Analysis of Household Expenditure Structure and Determinants of Household Expenditure Among Aquaculture Workers In Cindai Alus Village, Martapura District, Banjar Regency

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Abstract.
In recent years, Islamic banks in Indonesia have experienced rapid Growth, especially in the province of Aceh. Even though the Growth of Islamic banks is quite rapid, as seen in data from the Financial Services Authority (OJK), their market share in Indonesia is still far below that of conventional banks. The Third-Parties Fund at Bank Aceh Syariah is interesting to study as a measure of how the Bank can attract customers to save with it through Return on Assets (ROA), Return on Equity (ROE), and Capital Adequacy Ratio (CAR). The population of this study is the Bank Aceh Syariah. The data collection technique used the documentation method on the official banking website of Bank Aceh Syariah. The methodology of this research is quantitative. The data used are secondary, obtained from Bank Aceh Syariah's annual reports from 2011 to 2020. In this study, the data analysis included descriptive analysis, validity tests, pilot tests, reliability tests, and classic assumption tests. And for hypothesis testing, multiple regression, adjusted R2, F-statistic, partial test (T-test), and automatic linear modeling are used. The data is processed using SPPS for Windows.
Keywords: *Third-Parties Fund and Profitability dan Bank Aceh Syariah*.

I. INTRODUCTION

The fisheries sector holds an important position in rural household economies because it provides employment, daily income, and derivative business networks. The Ministry of Marine Affairs and Fisheries reported that capture fisheries, aquaculture, fish processing, and fish marketing absorb a large number of workers (KKP, 2023). However, this contribution is not always followed by improved welfare among field workers. In many fisheries communities, operational workers still work within informal systems with limited income, low social protection, and weak bargaining power (Kusnadi, 2020).

Cindai Alus Village, Martapura District, Banjar Regency, has a strong aquaculture-based economy. The area is known as a freshwater aquaculture center, especially for pangasius farming, and it supports the emergence of supporting labor groups such as pond guards, daily workers, and harvest workers. These employment structures are not only related to fish production but also determine the rhythm of household income. Pond guards receive monthly wages, daily workers receive daily wages, and harvest workers receive wages based on harvest volume. These different income systems may create different household consumption strategies (Febrianty, 2020).

Household expenditure structure reflects how families allocate income for basic and non-food needs. In consumption theory, actual income forms the basis of expenditure decisions, while the number of dependents and education needs create pressure on the family budget (Sukirno, 2020). Engel's Law explains that low-income households tend to allocate a larger proportion of income to food. A high food-expenditure ratio may indicate economic vulnerability because the space for education, health, savings, and social protection becomes narrower (Samuelson & Nordhaus, 2010).

In the households of aquaculture workers, expenditure decisions do not always follow a simple pattern. Food remains a priority, but regular non-food needs may also become substantial. Education costs, transportation, communication, electricity, health, debt, cigarettes, and recreation form a diverse expenditure composition. Gazali et al. (2023) showed that fisheries households in Banjar Regency face fluctuating

income and adjust expenditure to keep basic needs fulfilled. This finding strengthens the need for a more specific study on aquaculture workers, not only on capture fishers or farm owners.

This study places operational workers as the main unit of analysis. This choice is important because aquaculture workers are often the backbone of production, but they do not control production assets, selling prices, or pond-investment decisions. Their welfare depends on physical wages received from pond owners. Therefore, an analysis of expenditure structure can provide empirical insight into economic resilience, consumption priorities, and the factors that truly affect household expenditure pressure (Kusnadi, 2020).

The novelty of this study lies in the interpretation of household expenditure structure within the context of aquaculture and supporting labor types. Previous studies have mostly examined capture-fisher income, production efficiency, or aquaculture profitability from the perspective of farm owners. Gazali et al. (2023) examined income structure and expenditure patterns among trammel-net fisher households in Aluh-Aluh District. This study differs because it focuses on aquaculture workers in Cindai Alus with monthly, daily, and piece-rate wage schemes. Differences in production ecosystems may produce different consumption patterns.

The main problem of this study is formulated into two research questions. First, how are the income and expenditure structures of aquaculture workers' households in Cindai Alus Village. Second, how do income, number of dependents, number of school-age children, and age affect total household expenditure. These questions link descriptive and inferential aspects. The descriptive section explains expenditure composition, while the inferential section tests the determinants of expenditure (Gujarati & Porter, 2009).

The discussion of household expenditure structure also has policy relevance. Households that allocate most of their income to food have limited capacity to invest in human capital. If education expenditure is low, intergenerational economic mobility may be constrained. If health expenditure is low, households become vulnerable to sudden medical costs. If cigarette and recreation expenditure is high, part of household income is allocated away from items that directly improve quality of life. This analysis does not judge the morality of consumption. It interprets priority patterns through empirical data (Kusnadi, 2020; Notoatmodjo, 2012). This study aimed to describe the income and expenditure allocation structures of aquaculture workers' households and to analyze the effects of socio-economic factors on total household expenditure.

II. METHODS

This study used a descriptive quantitative approach with multiple linear regression analysis. The descriptive approach was used to describe respondent characteristics, income structure, and expenditure structure. Regression analysis was used to test the effects of income, number of dependents, number of school-age children, and age on total household expenditure. This design is appropriate for research that combines socio-economic description with the testing of relationships among variables (Gujarati & Porter, 2009; Sugiyono, 2019).

The study was conducted in Cindai Alus Village, Martapura District, Banjar Regency, South Kalimantan Province. The location was selected purposively because the village is a freshwater aquaculture center, especially for pangasius farming. Data from the relevant agency showed 89 aquaculture farmers and 531 operational ponds. This condition creates a high demand for supporting workers, including pond guards, daily workers, and harvest workers. Purposive location selection is suitable when a location has characteristics that correspond to the research objectives (Sugiyono, 2019).

The estimated population consisted of 445 supporting aquaculture workers. This number was obtained by multiplying 89 aquaculture farmers by an estimated minimum of five workers per business unit. The sample size was determined using the Slovin formula with a 10% margin of error, resulting in 82 respondents. The sampling technique used stratified random sampling. This technique was selected because the population was heterogeneous and had strata based on job type and wage pattern. Stratification reduces the risk that one occupational group dominates the data (Sugiyono, 2019).

Primary data were collected through structured interviews using questionnaires, field observation, and records of household expenditure. Secondary data were obtained from agency documents, scientific literature, and reports related to the fisheries sector. Interviews were used to obtain data on income, number

of dependents, number of school-age children, age, and types of expenditure. Observation supported the verification of working conditions, multiple job-holding schemes, and the socio-economic context of workers. Literature study strengthened the theoretical basis and the discussion of findings (Arikunto, 2010; Zed, 2014).

The dependent variable in this study was monthly total household expenditure. The expenditure components included food, education, health, transportation, phone credit, electricity and water, cigarettes and recreation, soap or detergent, and debt or arisan. The independent variables consisted of total monthly household income, number of dependents, number of school-age children, and respondent age. The regression model was $Y = a + b1X1 + b2X2 + b3X3 + b4X4 + e$. Y denotes total expenditure, X1 denotes income, X2 denotes number of dependents, X3 denotes number of school-age children, X4 denotes age, and e denotes the error term.

Before interpreting the regression results, the model was tested using classical assumptions. Normality was tested with the Kolmogorov-Smirnov test. Multicollinearity was examined using Tolerance and Variance Inflation Factor values. Heteroscedasticity was assessed through visual observation of the residual scatterplot. Hypothesis testing used the F-test to examine simultaneous effects, the t-test to examine partial effects, and the coefficient of determination to measure the ability of the model to explain variations in expenditure. The significance level was set at 5% (Gujarati & Porter, 2009).

III. RESULTS AND DISCUSSION

Respondent characteristics

The study obtained valid data from 82 respondents. Respondent characteristics are important because age, number of dependents, and type of work shape household economic behavior. Most respondents were in the productive-age group. Respondents aged 31 to 40 years accounted for 43.9%, while those aged 41 to 50 years accounted for 32.9%. This condition indicates that aquaculture work requires physical strength and field experience. Productive age also shows that respondents are in a stage with relatively high family economic responsibility (BPS, 2023; Sukirno, 2020).

Table 1. Respondent characteristics by age and number of dependents

Category	Number (persons)	Percentage (%)
Age 20-30 years	14	17.1
Age 31-40 years	36	43.9
Age 41-50 years	27	32.9
Age > 50 years	5	6.1
Dependents 0 person	6	7.3
Dependents 2 persons	27	32.9
Dependents 3 persons	37	45.1
Dependents 4 persons	10	12.2
Dependents 5 persons	2	2.4

Source: Primary data processed, 2026.

The number of dependents shows that most respondents supported two to three persons in their households. The group with three dependents reached 45.1%, while the group with two dependents reached 32.9%. This structure reflects nuclear households that must fulfill food, education, transportation, and routine needs with limited income sources. Theoretically, additional dependents can increase the minimum needs of the family. However, low-income households often adjust the quality and quantity of consumption so that total expenditure does not exceed available income (Putra & Setiawina, 2020; Kusnadi, 2020).

Table 2. Respondent characteristics by multiple job-holding category

Job category	Number	Percentage (%)
Pond guards and harvest workers	47	57.3
Pond guards, harvest workers, and daily workers	18	22.0
Daily workers	17	20.7
Total	82	100.0

Source: Primary data processed, 2026.

The job-type data show that occupational boundaries in the field are fluid. A total of 57.3% of respondents worked as pond guards and harvest workers. Another 22.0% held three roles, namely pond guard, harvest worker, and daily worker. This condition indicates that workers practice multiple job-holding as a strategy to increase income. This strategy is consistent with the character of the informal sector, which requires work flexibility when the main wage is insufficient to meet household needs (Febrianty, 2020; Kusnadi, 2020).

Household income structure

The income structure of respondent households came from main jobs, additional jobs, and income from other family members when available. The average income of pond guards and harvest workers was IDR 2,995,833.33 per month. The average income of workers who held roles as pond guards, harvest workers, and daily workers was IDR 3,062,500 per month. The average income of daily workers was IDR 3,217,647 per month. All these figures were below the wage standard used as a comparison in this study, namely IDR 3,725,000 per month. This condition indicates structural economic vulnerability among aquaculture workers.

This finding strengthens Kusnadi's (2020) argument that informal fisheries workers often have weak bargaining power. Their income depends on labor demand, pond scale, harvest cycles, and decisions made by business owners. Income below the wage standard pushes households to manage expenditure strictly. Within Sukirno's (2020) framework, current income becomes the main limit of consumption. Therefore, any additional income tends to be immediately allocated to food, education, or other routine needs.

Table 3. Average income and expenditure by job category

Job category	Average monthly income	Average monthly expenditure
Pond guards and harvest workers	IDR 2,995,833.33	IDR 2,702,416
Pond guards, harvest workers, and daily workers	IDR 3,062,500	IDR 2,743,000
Daily workers	IDR 3,217,647	IDR 2,982,941

Source: Primary data processed, 2026.

The comparison between income and expenditure shows that household expenditure moved along with income capacity. The daily-worker group had the highest average income and the highest average expenditure. This finding is reasonable because daily workers face uncertainty in job calls and often seek additional work outside the fisheries sector. Higher income does not always mean more secure welfare because most funds are still absorbed by routine consumption. In this context, expenditure functions as a response to urgent living needs, not merely as a free consumption choice (Sukirno, 2020; Gazali et al., 2023).

The wage structure also explains differences in cash flow. Pond guards had more regular monthly income, but the nominal amount was relatively limited. Daily workers received wages when work was available, so their income could rise when labor demand was high. Harvest workers received wages based on kilograms of harvested fish, so their income was cyclical. This pattern creates different expenditure decisions among households. However, all groups still face strong budget constraints because food and education must be met regularly (Febrianty, 2020; Putra & Setiawina, 2020).

Household expenditure structure

The average total household expenditure of respondents was IDR 2,768,071 per month. The largest component was food, with a value of IDR 1,391,882 or 50.28%. The second-largest item was cigarettes and recreation, with a value of IDR 703,412 or 25.41%. Education expenditure was only IDR 150,059 or 5.42%, while health expenditure was IDR 68,824 or 2.49%. This structure shows that worker households still place food as the main need. The proportion of food expenditure above 50% shows that Engel's Law remains relevant in interpreting welfare vulnerability (Samuelson & Nordhaus, 2010; BPS, 2023).

Table 4. Average structure of respondent household expenditure

Expenditure item	Average (IDR)	Percentage (%)
Food	1,391,882	50.28
Education	150,059	5.42
Electricity and water	108,529	3.92
Phone credit	103,353	3.73
Cigarettes and recreation	703,412	25.41
Transportation	90,365	3.26
Soap, detergent, and cleaning needs	65,529	2.37
Debt or arisan	86,118	3.11
Health	68,824	2.49
Total	2,768,071	100.00

Source: Primary data processed, 2026.

The dominance of food expenditure indicates that household income is largely absorbed by subsistence needs. Under this condition, the capacity to save, improve education quality, and maintain health is limited. Households must choose priorities carefully. This finding is consistent with Kusnadi (2020), who stated that the expenditure structure of fisheries households indicates the family's ability to maintain livelihood continuity. When food absorbs a large share, the space for socio-economic investment becomes smaller.

An important finding appears in the high expenditure on cigarettes and recreation. This item reached 25.41%, far higher than education and health. Theoretically, this pattern may be read as a consumption anomaly among vulnerable households. Such expenditure may function as a response to physical work pressure, a social habit, or a form of consumption shaped by the surrounding environment. From a welfare perspective, however, this item reduces the space for productive expenditure. Notoatmodjo (2012) explained that health behavior and consumption are influenced by knowledge, habits, social environment, and access to information. Therefore, financial and health education should be delivered contextually, not merely as prohibition.

Across job categories, pond guards and harvest workers allocated 51% of expenditure to food and 48% to non-food items. Workers with three job roles allocated 49% to food and 50% to non-food items. Daily workers allocated 49% to food and 50% to non-food items. This pattern shows that non-food expenditure begins to take a larger share among worker households with slightly higher income. This is consistent with Engel's Law, which states that as income rises, the proportion of food expenditure tends to decline while non-food expenditure tends to increase (Samuelson & Nordhaus, 2010; Sukirno, 2020).

Multiple linear regression analysis

The regression model was used to test the effects of income, number of dependents, number of school-age children, and age on total household expenditure. Before hypothesis testing, the model was evaluated using classical assumptions. The Kolmogorov-Smirnov normality test produced an Asymp. Sig. value of 0.177. This value was greater than 0.05, so the residuals were normally distributed. The multicollinearity test showed that all VIF values were below 10. The VIF values were 1.129 for income, 1.938 for number of

dependents, 1.736 for number of school-age children, and 1.528 for age. These results indicate that serious multicollinearity did not occur (Gujarati & Porter, 2009).

The residual scatterplot showed randomly distributed points and no specific pattern. Thus, the model did not show visual symptoms of heteroscedasticity. The fulfillment of classical assumptions provides an adequate basis for interpreting the regression results. The regression equation obtained was Y = -46,994.806 + 0.856X1 + 16,970.549X2 + 44,210.310X3 + 2,729.749X4 + e. This equation shows positive directions for all independent variables, although not all variables were statistically significant.

Table 5. Multiple linear regression results

Variable	Coefficient B	t-value	Sig.	VIF	Description
Constant	-46,994.806	-0.250	0.804	-	-
Income (X1)	0.856	13.817	0.000	1.129	Significant
Number of dependents (X2)	16,970.549	0.841	0.403	1.938	Not significant
Number of school-age children (X3)	44,210.310	2.086	0.040	1.736	Significant
Age (X4)	2,729.749	1.094	0.277	1.528	Not significant

Source: Primary data processed, 2026.

The coefficient of determination showed an R value of 0.880 and an R Square value of 0.775. This means that 77.5% of the variation in total household expenditure could be explained by income, number of dependents, number of school-age children, and age. The remaining 22.5% was explained by other variables outside the model, such as financial literacy, asset ownership, debt level, consumption preferences, food prices, and access to social assistance. The F-value was 66.405 with a significance value of 0.000, indicating that the model was simultaneously feasible. This result supports the hypothesis that socio-economic variables jointly affect total household expenditure (Gujarati & Porter, 2009).

Partially, income had a positive and highly significant effect on total expenditure. The coefficient of 0.856 means that every additional IDR 1 of income increased expenditure by IDR 0.856, assuming other variables remained constant. This finding confirms that actual purchasing power is the strongest factor shaping household expenditure volume. In informal-worker households, additional income is not largely converted into savings but is directly used to meet previously delayed needs. This finding is consistent with the absolute-income theory of consumption (Sukirno, 2020).

Discussion of the effects of socio-economic variables

The number of dependents had a positive coefficient but was not significant. The significance value of 0.403 shows that an additional dependent did not significantly increase total expenditure. This does not mean that dependents do not create a burden. The result is better interpreted as evidence of internal saving strategies. Households with limited income may reduce food quality, share the same consumption items, postpone purchases, or reduce non-food needs so that total expenditure remains controlled. This explanation remains consistent with Putra and Setiawina (2020), but it also shows that demographic effects can be constrained by budget limitations.

The number of school-age children had a positive and significant effect on total expenditure. The coefficient of 44,210.310 indicates that each additional child enrolled in formal education increased household expenditure by IDR 44,210.310 per month, assuming other variables remained constant. The significance value of 0.040 confirms that education is a real cost component. Unlike general dependents, school-age children create costs that are difficult to postpone. Families must provide pocket money, stationery, uniforms, transportation, and learning needs. This finding supports Sari et al. (2021) and Putra and Setiawina (2020) regarding the role of education in increasing household expenditure.

Age had a positive coefficient but was not significant. The significance value of 0.277 shows that the age of the household head was not a main determinant of expenditure. This can be explained by the homogeneity of fieldwork and respondents' lifestyle. Most respondents were in the productive-age group, performed similar physical work, and faced relatively similar basic needs. Under limited income conditions,

age was not strong enough to shift total expenditure. This finding shows that life-cycle theory needs to be interpreted together with the context of informal work and income constraints (Mankiw, 2018; Kusnadi, 2020).

Theoretically, the findings strengthen three arguments. First, Engel's Law remains relevant because food absorbs more than half of household expenditure. Second, the absolute-income theory of consumption is strongly supported because income is the most significant variable determining expenditure. Third, education costs function as fixed costs that increase expenditure even when household income is limited. The combination of these three arguments shows that the welfare of aquaculture workers cannot be measured only from nominal income. The analysis must also consider expenditure composition, education burdens, and the ability of households to maintain basic consumption (Sukirno, 2020; Samuelson & Nordhaus, 2010; Putra & Setiawina, 2020).

From a policy perspective, this study suggests more targeted interventions. Income-improvement programs should be directed toward wage-system improvement, harvest incentives, and more stable additional job opportunities. Education assistance programs should be prioritized because the number of school-age children was proven to increase expenditure. Financial and health literacy programs are also important because expenditure on cigarettes and recreation was relatively high. Local government, fisheries extension officers, and pond owners can use these findings to design support that focuses not only on fish production but also on the welfare of the workers who sustain that production (KKP, 2023; Kusnadi, 2020).

IV. CONCLUSION

The household expenditure structure of aquaculture workers in Cindai Alus Village was still dominated by food needs, with an average monthly expenditure of IDR 2,768,071. Food accounted for 50.28%, cigarettes and recreation for 25.41%, education for 5.42%, and health for 2.49%. Household income was obtained from main jobs and multiple job-holding, but the average income had not fully reflected a decent welfare level. The regression equation was Y = -46,994.80 + 0.856X1 + 16,970.54X2 + 44,210.31X3 + 2,729.74X4 + e, with an R Square value of 0.775, indicating that income, number of dependents, number of school-age children, and age explained 77.5% of the variation in household expenditure. Partially, income had a positive and highly significant effect on expenditure, with a coefficient of 0.856, a t-value of 13.817, and Sig. 0.000. The number of school-age children also had a positive and significant effect, with a coefficient of 44,210.31, a t-value of 2.086, and Sig. 0.040. Meanwhile, the number of dependents, with a coefficient of 16,970.54, a t-value of 0.841, and Sig. 0.403, and age, with a coefficient of 2,729.74, a t-value of 1.094, and Sig. 0.277, did not significantly affect household expenditure.

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