(RESEARCH ARTICLE)

Business finance and value-added evaluation of processing technology robusta coffee fermentation

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Abstract

This research aims to analyze the added value of robusta coffee beans produced through four fermentation methods: natural process, honey process, wine process, and full wash process. The added value is calculated using the Hayami method. This study serves as a case analysis of coffee processing SMEs in Pagaralam City, South Sumatra.The results indicate significant differences in the added value generated by each fermentation method. The added value ratios obtained are as follows: F1 (Natural): 75.62%, F2 (Honey): 79.67%, F3 (Wine): 85.50%, F4 (Full Washed): 79.17%. All fermentation methods demonstrate a significant increase in added value. The calculations of Net Present Value (NPV), Internal Rate of Return (IRR), and Benefit-Cost (B/C) Ratio suggest that the coffee processing business in Pagaralam, South Sumatra, is viable for development and investment.The financial analysis and added value insights can serve as a guide for companies to determine production levels and enhance profits and added value in the processing of fermented robusta coffee beans.

Keywords: Added value; Coffee; Enterprise; Fermentation; Robusta

1. Introduction

Micro, Small and Medium Enterprises (SMEs) play an important role in economic growth in Indonesia. The contribution of SMEs to employment, increasing community income, and developing the industrial sector is very significant. Currently, the coffee industry around the world is experiencing a significant increase, based on data on world coffee prices continues to increase, with the most marketed type of coffee being Arabica coffee [8]. However, Indonesia produces almost 80% Robusta coffee compared to Arabica [1]. One of the largest coffee producing areas in Indonesia is Pagaralam City, South Sumatra. However, SMEs and coffee farmers in this area still face many challenges, such as limited access to capital, low technological capabilities, and intense competition. These challenges often hamper the development potential of SMEs. One effort to improve the competitiveness of SMEs is through innovation, such as fermenting Robusta coffee. It is expected that by applying the fermentation process, the quality and selling value of Robusta coffee will increase in local and international markets. To prove the effect of fermentation on selling value and market aspects, further calculations are needed, namely conducting business financial analysis and added value.

Business financial analysis is an analysis used to see the sustainability of the financial feasibility of a business and can have a good impact if investors want to invest in SMEs [9]. while value-added analysis is a calculation that can describe the increase in value provided by producers to raw materials through the production process or additions during the process [3]. Added value can have an effect on increasing profits for businesses, but also contributes to overall economic

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growth. One of the commonly used methods is the Hayami method. This method is carried out by observation and descriptive quantitative directly on the SMEs industry, with the calculation of added value based on one main raw material. It is expected that the analysis of business financials and added value can have a positive effect on the SMEs industry [6].

The SMEs carried out as objects of observation are SMEs located in Pagaralam, South Sumatra, this industry provides various kinds of products from processed robusta coffee originating from local plantations in Pagaralam. The purpose of this study is to determine the financial condition and the amount of added value generated from various kinds of fermentation in the Pagaralam Robusta Coffee SMEs business, South Sumatra in one processing period. It is hoped that the value-added analysis can have a positive effect on the SMEs industry.

2. Materials and Methods

2.1. Data Collection Method

The data collection methods used in this research are primary and secondary data. Primary data were obtained through observation and interviews. The observation technique is carried out thoroughly on the production process, the identity of the respondent, the general condition of the coffee business, business income, labor needs, labor wages, revenue structure, factors of production, fixed costs, variable costs, the state of the processing business to analyze profit income, and added value in SMEs Robusta coffee Pagaralam, South Sumatra. Primary data collected include processing and sales data of robusta coffee. Meanwhile, secondary data is obtained from previous research, journals, articles, and relevant literature searches. This secondary data will be used to complete the analysis and provide more understanding of the research conducted.

2.2. Data Analysis

The data analysis used in this study is a business analysis which includes analysis of business Financial, B/C Ratio, IRR, NPV and Value added Hayami method [6].

2.3. Business Financial Analysis

This analysis aims to obtain information about the financials of the Pagaralam coffee industry, South Sumatra. The indicators used consist of net present value (NPV), internal rate of return (IRR), and B/C ratio. The data collected includes:

- Variable costs (costs that change with the level of production) consisting of daily worker wage costs, packaging equipment costs, and coffee transportation costs.
- Fixed costs (costs that must be incurred even if the production level is zero) consisting of salaries and benefits of permanent workers, office costs, loan interest, livestock equipment costs, location survey costs, location rental costs and donations, promotions, and taxes.
- Investment costs, namely all assets owned by the company, in addition to collecting data on coffee production and sales of each company.

2.4. B/C Ratio

This method serves to see the ratio and compare the total benefits obtained with the total costs incurred, and can determine whether or not the business is worth investing [4].

$$\text{B/C ratio} = \frac{\text{Cost}}{\text{Benefit}}$$

- B/C ratio > 1 then the business is worth continuing
- B/C ratio < 1 then the business is not viable or loss-making.

2.5. (NPV) Internal Rate of Return

NPV is an analysis method that illustrates that the benefit (revenue) that has been presented in present value and the cost (expenditure) that has been presented in present value is equal to zero. NPV can also be categorized as a financial analysis used to see the profitability or profitability of an investment in the industry, besides that NPV is also used for decision making by comparing other projects [7].

$$NPV = \sum_{t=1}^{t=n} \frac{M_t - B_t}{(1 + i)^t}$$

Keterangan (Remark)
t = 1,2, ..., n
n = number of years
i = interest rate (discount)
Mt = benefits obtained each year
Bt = costs incurred each year

2.6. IRR (Internal Rate of Return)

This method serves to see the interest rate that describes the benefit (revenue) that has been in the present value right and the cost (expenditure) that has been in the present value right equal to zero. This analysis serves to see whether or not a business is worth running [2].

$$IRR = i_i + \frac{NPV_1}{NPV_1 + NPV_2}(I_2 - I_1)$$

Description:
NPV1 = Calculation of positive NPV close to zero with capital interest of i1 percent
NPV2 = Calculation of negative NPV close to zero with capital interest of i2 percent
1 = First discount factor (DF), the interest rate that produces a positive NPV
i2 = Second discount factor (DF), the interest rate that produces a negative NPV

If:

- If IRR > the applicable discount rate, then the project is feasible to implement
- If IRR < the applicable discount rate, then the project is not feasible to implement.

2.7. Hayami Value Added Method

Value-added method to see a concept that describes the increase in value provided by producers to raw materials through the production process or additions during the process [3]. This allows producers to understand the contribution of fermentation to improving the quality of robusta coffee products, and can identify factors that can be improved to increase overall added value [6]. to determine the added value of each product using the Hayami method with variables as listed in Table 1.

According to [3], the criteria for testing the value-added ratio can be divided into three criteria, namely:

- Low if it has a percentage < 15%
- Medium if it has a percentage of 15% - 40%
- High if it has a percentage > 40%

Table 1 Value-Added Calculation Variables

No	Variable (Output, Input, Price)	Notation
1	Output (Kg)	(1)
2	Input (Kg)	(2)
3	Manpower (JKO/produksi)	(3)
4	Conversion Factor	(4) = (1)/(2)
5	Manpower conversion	(5) = (3)/(2)
6	Output Price (Rp/Kg) ½ dan ¼	(6)
7	Labor Wages (Rp/JKO)	(7)

Profit Calculation		
8	Raw material price	(8)
9	Other Input Contributions	(9)
10	Output Value (Rp/Kg)	(10) = (4)x(6)
11	a. Added value (Rp/Kg)	(11a) = (10)-(9)-(8)
	b. Added Value Ratio (%)	(11b) = (11a)/(10) x 100%
12	a. Labor income (Rp/Kg)	(12a) =(5)x(7)
	b. Labor Section (%)	(12b) = (12a)/(11a) x 100%
13	a. Profit (Rp)	(13a) = (11a)x(12a)
	b. Profitability Level	(13b) = (13a)/(11a) x 100%
Remuneration for Factors of Production		
14	Margin (Rp/Kg)	(14) =(10)-(8)
	a. Labor income (%)	(14a) =(12a)/(14)x100%
	b. Other Input Contributions (%)	(14b) =(9)/(14)x100%
	c. Profit (%)	(14c) =(13a)/(14)x100%

3. Results and Discussion

3.1. Financial calculation of business investment costs

Investment costs are the cost of all assets owned by the company, in addition, data on production and sales of coffee for each company are also collected. Based on Table 2. shows that the total annual investment cost of coffee in coffee SMEs is Rp. 108,950,0000 which consists of the purchase of drying dorms, pulper machines, huller machines, greenbean size machine fermentation tanks, moisture content tools, fermentation racks (5x5 meters), machines, coffee roasting, coffee grinder machines, digital scales (150 kg), and hot water boilers. The total cost comes from the business owner himself and assistance from the government.

Table 2 Investment Capital Calculation

No	Description	Unit Price (Rp)	Total (pcs)	Total (Rp)
1	Drying Dorm	Rp15.000.000	2	Rp30.000.000
2	Pulper Machine	Rp8.000.000	3	Rp24.000.000
3	Huller Machine	Rp9.000.000	1	Rp9.000.000
4	Fermentation Tank	Rp200.000	20	Rp4.000.000
5	Greenbean Size Machine	Rp10.000.000	1	Rp10.000.000
6	Water Content Tool	Rp15.000.000	1	Rp15.000.000
7	Fermentation rack (5x5 Meter)	Rp450.00	2	Rp900.000
8	Coffee Roasting Machine	Rp12.000.000	1	Rp12.000.000
9	Coffee Grinder Machine	Rp600.00	4	Rp2.400.000
10	Digital Scales (150 kg)	Rp950.000	1	Rp950.000
11	Hot water kettle	Rp350.000	2	Rp700.000
	Total			Rp.108,950.000

3.2. Financial calculation of business Fixed Costs

The calculation of fixed cost results can be seen in Table 3. Fixed costs are costs that must be incurred even though the production level is zero, which consists of salaries and benefits for permanent workers, office costs, loan interest, livestock equipment costs, location survey costs, location rental costs and donations, promotions, and taxes. Based on Table 2, it shows that the total fixed cost of coffee in coffee SMEs is Rp. 15,755,000 per year. Which consists of raw material costs such as coffee red fruit, coffee v60 paper, and HDPE plastic.

Table 3 Fixed Cost Calculation

No	Description	Unit Price	Total	Total (Rp)
1	Red beans	Rp12.000	1000 kg	Rp12.000.000
2	Coffee V60 paper	Rp35.000	3 pcs	Rp105.000
3	HDPE Plastic	Rp45.000	20 pcs	Rp900.000
4	Aluminum Clip Plastic	Rp15.000	150 pcs	Rp2.250.000
5	Water Gallon	Rp500	1000 L	Rp500.00
	Total			Rp.15.755.000

3.3. Financial Calculation of Business Non-fixed costs

Calculation of the results of non-fixed costs can be seen in Table 4, non-fixed costs can be interpreted as costs that change according to the level of production consisting of labor costs, packaging equipment, and coffee transportation costs. Based on Table 4, it shows that the amount of non-fixed costs of coffee in SMEs is Rp. 29,300,000 per year, which consists of labor costs, machine maintenance, electricity costs, promotion and transportation.

Table 4 Calculation of Non-Fixed Costs

No	Description	Unit Price	Total	Total (Rp)
1	Labor Wage Cost	Rp70.000	4 people	Rp25.200.000
2	Machine maintenance	Rp750.000	1 times	Rp1.500.000
3	Electricity Cost	Rp700.000	1 times	Rp2.100.000
4	Promotion Cost	Rp350.000	1 times	Rp350.000
5	Transportation Costs	Rp150.000	1 times	Rp150.000
	Total			Rp.29.300.000

3.4. B/C Ratio

Benefit-cost ratio (BCR) is a measure of the comparison between the total present value of benefits and the total present value of costs. This method is used to analyze a project by comparing the value of benefits to the value of costs, which is calculated based on the present value of each benefit and cost to reflect the economic benefits generated by the project [9]. The value of the calculation of cost and benefit value can be seen in Table 5.

Table 5 B/C Ratio calculation table

Tahun	Benefit (Rp.)	Cost	Benefit (Fixed cost + Non-fixed cost	Net Benefit (Cost – Benefit)	Discount factor (p/a) 8%
0	Rp.108.950.000	Rp. -	Rp. -	Rp. 108.950.000	1
1	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	0,926
2	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	1,783
3	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	2,577
4	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	3,312
5	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	3,993

BC/Ratio

Bc/Ratio : (benefit) / (cost)

Bc/Ratio : Rp. 108.000.000 / Rp. 45.055.000

Bc/Ratio : 2,4%

Based on the B / C Ratio criteria in Table 5. namely if the B / C Ratio> 0, then the business is worth developing. So the above calculation shows that the B / C Ratio value obtained is 2.4%, the B / C Ratio value obtained is 2.4%, so the Pagaralam SMEs coffee business, South Sumatra is feasible to develop and continue.

3.5. (NPV) Net Present Value

NPV can be interpreted as an estimated cash flow in the future, which is calculated based on the current interest rate, the applicable interest rate can be seen on the official ojk website. To calculate NPV, data on estimated investment costs is required.

Table 6 NPV calculation table

Tahun	Benefit (Rp.)	Cost	Benefit (Fixed cost + Non-fixed cost)	Net Benefit (Cost – Benefit)	Discount factor (p/a) 8%
0	Rp.108.950.000	Rp. -	Rp. -	Rp. 108.950.000	1
1	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	0,926
2	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	1,783
3	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	2,577
4	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	3,312
5	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	3,993

Unknown:

Initial investment (I) = -108,000,000

Income annuity (Ab) = 75,000,000

Residual value (S) = -45,055,000

Annuity factor (P/A discounted 8%) = 3.993

Settlement:

Formula: - I + Ab (P/A 8%) + S (P/A 8%) - Ac (P/A 8%)

NPV = - 108,000,000 + 75,000,000 x 3.993 - 45,055,000 x 3.993

NPV = - 108,000,000 + 299,475,000 - 179,904,615

NPV = Rp. 11,570,385

Based on the above calculations, it shows that the NPV of coffee SMEs is Rp. 11,570,385 with a discount factor of 8%. Based on the NPV criteria, namely NPV > 0, the business is worth developing. This coffee business is worth trying and developing.

3.6. (IRR) Internal Rate of Return

Internal Rate of Return (IRR) is an interest rate that illustrates that the benefit (revenue) that has been in the present value and the cost (expenditure) that has been in the present value is equal to zero. The IRR value indicates the level of discount factor at which the NPV = 0.

Table 7 Calculation table (IRR)

Tahun	Benefit (Rp.)	Cost	Benefit (Fixed cost + Non-fixed cost)	Net Benefit (Cost – Benefit)	Discount factor (p/a) 8%
0	Rp.108.950.000	Rp. -	Rp. -	Rp. 108.950.000	1
1	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	0,926
2	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	1,783
3	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	2,577
4	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	3,312
5	-	Rp. 45.055.000	Rp. 75.000.000	Rp. 29.945.000	3,993

NPV 1 (Dikonto 8%)

NPV = -

108.000.000 + 75.000.000 x 3,993 – 45.055.000 x 3,993

NPV = - 108.000.000 + 299.475.000 – 179.904.615

NPV1 = Rp. 11.570.385

.NPV 2 (Diskonto 10%)

NPV = - 108.000.000 + 75.000.000 x 3,179 – 45.055.000 x 3,179

NPV = - 108.000.000 + 238,425,000 – 143,229,845

NPV2 = - Rp. 12,804,845

Rumus IRR :

IRR = i1 + NPV 1 / NPV 1-NPV 2 (i2 – i1)

IRR = 8% + 11.570.385 / (11.570.385 – (-12,804,845) X (8% - 10%)

IRR = 8% + 11 570.385 / (24,375,230.) X (2%)

RR = 8% + 0,474 X 2%

IRR = 8.948%.

Based on the calculations above, it shows that the IRR value obtained is 8.948%. This value is greater than the interest rate, which is 8%, so it can be concluded that the investment in the coffee SMEs business is feasible to run because this value is above the prevailing 8% interest rate, so the business is feasible from a financial point of view.

3.7. Added Value

Value-added is the increase in the value of a commodity after undergoing the production process. The calculation of value-added aims to measure the increase in value from processing raw materials into fermented coffee. Value-added is calculated by subtracting the value of revenue (output) from the total cost (input) incurred during the processing process. All value components are measured and expressed in kilograms of raw materials [10]. This is done to determine how much value addition is generated from one kilogram of raw material through processing activities. The following table shows the added value of coffee fermentation processing.

Tabel 8 Calculation of Added Value in Processing Coffee Beans into Fermented Coffee using the Hayami Method

No	Variable (Output, Input, Price)	Notation	(F1) natural	(F2) Honey	(F3) Wine	(F4) Full washed
1	Output (Kg)	-1	150	125	95	130
2	Input (Kg)	-2	300	250	190	260
3	Manpower (JKO/produksi)	-3	30	30	60	30
4	Conversion Factor	(4) = (1)/(2)	0.5	0.5	0.5	0.5
5	Manpower conversion	(5) = (3)/(2)	0.10	0.12	0.32	0.12
6	Output Price (Rp/Kg) ½ dan ¼	-6	Rp 100,000	Rp 120,000	Rp 170,000	Rp 120,000
7	Labor Wages (Rp/JKO)	-7	Rp 7,150	Rp 9,550	Rp 13,150	Rp 9,150
Profit Calculation						
8	Raw material price	-8	Rp 12,000	Rp 12,000	Rp 12,000	Rp 12,000
9	Other Input Contributions	-9	Rp. 190	Rp 200	Rp 325	Rp 500
10	Output Value (Rp/Kg)	(10) = (4)x(6)	Rp 50,000	Rp 60,000	Rp 85,000	Rp 60,000
11	Added value (Rp/Kg)	(11a) = (10)-(9)-(8)	Rp 37,810	Rp 47,800	Rp 72,675	Rp 47,500
	Added Value Ratio (%)	(11b) = (11a)/ (10) x 100%	75.62%	79.67%	85.50%	79.17%
12	Labor income (Rp/Kg)	(12a) = (5)x(7)	Rp 715	Rp 1,146	Rp 4,153	Rp 1,056
	Labor Section (%)	(12b) = (12a)/(11a) x 100%	1.89%	2.40%	5.71%	2.22%
13	Profit (Rp)	(13a) = (11a) - (12a)	Rp 37,095	Rp 46,654	Rp 68,522	Rp 46,444

	Profitability Level	(13b) = (13a)/ (10) x 100%	74.19%	77.76%	80.61%	77.41%
	Remuneration for Factors of Production		18548	23327	34261	23222
	Margin (Rp/Kg)		49.05%	48.80%	47.14%	48.89%
Remuneration for Factors of Production						
14	Other Input Contributions (%)	(14) = (10)-(8)	Rp 38,000	Rp 48,000	Rp 73,000	Rp 48,000
15	Profit (%)	(14a) =(12a)/(14)x100%	1.88%	2.39%	5.69%	2.20%
16	Output (Kg)	(14b) = (9)/(14)x100%	0.50%	0.42%	0.45%	1.04%
17	Input (Kg)	(14c) =(13a)/(14)x100%	97.62%	97.20%	93.87%	96.76%

3.8. Input, Output, Price

The results show the average amount of fermented robusta coffee produced and the amount of coffee bean raw materials used in fermented coffee processing. The average amount of output produced by fermented coffee processing is in F1 (Natural) of 150 Kg and the amount of raw material input Cherry bean of 300kg, F2 (Honey) the output produced is 125 Kg and the amount of raw material input Cherry bean 250 Kg, F3 (Wine) with the output produced 95 Kg and the amount of raw material input Cherry bean 190 Kg, F4 (Full Washed) with the output produced 130 Kg and the amount of raw material input Cherry bean 260 Kg. The average conversion factor F1 to F4 for business actors is 0.5. This conversion factor is obtained from comparing the output value with the production input. This conversion factor can show that every 1 kg of coffee beans with various fermentations will produce 0.5 kg of fermented coffee beans. The average number of people working for each fermentation for business actors is calculated using the calculation of working days multiplied by working hours and total workers and then shared with standard working hours, according to Diniyati (2017), 1 Male Working Day (HKP) is equal to 8 working hours. The results obtained in F1 (Natural) JKO or the number of people working can be 30 HOK, F2 (Honey) obtained 30 HOK, F3 (Wine) obtained 60 HOK and F4 (Full Washed) obtained 30 HOK. The labor coefficient in processing 1kg of fermented coffee produces F1 (Natural) of 0.10, F2 (Honey) obtained 0.12, F3 (Wine) obtained 0.32 and F4 (Full Washed) obtained 0.12 With an average labor wage per production of F1 (Natural) of Rp. 7,150, F2 (Honey) of Rp. 9,550, F3 (Wine) of Rp. 13,150, and F4 (Full Washed) of Rp. 9,150 per kilo of production.

3.9. Revenue and Profit

The price of cherry bean raw materials in the process of making fermented coffee with various methods is Rp. 12,000/kg. The value of other contributions or other inputs is obtained from the results of the division between auxiliary materials and total raw materials and then added to the results of dividing the depreciation of equipment per production period by the amount of raw materials. The contribution value of other inputs is obtained as F1 (Natural) Rp. 7,150, F2 (Honey) Rp. 190, F3 (Wine) Rp. 200, and F4 (Full Washed) Rp. 325, The output value obtained is F1 (Natural) Rp. 50,000, F2 (Honey) Rp. 60,000, F3 (Wine) Rp. 85,000, and F4 (Full Washed) Rp. 60,000, This output value is obtained by multiplying the conversion factor with the output price. The conversion factor for F1 to F4 is 0.5, with the output price obtained as F1 (Natural) IDR 100,000, F2 (Honey) IDR 120,000, F3 (Wine) IDR 170,000, and F4 (Full Washed) IDR 120,000 per kilo. The added value obtained by business actors is F1 (Natural) amounting to IDR 37,810, F2 (Honey) IDR 47,800, F3 (Wine) IDR 72,675, and F4 (Full Washed) IDR 47,500 per kilo. This value is obtained from subtracting the output value from the price of raw materials and input contributions. The value-added ratio of fermented robusta coffee is F1 (Natural) 75.62%, F2 (Honey) 79.67%, F3 (Wine) 85.50% and F4 (Full Washed) 79.17%, all values are based on output values. Labor income for each fermentation is F1 (Natural) Rp. 715/kg F2 (Honey) 1,146/kg, F3 (Wine) 4,153/kg and F4 (Full Washed) 1,056/kg. Labor income is obtained by multiplying the labor coefficient and the average labor wage. The labor share was obtained as F1 (Natural) 1.89% F2 (Honey) 2.40%, F3 (Wine) 5.71% and F4 (Full Washed) 2.22%. This value is obtained from the division of labor income with added value which is then multiplied by 100%. The profit obtained from business actors was obtained as F1 (Natural) Rp.37,095, F2 (Honey) Rp.46, F3 (Wine) 5.71% and

F4 (Full Washed) Rp.46,444. The profit value is obtained from the reduction of added value to labor income in fermented coffee processing. The profit level obtained in the treatment of F1 (Natural) 74.19%, F2 (Honey) Rp.77.76% F3 (Wine) 80.61% and F4 (Full Washed) 77.41%, The profit level is obtained from the division of profit to the added value and then multiplied by 100%, it can be concluded that the profit obtained in the processing of various fermented coffee produced by F1 (Natural) 300 kg to 150 kg, F2 (Honey) 250 kg to 125 kg, F3 (Wine) 190 kg to 95 kg and F4 (Full washed) 260 kg to 130 kg.

3.10. Factor of Production Owner's Remuneration

The margin value obtained from the subtraction of the output value from the price of raw materials, obtained the results of F1 (Natural) Rp. 38,000, F2 (Honey) Rp. 48,000, F3 (Wine) Rp. 73,000 and F4 (Full washed) Rp. 48,000, then in the labor income section obtained from the quotient of labor income with the margin and then multiplied by 100%, obtained the results of labor income of F1 (Natural) 1.88%, F2 (Honey) Rp.2.39 % F3 (Wine) 5.69% and F4 (Full Washed) 2.20%. % F3 (Wine) 5.69% and F4 (Full Washed) 2.20%. The compensation for the contribution of other inputs with the margin is then multiplied by 100%. The value of services for other input contributions is F1 (Natural) 0.50%, F2 (Honey) 0.42% F3 (Wine) 0.45% and F4 (Full Washed) 1.04%. Then the value of the service for the profit of the business is obtained from the quotient of the profit with the margin then multiplied by 100%, the value of the service or profit of the owner is obtained as F1 (Natural) 97.62%, F2 (Honey) 97.20% F3 (Wine) 93.87% and F4 (Full Washed) 96.76%. Based on the results of calculations with the hayami method on fermented coffee, the added value of processing coffee beans into fermented coffee obtained an added value ratio of F1 (Natural) 75.62%, F2 (Honey) 79.67%, F3 (Wine) 85.50% and F4 (Full Washed) 79.17%. F1 to F4 are all classified as high, this is in line with research [5] which argues that the calculation of added value is said to be low if the ratio value is 15%, the added value is said to be moderate if the ratio is 15-40%, and the added value is said to be high if >40%.

4. Conclusions

The results of the research on business feasibility analysis and added value in coffee processing SMEs with the fermentation method show significant results, it can be seen that the results of the calculation of the B / C Ratio business feasibility are obtained at 2.4%, indicating that the coffee SMEs business is feasible to develop and continue, the NPV calculation is obtained at Rp. 11,570,385 with a discount factor of 8%, the NPV criteria where NPV> 0, then the business is feasible to develop and cultivate, the IRR calculation is obtained at 8. 948%, this value is greater than the 8% interest rate, it can be concluded that the investment in the coffee SMEs business is feasible to run because this value is above the prevailing 8% interest rate, while the results of the calculation of added value show that processing robusta coffee beans into fermented coffee produces a high value-added ratio, namely in F1 (Natural) 75.62%, F2 (Honey) 79.67%, F3 (Wine) 85.50% and F4 (Full Washed) 79.17%. All fermentation methods showed a significant increase in added value.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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