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Comparative Analysis of Full-time and Part-time Fishermen's Exchange Rates: A Case Study of Sungai Batang Ilir Village, Indonesia

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ABSTRACT

This study aimed to assess the economic conditions of fishermen residing in Sungai Batang Ilir village, Indonesia, by analyzing their income levels and financial capacities. The research employed a field survey and descriptive methodology. A total of 40 respondents were selected based on specific criteria: 20 full-time and 20 part-time fishermen. Structured interviews were conducted to gather data on their revenues and expenditures related to fishing and non-fishing activities. The findings indicated that full-time fishermen had a significantly higher average exchange rate (120.29±5.24) compared to part-time fishermen (95.27±6.58), with corresponding exchange rate indexes of 1.12±0.08 and 0.93±0.04, respectively. With July as the reference point, the exchange rate indexes for full-time fishermen exceeding one in August and September, suggesting their greater financial ability compared to part-time fishermen, especially in covering household expenses and fishing operational costs. Variations in income were primarily attributed to differences in the number of working days among fishermen. Despite these differences, the average monthly incomes of both groups remain below the Regional Minimum Wage of Banjar District (approximately 193 USD). The study also discusses measures to enhance fishermen's incomes, aiming to improve their financial well-being and sustainability.

Keywords: Household condition, financial capacity, fisheries, non-fisheries, monthly income.

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Introduction

In a fishing village, the fishermen shape their lifestyle and social background, establishing ownership patterns over fishing boats, fishing gears, business capital, and marketing systems based on local traditions, sometimes influenced the local government interventions. Balasubramaniam et al. (2001) and Seputro et al. (2021) suggested that knowledge, technological adoption, and access to information positively correlate with socio-economic status. Convincing fishermen in higher socio-economic categories to participate can have a ripple effect, influencing others positively. Each group of fishermen within the village exhibits unique characteristics and may hold differing views and attitudes (Ahmadi 2023).

Sungai Batang Ilir village in South Kalimantan Province of Indonesia, is recognized as one of the potential areas for fishery production. The village integrates capture fishery, fish farming, and fish processing as complementary activities. Fishing primarily occurs along the river and swamp using traditional gears such as *rengge* (gillnets), *lukah* (fish pots), *temperai* (stage traps), *hancau* (portable lift nets), *lunta* (cash nets), and *banjur* (stake lines). Fishermen are motivated to catch fish either to meet demand or to generate income, but the widespread pursuit of these goals can deplete fish stocks faster than they can replenish.

Additionally, the village also supports commercial fish farming in cages, focusing on species like Nile tilapia, patin, and grass carp, which proves to be a profitable and cost-effective venture.

Meanwhile, fish processing is traditionally carried out by women, involving drying, salting, and fermenting fish such as snakehead, climbing perch, snakeskin gourami, and three-spot-skin gourami. These processed products are sold locally or directly marketed to neighboring villages and districts, enjoying high consumer acceptance and profitability for the processors. Similar patterns of fisheries and aquaculture development observed in Sungai Batang Ilir village are also prevalent in other developing countries, as documented in studies by Freduah et al. (2017), Twumasi et al. (2021), and Tikadar et al. (2022).

According to Seputro et al. (2021), individuals engaged in fishery business activities have significant opportunities to optimize and sustain their businesses, despite some perceptions that fisheries yield lower incomes compared to agriculture and other sectors. This belief often stems from a lack of information regarding fishermen's exchange rates in the studied area. Poverty within traditional fishing communities is commonly attributed to unequal resource ownership, where impoverished individuals possess limited and low-quality resources, alongside challenges in accessing skilled human resources and capital (Njagi et al. 2013; George et al. 2014; Mozahid et al. 2018). The exchange rate of fishermen serves as a crucial indicator for assessing their welfare levels, derived from comparing total revenues with expenditures on household needs and fishing operations. To address these issues, a field survey was conducted in Sungai Batang Ilir village to determine the exchange rates of full-time and part-time fishermen, identify influencing factors, and propose solutions if the reality falls short of expectations. Ultimately, the exchange rate can inform local government policies aimed at enhancing the welfare of fishing communities.

Materials and Methods

Study site

This study was conducted in Sungai Batang Ilir village, located in South Kalimantan Province at coordinates 03°22'36 S and 114°49'29 E (Figure 1). The village is situated within the West Martapura sub-district and spans an area of 23.47 km^2. It shares administrative borders with Limamar village to the north, Sungai Batang and Minggu Raya villages to the east, Sungai Rangas Ulu village to the west, and Penggalaman village to the south. This village is predominantly characterized by wetland areas where water levels fluctuate between 0.5-2 m. These wetlands are primarily regulated by rainfall, resulting in two distinct environmental conditions. During the rain season, the entire wetland area is flooded, making fishing challenging. In contrast, during the dry season, the wetland is covered with aquatic plants, concentrating fish in sludge holes or shallow waters, facilitating easier catching. This regular alternation between aquatic and high plant biomass environments plays a crucial role in regulating the high production of freshwater fish in the wetland.

Data collection

A total of 40 respondents were included in this study, comprising 20 full-time fishermen and 20 part-time fishermen. Structured questionnaires were used to collect primary data, focusing on both revenues and expenditures related to fisheries and non-fisheries activities to establish the fishermen's exchange rates (see Annex). Secondary data were gathered from institutional reports and relevant literature. Respondents were selected based on specific criteria: they must reside in the village, be married to family members, possess their fishing gear such as *rengge* (gillnet), *lukah* (fish trap), *banjur* (hook and line), or *lunta* (cash net), and engage in an unincorporated fishing business. The research employed a field survey combined with a descriptive method. Data collection for determining fishermen's exchange rates took place individually following the procedure.

In this study, the income derived from capture fisheries focused specifically on four key fish species: snakehead (*Channa striata*), climbing perch (*Anabas testudineus*), three-spot-skin gourami (*Trichogaster trichopterus*), and snakeskin gourami (*Trichogaster pectoralis*). The selling price of these fish species served as a fundamental factor in calculating the fishermen's exchange rates. The following describes types of fishing gears commonly used by local fishermen (see Figure 2):

Rengge is a type of gillnet made from monofilament nylon with stretched mesh sizes ranging from 31.75 to 63.50 mm. It is constructed as a straight wall of netting, approximately 10 m in length and 0.5 m in height. The net is equipped with weights at the bottom and floats at the top, and it is anchored at both ends by poles planted approximately 2 m deep into the riverbed. The mesh sizes of gillnet used are smaller than those used in Danau Bangkau village (Irhamsyah et al. 2017), which are designed specifically for catching climbing perch and snakeskin gourami.

Lukah is an elongated, tube-shaped fish trap made from bamboo, typically 150 cm in length with a diameter of 20 cm. It features an entry funnel on one end and an exclusion funnel on the opposite end. It is designed to allow fish to enter easily but makes it difficult for them to escape. Inside, there is a one-way valve called *hinjap*, made from elastic rattan,

positioned to prevent fish from exiting once they enter. The traps are deployed in swampy areas with dense vegetation and slow or no current, usually in the morning and retrieved in the afternoon. They are submerged at an oblique angle of about 15º to allow fish to access oxygen at the water's surface. *Lukah* is effective for catching climbing perch, snakehead, and snakeskin gourami.

Banjur is a type of line fishing using bamboo poles about 50 cm long, hooks of size #15, and nylon monofilament rope of about 50 cm in length. The bait commonly used is frogs, specifically *Rana cancarivora*. *Banjur* is set around swampy areas to target snakeheads. The size of the banjur used in Sungai Batang Ilir village is typically smaller than that used in Danau Bangkau village (Irhamsyah et al. 2017).

Lunta is a circular net equipped with small weights distributed around its edge. It is cast or thrown by hand so that it spreads out on the water's surface and sinks. This technique, known as net casting or throwing, allows fish to be caught as the net is pulled back in. *Lunta* is made from monofilament nylon with mesh sizes ranging from 31.75 to 63.50 mm and has a total length of about 4 m with a radius of 10 m.Iron rings, weighing approximately 4.5 kg, are attached to the net's edge. A handline, about 3 m in length, is used to cast and retrieve the net. Fish commonly caught using *lunta* include snakehead, climbing perch, and snakeskin gourami.

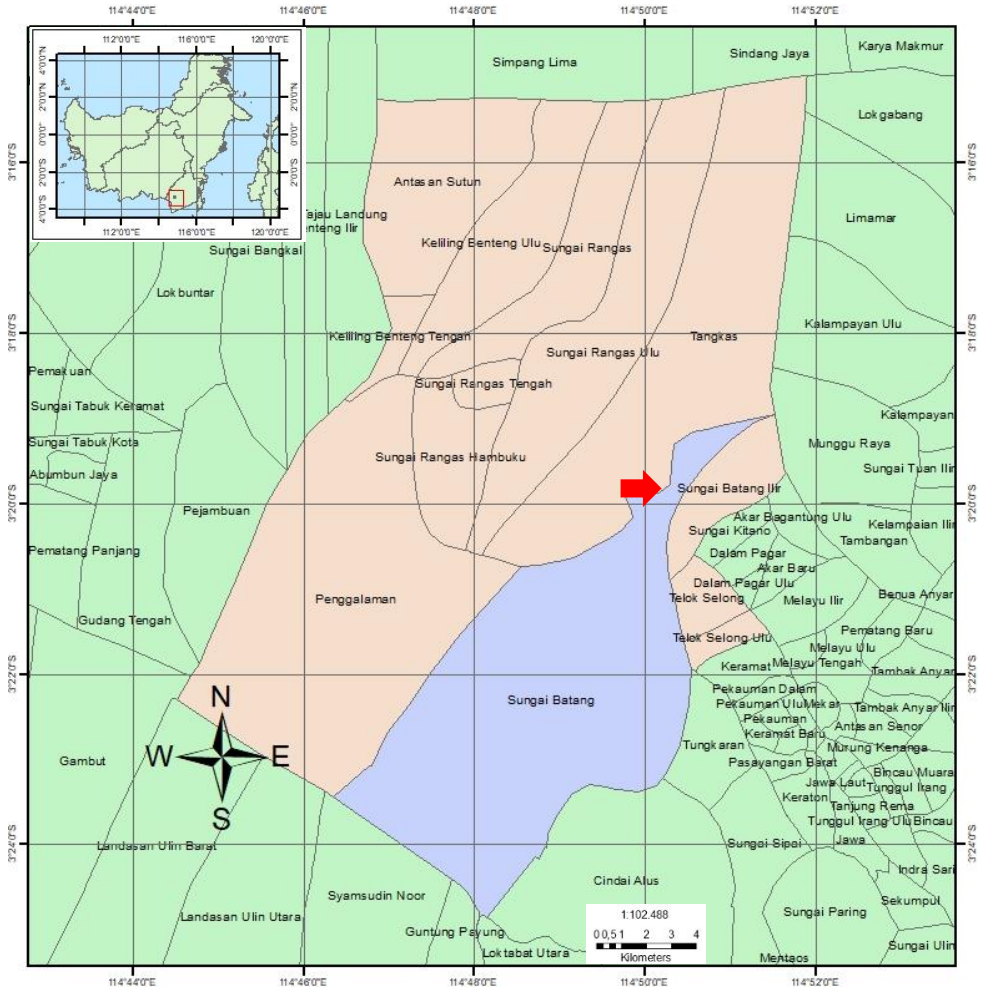

Figure 1. Geographyc location of Sungai Batang Ilir Village, South Kalimantan

Figure 2. Fishing gears used by local fishermen in Sungai Batang Ilir Village
(A) *Rengge*, (B) *Lukah*, (C) *Banjur*, and (D) *Lunta*

Data analysis

The fishermen's exchange rate was calculated using the following formula (Basuki et al., 2001):

$$NTN = (Yt / Et) \times 100$$

$$Yt = YFt + YNFt \text{ and } Et = EFt + EKt$$

Where NTN is fishermen's exchange rate, Yt is the total revenue at t period, YFt is the total revenue from fisheries business, YNFt is the total revenue from non-fisheries, Et is the total expenditure at t period, EFt is the total expenditure for fisheries business, EKt is the total expenditure for household consumption, and *t* is period (month). In this case, the month of July was determined as the base month for calculation. If NTN > 100, it means that the welfare of fishermen in the present month is better than the base month. If NTN = 100, the welfare of fishermen is unchanged compared to the base month, and if NTN < 100, the welfare of fishermen in the present month is worse than the base month.

The fishermen's exchange rate index is expressed as the ratio between the total revenue index to the total expenditure index of fishermen's households for a certain time. It is calculated using the following formula:

$$INTN = (IYt / IEt)$$

$$IYt = Yt / Ytd \text{ and } IEt = Et / Etd$$

Where INTN is fishermen's exchange rate index at t period, IYt is an index of total revenue at t period, Yt is the total revenue at t period (current price), Ytd is the total revenue at the basic period (base price of the month), IEt is an index of total expenditure at t period, Et is the total expenditure at t period (current price), and Etd is the total expenditure at basic period (base price).

The value of INTN can be less than, equal to, or greater than one. If INTN < 1, it indicates that fishermen's families have low purchasing power, making it difficult for them to meet their life needs and potentially leading to a household budget deficit. If INTN = 1, they can only meet their subsistence needs. Conversely, if INTN > 1, it signifies a good level of welfare, allowing them to meet their subsistence needs and potentially consume secondary/tertiary goods or save through investments. An increase in income will alter the consumption patterns of family members, depending on their needs and ability to manage income. INTN serves as an indicator to measure the effectiveness of various price policies implemented by the government for fishermen's groups.

Statistical analysis

Data were analyzed using Microsoft Office Excel and SPSS version 18, and were statistically presented as average ± standard error (SE) or percentage, displayed in graphs or tables. Data normality and homogeneity were assessed with the Kolmogorov-Smirnov test. To compare the monthly revenue and expenditure differences between full-time and part-time fishermen, we conducted either one-way ANOVA or the Kruskal-Wallis test, depending on the data distribution. A t-test was used to examine the average differences in these variables. Statistical significance was determined at a p-value of less than 0.05.

Results

The selling prices of four commercial fish species at the fishermen level are listed in Table 1, varying according to the type and size of the fish. All species have good consumer acceptance due to their delicious and high-quality meat. Snakehead has the highest price at 3 USD/kg, followed by Climbing perch at 2 USD/kg, Snakeskin gourami at 1 USD/kg, and three spot-skin gourami at 0.5 USD/kg. Snakehead and Climbing perch are popular dishes in restaurants, while Snakeskin gourami and three spot-skin gourami are typically sold as salted fish products.

There were no significant variation in the monthly revenue and expenditure among either full-time fishermen or part-time fishermen ($p>0.05$). Monthly income for each group remained relatively stable. Despite comparable monthly costs, full-time fishermen outperformed part-time fishermen in terms of sales volume and price, leading to higher average incomes (Table 2). Full-time fishermen generated a monthly income of about 155 USD, with the highest income received in July (194 USD) and the lowest in September (126 USD). Most of their expenditure budget was allocated for household consumption needs (65.80%) and fishing operational costs (17.55%), with the remaining income, retained as savings (16.65%). Part-time fishermen earned a monthly income of about 110 USD, with the highest income in July (125 USD) and the lowest in September (99 USD). Their average income was primarily spent on household consumption needs (62.34%), agriculture expenses (30.90%), and fishing expenses (12.70%). This group faced financial deficits and economic hardship due to expenditures exceeding their revenue. No significant difference was observed in the percentage distribution of monthly revenue and expenditure among either full-time or part-time fishermen ($p>0.05$). The detailed percentages of monthly revenue and expenditure for each group are presented in Table 3

Table 1. Type of fish, volume and selling price of full-time and part-time fishermen in Sungai Batang Ilir village

Full-time fishermen	**July**		**August**		**September**		**Average**	
Type of fish sold	kg	USD/kg	kg	USD/kg	kg	USD/kg	kg	USD/kg
- Three spot-skin gourami	47.50	0.45	55.60	0.30	81.20	0.22	61.4	0.30
- Snakeskin gourami	24.30	1.12	29.30	0.97	41.20	0.75	31.6	0.91
- Climbing perch	21.80	1.87	28.10	1.49	33.70	1.12	27.9	1.44
- Snakehead	35.00	2.99	19.30	2.99	17.50	2.24	23.9	2.81
Part-time fishermen								
- Three spot-skin gourami	19.50	0.45	23.20	0.30	31.8	0.22	24.8	0.31
- Snakeskin gourami	9.70	1.12	10.10	0.97	12.7	0.75	10.8	0.93
- Climbing perch	9.30	1.87	8.20	1.49	9.30	1.12	8.9	1.49
- Snakehead	9.30	2.99	5.60	2.99	5.60	2.24	6.83	2.79

Table 2. Revenue and expenditure of full-time and part-time fishermen during the three-month survey period (in USD)

Group	Financial Aspect	July	Aug	Sep	Average	SE
Full-time fishermen	**Revenue**	**194**	**145**	**126**	**155**	**20.25**
	- Fisheries	194	145	126	155	20.25
	- Non-fisheries (Agriculture)	-	-	-	-	-
	Expenditure	**155**	**115**	**115**	**128**	**13.31**
	- Household consumption	127	90	91	102	12.38
	- Fishing expenses	28	26	24	26	1.01
	- Agriculture expenses	-	-	-	-	-
	Surplus or Minus	**39**	**30**	**11**	**27**	**8.16**
Part-time fishermen	**Revenue**	**125**	**106**	**99.4**	**110**	**7.60**
	- Fisheries	64.9	45.8	39.6	50.1	7.60
	- Non-fisheries (Agriculture)	59.8	59.8	59.8	59.8	0
	Expenditure	**116**	**115**	**116**	**115**	**0.33**
	- Household consumption	68.0	67.2	68.3	67.9	0.33
	- Fishing expenses	13.8	13.8	13.8	13.8	0
	- Agriculture expenses	33.6	33.6	33.6	33.6	0
	Surplus or Minus	**9.18**	**-9.14**	**-16.4**	**-5.45**	**7.60**

Table 3. The percentage of revenue and expenditure of full-time and part-time fishermen

Variable observed	Full-time fishermen					Part-time fishermen				
	July	Aug	Sept	Average	SE	July	Aug	Sept	Average	SE
Revenue										
Fisheries (selling price)	**100**	**100**	**100**	**100**	**0**	**52.03**	**43.35**	**39.85**	**45.07**	**3.62**
- Three spot-skin gourami	10.98	11.48	14.45	12.30	1.08	7.02	6.57	7.17	6.92	0.18
- Snakeskin gourami	14.05	19.66	24.44	19.38	3.00	8.77	9.30	9.55	9.21	0.23
- Climbing perch	21.01	29.01	29.98	26.67	2.84	13.94	11.61	10.49	12.01	1.02
- Snakehead	53.96	39.85	31.14	41.65	6.65	22.31	15.86	12.63	16.93	2.84
Agriculture	-	-	-	-		**47.97**	**56.65**	**60.15**	**54.93**	**3.62**
Total Revenue	**100**	**100**	**100**	**100**	**0**	**100**	**100**	**100**	**100**	**0**
Expenditure										
Household consumption	**63.67**	**61.87**	**71.86**	**65.80**	**3.07**	**54.56**	**63.69**	**86.76**	**62.34**	**4.15**
- Foods	27.22	26.12	30.60	27.98	1.35	10.79	12.82	14.16	12.59	0.98
- Health	23.03	20.39	23.58	22.33	0.98	23.76	28.24	30.08	27.36	1.88
- Education	0.41	0.55	0.64	0.54	0.07	0.97	1.50	1.13	1.20	0.16
- Electricity	2.97	3.97	4.55	3.83	0.46	4.51	4.88	5.88	5.09	0.41
- Cigarettes	10.04	10.84	12.48	11.12	0.72	14.53	16.25	17.52	16.10	0.87
Fishing expenses	**14.26**	**19.20**	**19.20**	**17.55**	**1.65**	**11.09**	**13.10**	**13.91**	**12.70**	**0.84**
- Oil	4.65	7.75	6.93	6.45	0.93	2.34	2.76	2,93	2.68	0.18
- Bait	3.56	3.36	2.97	3.30	0.18	0.30	0.35	0.38	0.34	0.02
- Boat care	0.19	0.26	0.30	0.25	0.03	6.03	7.12	7.56	6.90	0.46
- Fishing gear maintenance	5.85	7.83	9.00	7.56	0.92	2.43	2.87	3.05	2.78	0.18
Agriculture expenses	**-**	**-**	**-**	-	**-**	**26.98**	**31.87**	**33.84**	**30.90**	**2.04**
- Wage	**-**	**-**	**-**	-	-	11.98	14.16	15.04	13.73	0.91
- Labour consumption	-	-	-	-	-	6.00	7.08	7.52	6.87	0.45
- Fertilizer	**-**	**-**	**-**	-	-	8.99	10.62	11.28	10.30	0.68
Total Expenditure	**77.93**	**81.07**	**91.05**	**83.35**	**3.96**	**92.64**	**108.66**	**116.51**	**105.94**	**7.02**
Surplus or Minus	**22.07**	**18.93**	**8.95**	**16.65**	**3.96**	**7.36**	**-8.66**	**-16.51**	**-5.94**	**7.02**

Our findings indicate that full-time fishermen had a significantly higher average exchange rate (120.29±5.24) compared to part-time fishermen (95.27±6.58), with corresponding exchange rate indexes of 1.12±0.08 and 0.93±0.04, respectively (Table 4). With July as the reference point, ;the exchange rate indexes for full-time fishermen exceeding one in August and September, suggesting their greater financial ability compared to part-time fishermen, especially in covering household expenses and fishing operational costs.

Table 4. Comparative value of fishermen's exchange rate (in USD) and exchange rate index between full-time and part-time fishermen in Sungai Batang Ilir village

Group	Fishermen's exchange rate					Exchange rate index				
	July	Aug	Sep	Av Average	SE	July	Aug	Sep	Average	SE
Full-time fishermen	125.23	125.81	109.82	120.29	5.24	1	1.26	1.10	1.12	0.08
Part-time fishermen	107.94	92.03	85.85	95.27	6.58	1	0.92	0.86	0.93	0.04

Discussion

Investigating the factors contributing to the popularity of specific species, such as taste, cultural significance, or preparation methods, could provide further insights into consumer preferences impacting these prices. Understanding these price variations can be valuable for fishermen in optimizing their catch strategies and potentially maximizing their earnings by targeting in-demand species. The price disparity between Snakehead (3 USD/kg) and Three-spot gourami (0.5 USD/kg) suggests a potential influence of consumer preference on market value. Snakehead's popularity as a fresh fish delicacy might command a premium compared to gourami, often consumed as a preserved product. This price range also offers opportunities for different market segments. Restaurants seeking high-quality fresh fish may prioritize Snakehead and Climbing Perch, while those specializing in preserved goods might focus on the more affordable gourami varieties. These preferred freshwater fish commodities were also highlighted in previous studies (Aminah and Ahmadi 2018; Ahmadi 2021; Ahmadi and Ansyari 2022). To gain a complete understanding of the economic role of salted fish products like Snakeskin gourami and Three-spot gourami within the fishery, further research should explore the processing costs and profit margins involved. This aligns with the ongoing development of diverse processing methods and technologies in the traditional fish processing industry reported by Paul et al. (2018), Siddhnath et al. (2022), and Ravishankar et al. (2023).

The research reveals a significant disparity in income between full-time and part-time fishermen. Full-time fishermen earn a considerably higher average monthly income compared to part-time fishermen (Table 2). This difference likely reflects the volume of fish sold – full-time fishermen likely catch and sell larger quantities, commanding higher prices. Despite seasonal variations in income for both groups, full-time fishermen can still allocate a portion of their income (16.65%) towards savings, indicating a more stable financial situation (Table 3). In contrast, part-time fishermen face financial challenges due to their lower income. A larger share of their earnings (62.34%) goes solely towards household necessities, leaving limited resources for other expenses. Additional agricultural expenses (30.90%) can exceed their fishery earnings, suggesting a crucial need for alternative income sources. This research highlights the importance of full-time fishing for achieving financial security in this community. The average monthly incomes of both groups were still below the Regional Minimum Wage of Banjar District (193 USD) in 2023.

The higher income for full-time fishermen can be attributed to the difference in working days, with full-time fishermen working about 25 days a month, roughly twice as many as part-time fishermen (10-15 days a month). Despite part-time fishermen combining income from fisheries and agriculture, it still does not compare to the income of full-time fishermen. During the dry season, fish are easier to catch with fishing gear, leading to a decline in fish selling prices, while rice production becomes less profitable.

If the fishermen's exchange rates remain unfavorable, several efforts should be undertaken to increase their business income, such as: (a) establishing joint business groups to access business capital, (b) providing grant aids for environmentally friendly fishing gear, (c) empowering fishermen's wives to diversify fishery products (d) improving irrigation systems to enhance rice production, and (e) creating alternative businesses such as growing vegetables and fruits or poultry farming. In the short

term, a decline in fishermen's exchange rates may not lead fishermen to reduce or cease their fishing activities because they lack the skills for other non-fishery professions. However, a sustained low index value will diminish their incentives to maximize fisheries productivity in the long term.

Empirical measurements of fishermen's exchange rates in certain study areas have been conducted by both individuals (Rupaidah 2013; Lestari et al. 2014; Yampu and Mardjudo 2015; Mumu et al. 2019; Sitorus et al. 2020; Rahman et al. 2021) and research institution (Zulham et al. 2011). The index value of fishermen's exchange rates varied between 1.08 and 1.89 (Table 5), indicating that fishing households experience a surplus, allowing them to save the remaining income for other purposes. While a good catch translates directly to a fisherman's income, high fuel costs and inflation (e.g., the rising cost of food, bait, or fishing gear) pose significant challenges that can squeeze their profit margins (Yunianto and Sumertajaya 2015). According to Zulham et al. (2011), the prices of consumable goods, input prices, and output prices play a crucial role in the fishermen's exchange rate index. In essence, strengthening fishers' purchasing power relies on a multi-pronged approach. Increased fish prices are critical, but long-term sustainability is equally important. Encouraging sustainable fishing practices can result in healthier fish stocks, potentially resulting in higher prices due to scarcity and better quality catches. In addition, reducing operational costs and ensuring affordable basic necessities will amplify these profits.

Table 5. Comparative value of revenue, expenditure, fishermen's exchange rate and exchange rate index from different geographical areas

Locations	Revenue (USD)	Expenditure (USD)	fishermen's exchange rate	Exchange rate index	References
Sungai Batang Ilir, Banjar District	155	128	120	1.20	Present study
Bangkau, Hulu Sungai Selatan District	320	208	153	1.54	Rupaidah (2013)
PPP Tasik Agung Rembang District	4,036	2,018	167	1.67	Kadhita et al. (2014)
Betahwalang village, Demak District	849	599	140	1.40	Lestari et al. (2014)
Bitung City, Padang City, Malang Districts	1,328	1,002	120	1.20	Ramadhan et al. (2014)
Bonoege, Donggala District	850	475	189	1.89	Yampu and Mardjudo (2015)
Bulutui, North Minahasa	656	394	166	1.67	Mumu et al. (2019)
Maen,North Minahasa	1,798	1,251	143	1.44	Sitorus et al. (2020)
Talisaysan, Berau District	72,909	67,574	107	1.08	Rahman et al. (2021)

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Annex

QUESTIONNAIRE
THE FISHERMEN EXCHANGE RATE
SUNGAI BATANG ILIR VILLAGE, SOUTH KALIMANTAN PROVINCE

Date of Survey: Time**:** ☐ 6 – 12 am.
☐ 1 – 6 pm.

A. IDENTITY OF RESPONDENT

Name: …….....…….....
Home Address : …….....
Telephone: …… Whatsapp: ……
Sex: ☐M ☐F
Age: ……. year old
Dependent Family Member: ☐ 1-2 persons ☐ 3-4 persons ☐ >5 persons
Education level: ☐ Elementary School ☐ Junior High School ☐ Senior High School
☐ Bachelor Degree ☐ Master Degree ☐ Doctor Degree
Profession: ☐ Full-time fishermen ☐ Part-time Fishermen ☐ Other:…….

B. FISHING ASPECT

No	Type of Fishing Gears	Specification	Fish targeted
1			
2			
3			
4			
5			
6			

Fishing boat dimension: Length = …… m. Breadth = …… m. Depth = …… m.
Fishing ground: ☐ Rivers ☐ Swamp ☐ Irrigation canals
Fishing operation: …… am/pm
Fishing coordinates: ……...…….……
Problem being faced: ……...

C. FINANCIAL ASPECT

Income and Expenses	**July**	**August**	**September**
Revenue			
- Fisheries (type of fish sold) 1. 2. 3. 4. 5.			
- Agriculture 1. 2.			
Expenditure			
-Household consumption 1. Foods 2. Health 3. Education 4. Electricity 5. Cigarettes 6. Other			
-Fishing expenses 1.Oil 2.Bait 3.Boat care 4.Fishing gear maintenance 5.Other			
-Agriculture expenses 1.Wage 2.Labour consumption 3.Fertilizer 4.Other			

Problem being faced: **…….....**

D. MARKETING ASPECT

Marketing channel: ☐ direct ☐ indirect (through the intermediateris)

Distribution of fish production: ☐ Local ☐ Outside: .....

Number of wholesaler(s): ..... person(s) come from: .....

Number of Retailer(s): ..... person(s) come from: .....

Payment methods: ☐ cash ☐ credit ☐ other

Problem being faced: …….....