2	R2	1.500.000	1.000.000	8.000.000	500.000	1.500.000	2.400.000	1.800.000	15.000.000	19.500.000
3	R3	1.000.000	1.000.000	5.000.000	350.000	720.000	1.200.000	600.000	8.180.000	12.350.000
4	R4	500.000	500.000	0	600.000	780.000	600.000	600.000	14.420.000	18.000.000
5	R5	2.000.000	600.000	4.800.000	600.000	936.000	1.200.000	2.400.000	964.000	13.500.000
6	R6	1.500.000	300.000	3.000.000	350.000	960.000	600.000	1.800.000	14.740.000	23.250.000
7	R7	1.000.000	500.000	0	400.000	600.000	600.000	600.000	15.700.000	18.000.000
8	R8	1.000.000	300.000	0	500.000	420.000	4.800.000	1.200.000	4.480.000	12.000.000
9	R9	1.500.000	1.000.000	1.080.000	500.000	960.000	600.000	720.000	5.000.000	9.000.000
10	R10	1.500.000	1.500.000	3.600.000	600.000	1.560.000	1.800.000	4.800.000	4.940.000	19.500.000
Total		13.000.000	6.300.000	25.480.000	4.550.000	11.436.000	15.000.000	15.720.000	111.424.000	178.100.000
Average		1.300.000	630.000	2.548.000	455.000	1.143.600	1.500.000	1.572.000	11.142.400	17.810.000

Source: Processed data (2023)

Table 8. Non-Food Expenditures of Jubi Fishermen in Jayakarsa Village

	Clothing	Housing	Education	Health	Electricity	Transportation	Credit	Others	Total
Total	13.000.000	6.300.000	25.480.000	4.550.000	11.436.000	15.000.000	15.720.000	111.424.000	178.100.000
Average	1.300.000	630.000	2.548.000	455.000	1.143.600	1.500.000	1.572.000	11.142.400	17.810.000

Source: Processed data (2023)

Non-food expenditure per year consists of an average expenditure for clothing of IDR 1,300,000, an average expenditure for housing costs of IDR 630,000, an average expenditure for education costs of IDR 2,548,000, an average expenditure for health -an average of IDR 455,000, expenses for electricity use of IDR 1,143,000, average transportation expenses of IDR 1,500,000, average expenses of credit amounting to IDR 1,572,000, and other expenses of IDR 11,142,000 , so that the entire non-food family expenditure of jubi fishermen in Jayakarsa Village on average per year amounts to IDR 17,810,000.

The total expenditure of jubi fishermen in Jayakarsa Village is the sum of all expenditure on food and all expenditure on non-food. According to BPS (2009) in Wahyuni et al. (2019), analysis of household expenditure using the formula:

$$Ct = C1 + C2$$

Information:

Ct : Total fishing household expenditure (Rp/year)

C1: Expenditures for food needs (Rp/year)

C2: Expenditures for non-food needs (Rp/year)

$$Ct = C1 + C2$$

$$= \text{IDR } 34,500,000 + \text{IDR } 17,810,000$$

$$= \text{IDR } 52,310,000$$

The total expenditure of jubi fishermen consists of total food expenditure plus total non-food expenditure. Total food expenditure is IDR 34,500,000, and non-food expenditure is IDR 17,810,000, resulting in total family expenditure of IDR 52,310,000. Data can be seen in the following table.

Table 9. Expenditures of Jubi Fishermen in Jayakarsa Village per Year

	Food	Non- Food	Total
Total	345.000.000	178.100.000	523.100.000
Average	34.500.000	17.810.000	52.310.000

Source: Processed data (2023)

Standard of Living of Jubi Fishermen

The standard of living of jubi fishermen is measured using the Engel Index. The Engel Index is a way to reflect the standard of living of a person or group of people using expenditure indicators. Family food expenditure will increase in line with increasing income, but the proportion of food expenditure from total income will decrease, this phenomenon is known as Engel's Law (Mankiw, 2007 in Adiko, 2022)

Wan (1996) in Puspita and Agustina (2018) formulated the Engel Index as follows:

$$\text{Engel Index} = \frac{\text{Expenditure on food}}{\text{Total Expenditure}} \times 100\%$$

The Engel index is calculated based on the amount of expenditure on food divided by total expenditure. The size of the Engel Index obtained reflects the standard of living of jubi fishermen. The smaller the Engel index obtained means the higher the standard of living of jubi fishermen, conversely the greater the value of the Engel index obtained means the lower the standard of living of jubi fishermen.

$$\text{Engel Index} = \frac{\text{Expenditure on food}}{\text{Total Expenditure}} \times 100\%$$

$$\text{Engel Index} = \frac{34,500,000}{52,310,000} \times 100\% = 65,9\%$$

Analysis of the Engel Index obtained at 65.9% means that 65.9% of the total income of jubi fishermen in Jayakarsa Village is used to meet food needs. It can be concluded that the level of welfare of jubi fishermen in Jayakarsa Village is still relatively low because more than 50% or half of their income is used to meet food needs.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the research results, it can be concluded that:

1. The income of jubi fishermen in Jayakarsa Village is IDR 94,225,000 per year, sourced from their main job as crew members of the Pajeko Ship and side jobs.
2. Jubi fishermen's expenditure consists of total food expenditure plus total non-food expenditure. Food expenses amounted to IDR 34,500,000, and non-food expenses amounted to IDR 17,810,000, so the total family expenditure was IDR. 52,310,000 per year.
3. Analysis of the Engel Index obtained at 65.9%, this means that 65.9% of the total income of jubi fishermen in Jayakarsa Village is used to meet food needs. This means that the level of welfare of jubi fishermen in Jayakarsa Village is still relatively low.

Suggestion

There is a need for further research related to this research as input to policy makers so that the standard of living of fishermen who try to catch fish with jubi can be better.

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