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Financial analysis of fresh fish marketing business at Ciroyom market Bandung city

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Abstract
Ciyorom Market is the biggest wholesale market in Bandung. Fish marketing is a vital activity in the fishery sector as a sequence of fishery agribusiness chains consisting of the pre-production chain, production chain, and post-production chain. This study aimed to analyze the feasibility of the fresh fish marketing business at Ciroyom Market Bandung City and analyze the fresh fish seller's welfare at Ciroyom Market Bandung City. The current study was carried out using the case study method and sampling method of propulsive sampling. The study results show that the fresh fish marketing business analysis at Ciroyom Market in case 1 obtained a profit of IDR 163,956,606/year, the profitability of 7.8%, R/C 1.08, and a payback period of 24 days. Meanwhile, case 2 obtained a profit of IDR 678,250,833/year, the profitability of 11.1%, R/C 1.11, and a payback period of one year and three months. The fish marketing business at Ciroyom Market Bandung City is feasible to be developed. Fresh fish sellers at Ciroyom Market Bandung City are prosperous and having sufficient income to meet the Minimum Life Necessity since the average income is above the Bandung City's City Minimum Wage.

Keywords: business feasibility, fish marketing, ciroyom market, welfare

Introduction
The fishery business system consists of the production, post-harvesting processing, and marketing subsystems, supported by the production facility subsystem including facility and infrastructures, financial, human resources, and technology both legally and institutionally [1]. With Bandung City as the capital, West Java is an Indonesian province with massive market potential for the fishery sector community. Bandung City has traditional markets, including the Ciroyom Market area. Ciroyom Market is the biggest wholesale market in Bandung, with 170 fish sellers [2]. Based on an initial survey, there were 24 fish types marketed at Ciroyom Market Bandung City. The most sold types of fish based on daily sales volume in 2020 were salmon by 19.22%, milkfish by 13.46%, and tilapia by 7.69%.

Fish freshness is crucial in determining the overall quality of a fishery product. Fresh fish is fish with the same nature as live fish, in appearance, smell, taste, and texture [3].

Fish marketing is a vital activity in the fishery sector as a sequence of fishery agribusiness chains consisting of the pre-production chain, production chain, and post-production chain (processing and marketing). All marketing activities can improve the added value of a commodity, leading to improved share received by marketers in terms of profit for producers, sellers, distributors, and customers [4].

In general, the fish marketing business has a critical contribution to the availability of fishery products for people's food needs in daily life. This study aimed to analyze the feasibility of the fresh fish marketing business at Ciroyom Market Bandung City and analyze the fresh fish seller's welfare at Ciroyom Market Bandung City.

Method
Study Method
The study method employed was the case study method. Data and information were collected from respondents by questionnaire distribution.

Data Source and Type
Data collected were primary and secondary data. Primary data were data collected directly through interviews with respondents and using an instrument, i.e., a questionnaire. These data include respondent characteristics, revenue and disbursement components of the fish marketing business, seller savings, and problems. Secondary data were sourced from the Department of Fishery and Marine of West Java, Department of Agriculture of Bandung City, Statistics Central Bureau, and literature from associated institutions.

Sampling Method
The sampling method was purposive sampling. The criteria for samples taken were:

1. Sellers to be respondents were fresh fish sellers at Ciroyom Market Bandung City, either the owner or right-hand person.
2. Sellers to be respondents were wholesalers.
3. Sellers to be respondents were sellers selling three types of fish mostly sold and favored by customers at Ciroyom Market Bandung City, i.e., salmon (*Elagatis bipinnulata)*, milkfish (*Chanos chanos*), or tilapia (*Oreochromis niloticus*).
4. Sellers to be respondents were those who were willing to be interviewed.

The study population was 170 fish sellers at Ciroyom Market Bandung City. The respondents were those fulfilling the outlined criteria were taken as many as 11 respondents.

Data Analysis Method
The data analysis method utilized in this study was descriptive analysis.

A. Cost-Benefit Analysis

Cost-benefit analysis was utilized to calculate cost and acceptance components generated from the fresh fish marketing business at Ciroyom Market Bandung City by previously conducting interviews. The cost components used were investment and operational costs. The acceptance component was the value of marketing results in price.

B. Financial Analysis

The financial parameters utilized in this business analysis were business profit analysis, the balanced revenue and cost (R/C ratio), and payback period analysis.

Profit Analysis

Mathematically the analysis of business profits can be formulated as follows [5]

$$\pi = TR - TC$$

Information

π: Profit
TR: Total revenue
TC: Total cost

Profitability Analysis

Mathematically can be formulated as follows:

$$\text{Profitabilitas} = \frac{\pi}{TC}\ x\ 100$$

Information

π=
The benefits of fish marketing business
TC= The total cost of fish marketing business

The Balanced Revenue and Cost (R /C)

The balanced revenue and cost (R/C) analysis is a comparison in which total revenues are divided by total costs expressed by the equation [5]

$$R/C = \frac{TR}{TC}$$

Information

TR: Total revenue
TC: Total cost

Payback Period Analysis

Payback period is used to measure the length of return on investment from the benefits received [6]:

$$PP = \frac{1}{\pi} \times 1 \text{ years}$$

Information

1: Investation
π: Profit

C. Welfare Analysis

The welfare analysis aimed to discover the welfare level of fresh fish sellers at Ciroyom Market Bandung City. The welfare analysis in the current study was carried out by comparing income received by fish sellers from fresh fish marketing results with the applicable City Minimum Wage at Bandung City in 2021.

Result and Discussion

General Illustration of the Study Location

Ciroyom Bermatabat Market is located at Bandung City center, Terminal Ciroyom-Rajawali Street. Ciroyom Market is a 3-floor building comprising 262 kiosk units and 2.039 stall units.

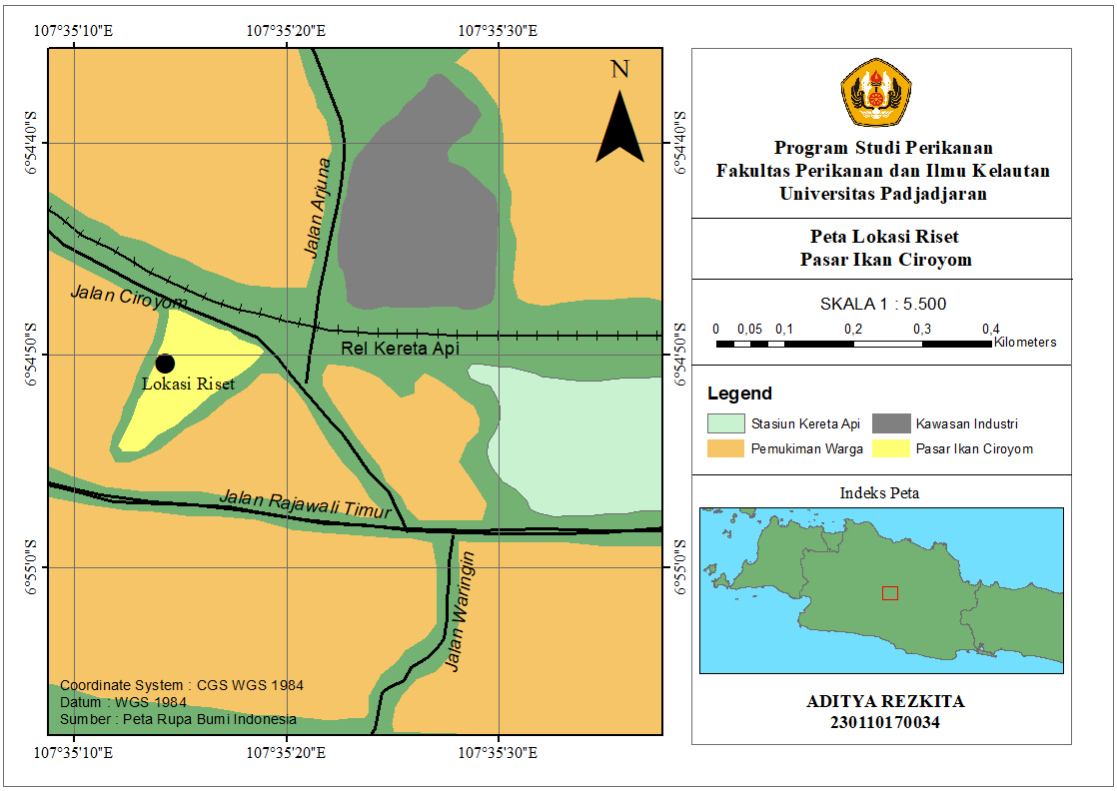


Fig 1: Research location map

The Ciroyom Market management functions for 1 x 24 hours:

1. At night (21.00–04.00) as the Wholesale (Central) Market serving 42 other markets in the West Java area.
2. At noon (06.00–18.00) as a retail market serving daily people's needs.

Based on the observation carried out at the study location, facilities and infrastructure for fish marketing at Ciroyom Market had not fulfilled hygiene and health requirements. The method of fish preservation applied by sellers at Ciroyom Market remained traditional, such as the use of ice cubes instead of ice cubes or cold storage in maintaining the freshness of the fish.

Respondent Characteristics

A. Sex

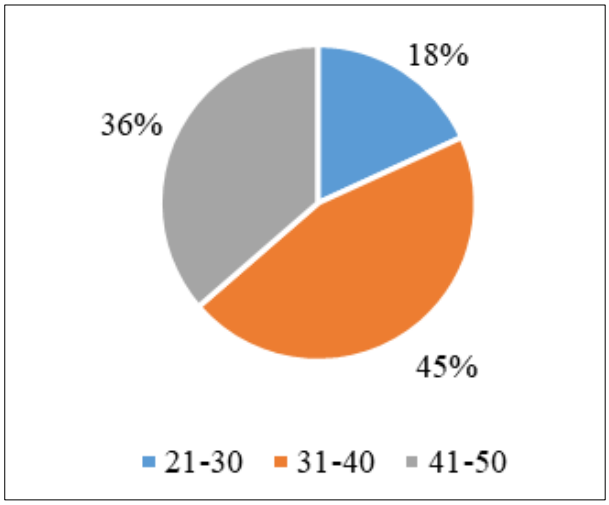
Table 1: Characteristics of respondents by sex

No.	Sex	Total	Percent (%)
1	Male	9	82
2	Female	2	18
Total		11	100

Source: Primary data processed (2021)

The identification results revealed that sellers conducting fish marketing activities at Ciroyom Market were 82% male and 18% female. At Ciroyom Market, particularly those carrying out fresh fish marketing activities between 21.00 – 04.00 WIB, sellers were mostly males. Meanwhile, in the morning or starting from 06.00 WIB, many sellers were female. Male sellers dominate trading at night because at night is relatively more vulnerable [7].

B. Age

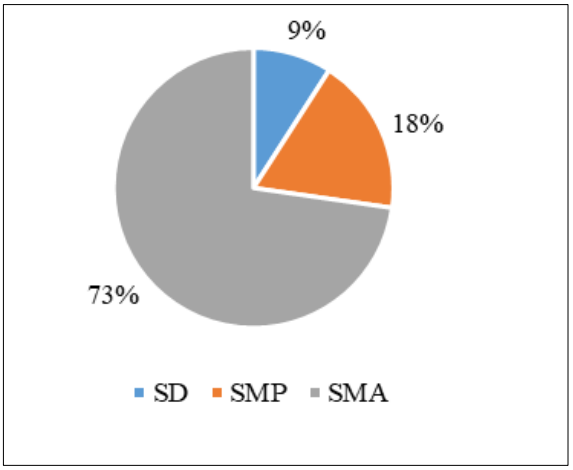


Source: Primary data processed (2021)

Fig 1: Characteristics of respondents by age

From the identification results, the majority of sellers at Ciroyom Market aged between 31-40 years (45%). The results of age grouping in the picture above have no significant differences because all fresh fish sellers at Ciroyom Market Bandung City were in the productive age group. The unproductive age group is under 15 years and 65 years and over, while the age group that is considered productive is 15-64 years[8]. Age level affects a person's ability to perform activities and concepts.

C. Education Level

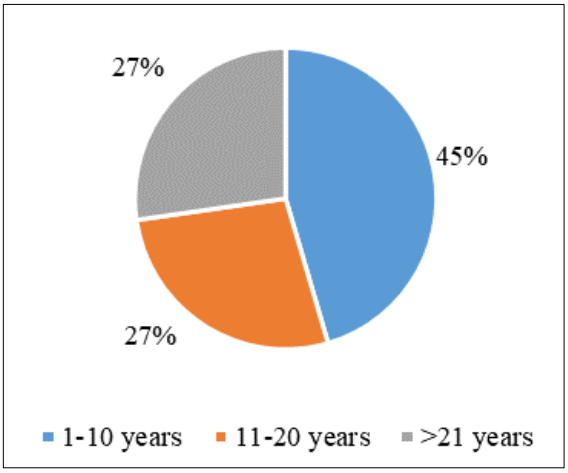


Source: Primary data processed (2021)

Fig 2: Characteristics of respondents by education level

The lowest education level of sellers at Ciroyom Market Bandung City was Primary School, and the highest was High School. That is, sellers' education was relatively excellent since they had graduated high school. Education is one of the characteristics of entrepreneurs that can affect business performance, and the literature supports that educational and managerial experience can contribute to business growth and certainly positive for entrepreneurial performance [9].

Trading Experience



Source: Primary data processed (2021)

Fig 3: Characteristics of respondents by trading experience

Based on the observation, respondent trading experience at Ciroyom Market Bandung City was 25 years at the longest and five years at the shortest. It indicates that the sellers were experienced, not a new traders. Traders who are less than 5 years are classified as new traders, traders whose business period is between 5 to 10 years are categorized as medium traders and traders who have a business period of more than 10 years are categorized as old traders [7].

Cost-Benefit Analysis

Investment Cost

The investment cost is the cost expense before conducting operational activities. The following is the cost required to conduct a fresh fish marketing business in Table 2.

Table 2: Investment Cost of Fresh Fish Marketing Business

No.	Type of Investment	Case 1 (respondents rental stalls)		Case 2 (respondents purchasing stalls)	
		Total (IDR/Year)	Depreciation (IDR/Year)	Total (IDR/Year)	Depreciation (IDR/Year)
1	Purchasing stall	0	0	875.000.000	0
2	Fiber tub/box	1.872.840	468.210	9.200.000	3.066.667
3	Scale	444.444	444.444	125.000	125.000
4	Cutting board	78.642	78.642	150.000	150.000
5	Knife	65.556	65.556	157.500	157.500
6	Drum	337.037	178.431	690.000	690.000
	Total	2.798.519	1.235.283	885.322.500	4.189.167

Source: Primary data processed (2021)

The highest investment cost was case 2, respondents having and purchasing stalls. The investment costs required in the fish marketing business with case 1 (stall rental) was IDR 2,798,519/year. The biggest investment type expensed in case 1 was the cost to purchase a fiber tub/box for IDR 1,872,840/year, or 67% of the total investment cost. Meanwhile, the investment cost required in the fish marketing business with case 2 (stall purchase) was IDR 885,322,500/year. The biggest investment type expensed in case 2 was the cost to purchase a stall for IDR 875,000,000/year, or 99.86% of the total investment cost.

Production Cost

The production cost was classified into two, namely fixed and variable costs [5].

Fixed Cost

Table 3: Fixed Cost of Fresh Fish Marketing Business for One Year

No.	Type of Cost	Case 1	Case 2
		Total Cost (IDR/Year)	Total Cost (IDR/Year)
1	Depreciation	1.235.283	4.189.167
2	Interest cost	0	0
3	Tax and retribution cost (IDR/year)	5.445.000	5.445.000
	Total	6.680.283	9.634.167

Source: Primary data processed (2021)

The highest fixed cost was case 2, respondents having and purchasing stalls. The fixed cost generated for the fish marketing business in case 1 (stall rental) was IDR 6,680,283 annually. The biggest cost component expensed in case 1 was the tax and retribution cost for IDR 5,445,000/year, or 82% of the total fixed cost. Meanwhile, the fixed cost generated for case 2 (stall purchase) was IDR 9,634,167 annually. The biggest cost component expensed in case 2 was the tax and retribution cost for IDR 5,445,000/year, or 57% of the total fixed cost.

Variable Cost

Table 4: Variable Cost of Fresh Fish Marketing Business for One Year

No.	Type of Cost	Case 1	Case 2
		Total Cost (IDR/Year)	Total Cost (IDR/Year)
1	Rental stall	36.300.000	0
2	Rental scale	201.667	907.500
3	Ice cube	6.937.333	6.897.000
4	Plastic	7.098.667	6.715.500
5	Labor cost	36.300.000	36.300.000
6	Consumption	18.150.000	27.225.000
7	Transport	23.998.333	47.190.000
8	Electricity cost	3.630.000	3.630.000
9	Fish purchasing cost:		
	Oreochromis niloticus	518.364.000	0
	Pangasius sp.	46.786.667	0
	Osphronemus goramy	62.113.333	0
	Chanos chanos	564.666.667	762.300.000
	Loligo sp.	13.552.000	0
	Elagatis bipinnulata	453.750.000	4.791.600.000
	Euthynnus affinis	74.213.333	417.450.000
	Rastrelliger sp.	94.648.889	0
	Bramidae sp.	127.050.000	0
	Jumlah	2.087.760.889	6.100.215.000

Source: Primary data processed (2021)

The highest variable cost was case 2, respondents having and purchasing stalls. The variable cost generated for the fish marketing business in case 1 (stall rental) was IDR 2,087,760,889/year. The biggest cost component expensed in case 1 was the fish purchasing cost for IDR 195,514,889/year, or 93.65% of the total variable cost.

Meanwhile, the variable cost generated for case 2 (stall purchase) was IDR 6,100,215,000/year. The biggest cost component expensed in case 2 was the fish purchasing cost for IDR 5,971,350,000/year, or 97.89% of the total variable cost.

Revenue

Revenue is the result of multiplying the sales (kilograms) and the price per kilogram (rupiahs) of the sales. The details of the receipt of sales for one year is illustrated in Table 5.

Table 5: Revenue of Fresh Fish Marketing Business

No.	Description	Unit	Case 1	Case 2
1	Production	Kg	223	725
2	Average selling price	IDR/Kg	29.463	27.667
3	Income	IDR/day	6.221.481	18.700.000
		IDR/month	186.644.444	561.000.000
		IDR/year	2.258.397.778	6.788.100.000

Source: Primary data processed (2021)

The highest annual revenue in the fresh fish marketing business at Ciroyom Market Bandung City was in case 2, respondents having and purchasing stalls. The total annual revenue in case 1 (stall rental) was IDR 6,671,496,333, while in case 2 (stall purchase) was IDR 6,459,025,833. The production total in the fresh fish marketing business highly affected sellers' income.

Financial Analysis

Profit

Profit is the total revenue minus the total cost [10]. The following advantages of the fish marketing business can be seen in Table 6.

Table 6: Benefit of Fish Marketing Business

No.	Type of Cost	Total (IDR/Year)	
		Case 1	Case 2
1	Revenue	2.258.397.778	6.788.100.000
2	Fixed Cost	6.680.283	9.634.167
3	Variable Cost	2.087.760.889	6.100.215.000
Profit (IDR/Month)		13.663.051	56.520.903
Profit (IDR/Year)		163.956.606	678.250.833

Sumber: Data Primer Diolah (2021)

The highest profit of the fresh fish marketing business at Ciroyom Market Bandung City was case 2, respondents purchasing stalls. The total revenue in case 1 (stall rental) generated a profit of IDR 163,956,606/year or IDR 13,663,051/month. Meanwhile, the total revenue in case 2 (stall purchase) generated a profit of IDR 678,250,833/year or IDR 56,520,903/month. Big profits can be obtained by reducing the operating costs incurred [11].

Profitability

Profitability is the ability of business activities to earn profits concerning sales, total assets, and own capital [12]. The following is the profitability of the fresh fish marketing business, which can be seen in Table 7.

Table 7: Profitability of Fish Marketing Business

No.	Case	Description		Profitability (%)
		Profit (IDR)	Total Cost (IDR)	
1	Case 1	163.956.606	2.094.441.172	7,8
2	Case 2	678.250.833	6.109.849.167	11,1

Source: Primary data processed (2021)

The highest profitability percentage in the fresh fish marketing business at Ciroyom Market Bandung City was case 2, respondents having and purchasing stalls with a percentage of 11.1%, indicating that every IDR 1.00 production input usage will generate a profit of IDR 11.1. In case 1 (stall rental), the profitability percentage was 7.8%, indicating that every IDR 1.00 production input usage will generate a profit of IDR 7.8. The results of the calculation of profitability generated entirely was > 0, which means profitable. Profitability < 0 means that the fresh fish marketing business is not profitable. The higher the profitability value, the better because the company's ability to generate profits is quite high [13].

Revenue and Cost Balance

The revenue and cost balance (R/C) analysis is the comparison between revenue and cost. This analysis was utilized to discover whether the business is profitable and feasible to be developed. The following is the R/C of the fresh fish marketing business illustrated in Table 8.

Table 8: R/C Fish Marketing Business for One Year

Case 1		Case 2	
Description	Price (IDR)	Description	Price (IDR)
Income	2.258.397.778	Income	6.788.100.000
Total cost	2.094.441.172	Total cost	6.109.849.167
R/C	1,08	R/C	1,11

Source: Primary data processed (2021)

From table 8, it was discovered that the feasibility of the fresh fish marketing business was a quotient between revenue and production costs. The R/C ratio in case 1 was 1.08, indicating that every IDR 1.00 of cost expensed in the fresh fish marketing business generated revenue of 1.08-fold of the expense. Meanwhile, the R/C ratio in case 2 was 1.11, indicating that every IDR 1.00 of cost expensed in the fresh fish marketing business generated revenue of 1.11-fold of the expense. The total R/C value > 1 indicates that the fresh fish marketing business at Ciroyom Market Bandung City is feasible.

Payback Period

The payback period is used to measure the length of return on investment from the profits received by the owner[6]. The following is the PP of the fresh fish marketing business at Ciroyom Market Bandung City (Table 9).

Table 9: Payback Period of Fish Marketing Business

No.	Case	Type of Cost		PP (Year)
		Investation (IDR)	Income (IDR)	
1	Case 1	2.798.519	163.956.606	0,02
2	Case 2	885.322.500	678.250.833	1,3

Source: Primary data processed (2021)

Based on Table 9, the fastest payback period of fresh fish marketing business investment at Ciroyom Market was in case one, respondents renting stalls. The PP value of the fresh fish marketing business in case one was 0.02. It shows that with an annual profit of IDR 163,956,606, the investment cost payback period is 24 days. The PP value of the fresh fish marketing business in case two was 1.3. It shows that with an annual profit of IDR 678,250,833, the investment cost payback period is one year and three months. The greater the value of PP, the longer the return on capital, and the smaller

the value of PP, the faster the return on capital from the business [14].

Welfare Analysis

The City Minimum Wage (UMK) of Bandung in 2021 was IDR 3,742,276.48/capita/month, while the average income of sellers from the fresh fish marketing business at Ciroyom Market Bandung City in case 1 was IDR 13,549,282/person/month, and in case 2 was IDR 56,050,903/person/month. In case 2, i.e., respondents having and purchasing stalls, were more prosperous than in case 1, i.e., respondents renting stalls, because the income in case 2 is higher than in case 1. It can be concluded that sellers carrying out fish marketing business activities at Ciroyom Market Bandung City were at a prosperous level, and their income was adequate to meet their Minimum Living Needs because the average income of sellers is above the Bandung City UMK.

Conclusion

Based on the study results, it is concluded that the fresh fish marketing business at Ciroyom Market Bandung City is feasible, indicated by the fulfillment of business feasibility requirements from several parameters, i.e., profit, profitability, revenue and cost balance or R/C, and payback period. However, in case 2, sellers purchasing stalls were more prosperous and profitable to be carried out than in case 1, sellers renting stalls. The welfare level by comparing fresh fish seller income at Ciroyom Market Bandung City against the City Minimum Wage (UMK) of Bandung City was indicated prosperous because seller income was more than Bandung City UMK in 2021. However, in case 2, i.e., sellers purchasing stalls, were generally more prosperous because their income is higher than those in case 1, i.e., sellers renting stalls.

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