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Product Value Added Analysis: Transforming Green Bean Coffee into Espresso, Coffee Latte, and Caramel Latte at Elok Coffee Shop

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Abstract

Coffee downstreaming into ready-to-drink beverages provides an opportunity to increase the economic value of coffee, especially at the coffee shop level where products are sold directly to consumers. This study aimed to analyze the added value generated from processing green bean coffee into espresso, coffee latte, and caramel latte at Elok Coffee Shop. The Hayami value-added method was applied using data on output, raw material input, labor, selling price, raw material cost, other input costs, labor income, and profit. The results showed that 1 kg of green bean coffee produced 50 cups of each beverage. Caramel latte generated the highest added value at IDR 861,000/kg, followed by coffee latte at IDR 725,000/kg and espresso at IDR 600,000/kg. In terms of value-added ratio, espresso showed the highest ratio at 60.00%, followed by coffee latte at 58.00% and caramel latte at 57.40%. The highest profit was obtained from caramel latte at IDR 741,000/kg, with a profit rate of 86.06%. These results suggest that caramel latte is the most profitable variant in absolute terms, while espresso is the most efficient in converting output value into added value. Compared with Arabica coffee processing into green beans, coffee shop-level processing shows strong potential for value creation because the product has reached the final consumption stage and includes formulation, service, and consumer experience. Maintaining added value requires consistent product quality, particularly in brewing, grinding, weighing, taste consistency, product variation, and promotion.

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Keywords: added value, coffee beverage, coffee shop, Hayami method, green bean coffee

INTRODUCTION

Coffee is an agricultural commodity with high economic value and an important role in agroindustrial development. In Indonesia, coffee is traded not only as a primary commodity but also as a processed product in various forms, such as green beans, roasted beans, ground coffee, and ready-to-drink beverages. Bali also has considerable coffee potential, as shown by the production data of Arabica and Robusta coffee by regency/city in 2024 published by Badan Pusat Statistik (2025a; 2025b).

The growth of coffee shops has created new opportunities for coffee downstreaming. In tourism areas such as Bali, coffee shops do not only sell beverages; they also offer taste, service, atmosphere, brand identity, and consumption experience. This makes coffee shops important downstream actors in the coffee value chain because they transform coffee raw materials into ready-to-drink products with higher market value.

One common form of coffee downstreaming at the coffee shop level is the processing of green bean coffee into espresso-based beverages. Espresso, coffee latte, and caramel latte use the same main raw material but differ in formulation, additional inputs, selling price, and consumer segment. Espresso highlights the basic character of coffee and depends strongly on extraction quality. Coffee latte combines espresso with milk, giving a softer flavor profile. Caramel latte adds caramel to the coffee and milk formulation, creating a more differentiated product with a higher selling price and a more complex input structure.

Value-added analysis is needed to determine the economic increase generated from this processing activity. The Hayami method is commonly used in agroindustrial studies because it can measure added value by considering raw material input, output, conversion factor, labor, product price, other input costs, labor income, and profit. It also allows the distribution of value among labor income, other input contribution, and company profit to be examined (Hayami et al., 1987; Hidayat et al., 2012).

Previous research has shown that coffee processing generates different levels of added value depending on the processing stage and method used. Sijabat et al. (2026), in a study on Arabica coffee processing at PT. Dete Kopi Kintamani, found that the Natural Process generated the highest added value at IDR 11,846/kg with a value-added ratio of 40.85%, followed by the Honey Process at IDR 8,673/kg with a ratio of 33.36%, and Full Wash at IDR 8,556/kg with a ratio of 32.91%. Other studies on Arabica coffee processing

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also show that processing activities can increase the economic value of coffee products (Priantara et al., 2016; Wibowo and Palupi, 2022).

In coffee beverage businesses, added value is also influenced by product quality as perceived by consumers. Sulaeman et al. (2024), using the Quality Function Deployment method, found that consumers considered aroma, taste, taste consistency, color, temperature, appearance, portion consistency, cleanliness, product variation, price, and promotion as important attributes of coffee beverages. The same study also identified brewing, grinding, and coffee bean weighing as technical parameters that should be evaluated and improved.

Based on this background, this study aimed to analyze the added value of processing green bean coffee into espresso, coffee latte, and caramel latte at Elok Coffee Shop using the Hayami method. The study also examined the characteristics of value creation in each product by considering output value, input structure, labor contribution, profit, and the relevance of technical quality in sustaining added value.

RESEARCH METHODS

Research Location and Object

This study was conducted at Elok Coffee Shop, a food and beverage business focusing on coffee-based products. The objects of the study were three coffee beverages: espresso, coffee latte, and caramel latte. These products were selected because they use the same main raw material, namely green bean coffee, but differ in selling price, formulation, and additional input costs.

Data Type and Source

This study used a quantitative approach with the Hayami value-added analysis method. The data consisted of output volume, raw material input, labor use, conversion factor, labor coefficient, product selling price, labor wage, raw material cost, other input cost, output value, added value, labor income, profit, and margin.

The main calculation was based on processed field data. The data show that 1 kg of green bean coffee produces 50 cups for each product. The calculation also uses 1 HOK (workday equivalent) of labor, a labor wage of IDR 120,000/HOK, a raw material price of IDR 250,000/kg, and product prices of IDR 20,000/cup for espresso, IDR 30,000/cup for caramel latte, and IDR 25,000/cup for coffee latte.

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Research Variables

The variables analyzed in this study were grouped into three categories. The first category consisted of output, input, and price variables, including output, raw material input, labor, conversion factor, labor coefficient, output price, and labor wage. The second category consisted of revenue and profit variables, including raw material price, other input contribution, output value, added value, value-added ratio, labor income, labor share, profit, and profit rate. The third category consisted of remuneration to production factors, including margin, labor income percentage, other input contribution percentage, and company profit percentage.

Data Analysis

The added value was calculated using the Hayami method. The conversion factor was obtained by dividing output by raw material input. The labor coefficient was obtained by dividing labor input by raw material input. Output value was calculated by multiplying the conversion factor by the output price. Added value was obtained by subtracting raw material cost and other input cost from output value. The value-added ratio was calculated by dividing added value by output value and multiplying it by 100%.

Labor income was calculated by multiplying the labor coefficient by the labor wage. Labor share was calculated by dividing labor income by added value and multiplying it by 100%. Profit was obtained by subtracting labor income from added value, while the profit rate was calculated by dividing profit by added value and multiplying it by 100%. Margin was obtained by subtracting raw material cost from output value. The percentages of labor income, other input contribution, and company profit were then calculated against the margin.

RESULTS AND DISCUSSION

General Description of Elok Coffee Shop

Elok Coffee Shop is a food and beverage business that offers coffee-based products. In the coffee value chain, this business can be positioned as a downstream actor because it processes coffee raw materials into ready-to-drink beverages. The products analyzed in this study were espresso, coffee latte, and caramel latte.

Espresso represents the basic coffee beverage, with product quality strongly influenced by coffee character and extraction precision. Coffee latte is an espresso-based beverage with milk, offering a smoother taste and wider consumer acceptance. Caramel latte is more differentiated because it combines coffee, milk, and caramel, resulting in a

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sweeter flavor profile and a higher selling price. These differences in formulation influence the output value, additional input costs, added value, and profit of each product.

At the coffee shop level, value creation does not only come from the physical transformation of coffee beans into beverages. It is also shaped by barista skill, taste consistency, product variation, service quality, and consumer perception. This is relevant to the findings of Sulaeman et al. (2024), who identified several important coffee beverage attributes, including taste, taste consistency, aroma, variation, price, and promotion.

Added Value Calculation

The Hayami calculation shows that 1 kg of green bean coffee produces 50 cups of espresso, caramel latte, and coffee latte. Therefore, the conversion factor for all three products is 50 cups/kg. Because the output volume is the same, the differences in added value are mainly determined by selling price and other input costs.

Table 1. Added Value Calculation of Coffee Beverage Products at Elok Coffee Shop

No.	Variable	Espresso	Caramel Latte	Coffee Latte
1	Output	50 cups	50 cups	50 cups
2	Raw material input	1 kg	1 kg	1 kg
3	Labor	1 HOK	1 HOK	1 HOK
4	Conversion factor	50 cups/kg	50 cups/kg	50 cups/kg
5	Labor coefficient	1 HOK/kg	1 HOK/kg	1 HOK/kg
6	Output price	IDR 20,000/cup	IDR 30,000/cup	IDR 25,000/cup
7	Labor wage	IDR 120,000/HOK	IDR 120,000/HOK	IDR 120,000/HOK
8	Raw material price	IDR 250,000/kg	IDR 250,000/kg	IDR 250,000/kg
9	Other input contribution	IDR 150,000/kg	IDR 389,000/kg	IDR 275,000/kg
10	Output value	IDR 1,000,000/kg	IDR 1,500,000/kg	IDR 1,250,000/kg
11	Added value	IDR 600,000/kg	IDR 861,000/kg	IDR 725,000/kg

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No.	Variable	Espresso	Caramel Latte	Coffee Latte
12	Added value per cup	IDR 12,000/cup	IDR 17,220/cup	IDR 14,500/cup
13	Value-added ratio	60.00%	57.40%	58.00%
14	Labor income	IDR 120,000/kg	IDR 120,000/kg	IDR 120,000/kg
15	Labor share	20.00%	13.94%	16.55%
16	Profit	IDR 480,000/kg	IDR 741,000/kg	IDR 605,000/kg
17	Profit rate	80.00%	86.06%	83.45%
18	Margin	IDR 750,000/kg	IDR 1,250,000/kg	IDR 1,000,000/kg
19	Labor income to margin	16.00%	9.60%	12.00%
20	Other input contribution to margin	20.00%	31.12%	27.50%
21	Company profit to margin	64.00%	59.28%	60.50%

Source: Processed data (2025).

Output Value

The highest output value was generated by caramel latte at IDR 1,500,000/kg, followed by coffee latte at IDR 1,250,000/kg and espresso at IDR 1,000,000/kg. Since each product produces 50 cups from 1 kg of green bean coffee, this difference is caused by the selling price of each beverage.

Caramel latte has the highest output value because it has the highest selling price, IDR 30,000/cup. This selling price reflects product differentiation through the use of milk and caramel. Coffee latte has an output value of IDR 1,250,000/kg, with a selling price of IDR 25,000/cup. Espresso has the lowest output value because its selling price is IDR 20,000/cup. However, espresso still has an important role because it is the base for other espresso-based beverages.

Added Value and Value-Added Ratio

The highest added value was obtained from caramel latte at IDR 861,000/kg or IDR 17,220/cup. Coffee latte generated IDR 725,000/kg or IDR 14,500/cup, while espresso generated IDR 600,000/kg or IDR 12,000/cup. All products generated positive

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added value, showing that processing green bean coffee into ready-to-drink beverages increases the economic value of the raw material.

In nominal terms, caramel latte generated the highest added value. This result is related to its higher selling price and product differentiation. However, caramel latte also had the highest other input cost at IDR 389,000/kg. Thus, its larger added value was accompanied by a more complex input structure.

The highest value-added ratio was found in espresso at 60.00%, followed by coffee latte at 58.00% and caramel latte at 57.40%. This shows that espresso is the most efficient product in relative terms. Its other input cost was the lowest, IDR 150,000/kg, allowing a larger proportion of output value to become added value.

This result shows that nominal added value and value-added ratio need to be interpreted together. Caramel latte is superior in terms of nominal added value, while espresso is superior in relative efficiency. Coffee latte occupies an intermediate position because it provides higher nominal added value than espresso while maintaining a relatively high value-added ratio.

Labor Income and Labor Share

Labor income was the same for all products at IDR 120,000/kg because each product used 1 HOK/kg with a labor wage of IDR 120,000/HOK. However, labor share differed across products. Espresso had the highest labor share at 20.00%, followed by coffee latte at 16.55% and caramel latte at 13.94%.

The higher labor share of espresso suggests that labor plays a relatively larger role in the distribution of added value. Since espresso uses fewer additional inputs, the role of the barista becomes more visible. The quality of espresso depends on accurate coffee weighing, grinder adjustment, tamping, extraction time, pressure, and consistency in preparation.

This interpretation is supported by Sulaeman et al. (2024), who found that brewing, grinding, and coffee bean weighing were important technical parameters in improving coffee beverage quality. Therefore, labor in coffee shop operations should not be viewed only as a cost component but also as a source of value creation through technical skill and consistency.

A. Profit and Margin

The highest profit was obtained from caramel latte at IDR 741,000/kg, with a profit rate of 86.06%. Coffee latte generated a profit of IDR 605,000/kg with a profit rate of 83.45%, while espresso generated a profit of IDR 480,000/kg with a profit rate of 80.00%.

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Caramel latte was the most profitable product in nominal terms because it had the highest output value and added value. Although it also required the highest other input cost, its selling price was sufficient to generate the largest profit among the three products. Coffee latte also showed good profit performance because it generated higher profit than espresso while requiring lower additional input costs than caramel latte. Espresso generated the lowest nominal profit, but its profit rate remained high and it still had strategic importance as the base product for espresso-based beverages.

The margin analysis also shows different economic characteristics among the products. Caramel latte generated the highest margin at IDR 1,250,000/kg, followed by coffee latte at IDR 1,000,000/kg and espresso at IDR 750,000/kg. In espresso, company profit accounted for 64.00% of the margin, while labor income and other inputs accounted for 16.00% and 20.00%, respectively. In caramel latte, company profit accounted for 59.28% of the margin, while labor income and other inputs accounted for 9.60% and 31.12%. In coffee latte, company profit accounted for 60.50%, labor income for 12.00%, and other inputs for 27.50%.

These distributions show that espresso has the highest company profit share relative to margin because it requires fewer additional inputs. Caramel latte has the highest other input contribution due to the use of more additional ingredients. Coffee latte remains between the two, both in terms of other input contribution and company profit share.

Comparison with Previous Coffee Added-Value Studies

The results of this study can be compared with studies on coffee added value at earlier processing stages. Sijabat et al. (2026) analyzed Arabica coffee processing at PT. Dete Kopi Kintamani and found that Natural Process generated the highest added value at IDR 11,846/kg with a value-added ratio of 40.85%, followed by Honey Process at IDR 8,673/kg with a ratio of 33.36% and Full Wash at IDR 8,556/kg with a ratio of 32.91%.

Similarly, Suputra et al. (2023) found that processing green beans into ground Robusta coffee and blend coffee at CV. Kopi Kak Dukuh produced value-added ratios of 34% and 46%, respectively, supporting the view that further coffee processing can increase product value.

Compared with those results, the added value of ready-to-drink coffee beverages at Elok Coffee Shop is much higher in nominal terms. Espresso generated IDR 600,000/kg, caramel latte generated IDR 861,000/kg, and coffee latte generated IDR 725,000/kg. This difference is reasonable because the two studies analyze different

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stages of the coffee value chain. PT. Dete Kopi processes coffee cherries into green beans, while Elok Coffee Shop processes green bean coffee into beverages sold directly to consumers.

Therefore, the comparison should not be interpreted as a direct efficiency comparison between the two businesses. The unit of output, product form, processing stage, scale, and cost structure are different. A more careful interpretation is that coffee products tend to have greater value-added potential as they move further downstream, especially when the final product includes formulation, service, presentation, brand image, location, and consumer experience.

A similar pattern can still be observed. At PT. Dete Kopi, the Natural Process generated the highest value-added ratio because it had a higher selling price and relatively lower input cost. At Elok Coffee Shop, espresso generated the highest value-added ratio because it required the lowest other input cost, while caramel latte generated the highest nominal added value because it had the highest selling price. This confirms that added value is influenced by the interaction between selling price, input cost, processing characteristics, and product differentiation.

Product Quality as a Supporting Factor of Added Value

The sustainability of added value in coffee beverages depends not only on cost and price structure but also on product quality. Sulaeman et al. (2024) found that consumers considered aroma, taste, taste consistency, color, temperature, appearance, portion consistency, cleanliness, variation, price, and promotion as important coffee beverage attributes.

This finding is relevant to Elok Coffee Shop. Caramel latte generated the highest nominal added value, but this value can only be maintained if the product has consistent taste, attractive appearance, balanced coffee-milk-caramel formulation, and a price that matches consumer perception. Coffee latte requires control over taste, temperature, milk texture, and portion consistency. Espresso requires precise technical control because the coffee character is more dominant and more easily evaluated by consumers who are familiar with coffee quality.

The QFD study also identified brewing, grinding, and coffee bean weighing as technical parameters that need attention. In the context of Elok Coffee Shop, these parameters are closely related to consistency. Without standardized processes, high added value in the calculation may not be fully sustained in the market.

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For this reason, Elok Coffee Shop needs to maintain cost efficiency while strengthening technical quality. Recipe standardization, grinder calibration, espresso machine calibration, ingredient weighing, temperature control, and barista training are important to support consistent product quality. Product variation and promotion also need to be managed so that products with high added value can be accepted by the market.

CONCLUSION

The Hayami value-added analysis shows that processing green bean coffee into espresso, coffee latte, and caramel latte at Elok Coffee Shop generates positive added value for all products. Caramel latte generated the highest added value at IDR 861,000/kg and the highest profit at IDR 741,000/kg. Coffee latte generated an added value of IDR 725,000/kg and profit of IDR 605,000/kg, while espresso generated an added value of IDR 600,000/kg and profit of IDR 480,000/kg.

The highest value-added ratio was found in espresso at 60.00%, followed by coffee latte at 58.00% and caramel latte at 57.40%. These results indicate that espresso is the most efficient product in relative terms, while caramel latte is the strongest product in terms of nominal added value and profit. Coffee latte occupies a balanced position between nominal added value, efficiency, and market appeal.

Compared with Arabica coffee processing into green beans, coffee shop-level processing shows strong potential for added value because the product reaches the final consumption stage. However, sustainable added value requires technical quality control, including brewing, grinding, weighing, taste consistency, product variation, and promotion. Therefore, value-added creation in coffee beverages depends not only on raw material transformation but also on product quality, technical consistency, consumer preference, and product differentiation strategy.

II. SUGGESTIONS

Elok Coffee Shop should maintain caramel latte as a product with the highest added value and profit contribution while controlling additional input costs to preserve profitability. Espresso should also be maintained because it has the highest value-added ratio and serves as the foundation for other espresso-based beverages.

The business should strengthen production standardization, particularly in coffee bean weighing, grinding, and brewing. These technical aspects directly affect taste consistency and product quality. Elok Coffee Shop should also improve product variation,

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promotion, and regular quality evaluation to ensure that the added value generated by its products remains sustainable in the market.

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