Analysis of Full Cost Calculation and Activity-Based Cost Calculation Methods as A Basis for Designing Marketing Strategies for Product Package Pricing

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Abstract

Accurate determination of Cost of Goods Sold (COGS) is a key pillar in setting competitive selling prices for the sustainability of the culinary business. However, Depot Sekar Sari faces the challenge of stagnant monthly revenue due to a conventional cost accounting system based on the owner's intuition, where overhead cost components such as electricity, gas, water, and equipment depreciation have not been allocated proportionally to each menu. To overcome this obstacle, this study compares cost calculations using the Full Costing and Activity Based Costing (ABC) methods. The results of data processing show that the ABC method has a higher level of accuracy in revealing cost distortions compared to the traditional method. The traditional method is proven to trigger overcosting on the main chicken menu with a difference of IDR 3,000–IDR 4,000, and undercosting on the rice and beverage menu with a difference of IDR 141–IDR 1,000. The results of this accurate ABC COGS calculation are then integrated with the STP (Segmentation, Targeting, Positioning) marketing framework to formulate a promotional program strategy in the form of 6 variants of product bundling schemes (family and individual packages) with a 10% package discount. This integrative implementation has proven effective in providing a fair pricing structure for customers while stimulating the average daily transaction value (average transactions per transaction) to increase total profitability and overcome Depot Sekar Sari's financial stagnation.

Keywords: *Activity-Based Costing, Cost of Goods Sold, Consolidated Pricing, Full Costing, STP*

1. Introduction

The rapid growth of the culinary industry amidst global competition demands that business actors adopt more efficient financial management as a prerequisite for business sustainability. One of the main pillars is accuracy in determining selling prices, which essentially comes from the accuracy of calculating the company's production costs. Cost of goods sold (COGS) represents the accumulated costs absorbed in the process of converting raw materials into finished products [1] . In addition to pricing strategies, marketing strategies are an important element in maintaining profitability and competitiveness in the highly competitive culinary industry. One marketing strategy commonly implemented in the culinary industry is product bundling promotions. with discounts, which aim to increase the average transaction value (*Average Transaction*) and the efficiency of raw material use. Determining the optimal bundling price is not only based on market intuition, but also based on an accurate calculation of the Cost of Goods Sold (COGS). This can be done through a Full Costing approach to absorb all production costs, both fixed and variable. In addition, the Activity Based Costing (ABC) method can also be applied to allocate overhead costs. more precisely based on the activities carried out by each product component in the packaging.

Determining the cost of goods sold in the culinary industry is more appropriate using the ABC method because the application of the ABC method allows for the distribution of cost burdens to be

carried out precisely, because it is based on the intensity of actual activity use by each product. This results in a calculation of the cost of goods sold that is more objective, proportional, and reflects actual economic value [2] .

This research focuses on one case study object, namely Depot Sekar Sari, which explicitly limits the external validity *of* the resulting empirical findings. The operational characteristics, menu variations (chicken, rice, and drinks), and the proportion of overhead costs at Depot Sekar Sari reflect a micro-small-scale culinary business entity with traditional management. Although specific quantitative findings (such as the magnitude of overcosting and undercosting) are unique to Depot Sekar Sari, the proposed integrated methodological framework that combines Activity-Based Costing (ABC), Segmenting, Targeting, Positioning (STP) analysis, and product bundling has a generic nature and a high degree of adaptability to be applied to other food service businesses with different characteristics . Depot Sekar Sari is a culinary business that serves the consumption needs of the community with a variety of flagship menus. Depot Sekar Sari faces challenges in managing fluctuating production costs, ranging from unstable raw material prices to other supporting operational costs. In addition to structural issues related to overhead costs, Depot Sekar Sari is currently facing serious financial challenges, with monthly revenues tending to stagnate and remain flat without significant growth. This flat revenue situation is a warning for business sustainability, especially amid fluctuating raw material prices and high daily operational energy costs that continue to pressure the depot's profit margins. This revenue stagnation is strongly suspected to be due to the limited variety of promotional programs and the absence of a package pricing strategy that can encourage consumers to make larger transactions. In addition to accurate cost allocation, Depot Sekar Sari's success in winning the competition in the highly competitive culinary industry also depends heavily on targeted marketing strategies. The use of the STP (segmentation, targeting, and positioning) framework is crucial to ensure that the products offered align with market expectations. In the segmentation stage , the company needs to map consumers based on geographic, demographic, and behavioral characteristics, considering that Depot Sekar Sari's customers come from various backgrounds. Once the market is mapped, the targeting process is carried out. to select the most potential and relevant market segments with production capacity and menu excellence. Finally, through positioning , Depot Sekar Sari can build a unique image or identity in the minds of consumers, whether as a depot with the most competitive prices, a depot with the most authentic taste, or a depot with the fastest service.

Through this research, it is hoped that Depot Sekar Sari will have a scientific and structured calculation reference in determining the Cost of Goods Sold (COGS). With accurate cost information, management can develop more targeted pricing strategies , evaluate the efficiency of each production activity line, and minimize resource waste. The long-term hope is that Depot Sekar Sari can increase its competitiveness and have a strong financial management foundation for future business expansion.

2. Method

This study uses a field research approach at Depot Sekar Sari to directly observe operational activities and resource utilization that have not been previously documented. Primary data was collected through in-depth interviews with the owner and employees to obtain information on fixed costs, variable costs, and production activity duration. The data was then analyzed using the Full Costing and Activity-Based Costing (ABC) methods, followed by Product Bundling using the Segmenting, Targeting, and Positioning (STP) approach. This integrated methodology aims to minimize cost distortions and produce more accurate and competitive Cost of Goods Sold (COGS) estimates.

This research uses primary and secondary data. Primary data was collected directly from the research location through field observations and in-depth interviews with the owner and employees. This data includes information on raw material costs, direct labor costs, electricity and gas costs, and depreciation costs. Secondary data was obtained from company documents and records, as well as books, literature, and previous studies relevant to the research topic. The secondary data includes the Depot Sekar Sari company profile and its cost and sales reports, which serve as supporting information for the analysis.

The collected data was systematically analyzed by integrating traditional and modern cost analysis approaches. This study began with the identification of all production cost components at Depot Sekar Sari, followed by the calculation of Cost of Goods Sold (COGS) using the Full Costing method, which allocates all production costs to products. Next, the Activity-Based Costing (ABC) method was applied to allocate overhead costs more accurately based on the activities that generate them. The COGS results obtained from both methods were then compared and used as the basis for designing a product bundling strategy. At this stage, menu items were grouped based on contribution margin and customer preferences to develop optimal product bundles. Bundle prices were determined by considering cost efficiencies identified through the ABC analysis, ensuring competitive pricing while maximizing profit margins. Finally, the proposed bundling schemes were evaluated to formulate the most effective price optimization strategy for Depot Sekar Sari's management.

To get an overview of the research flow used in the research process, this is shown in Figure 1.

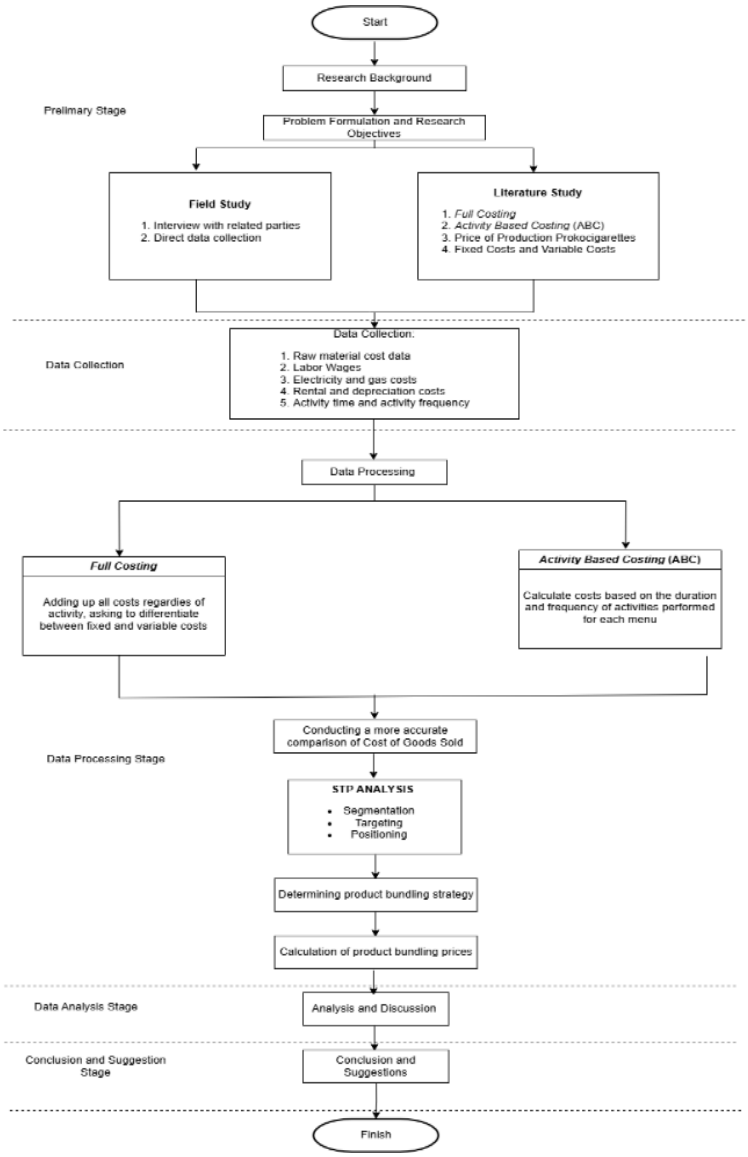


Figure 1. Research Method Flowchart Image1.

1) Cost of goods sold

Inaccurate determination of COGS results in two main risks: loss of potential profits due to selling prices that are too low, or a decrease in sales volume due to selling prices that are too high and

uncompetitive [3] . Therefore, accuracy in cost calculations is very important; without a deep understanding of the actual cost structure, management will have difficulty determining strategic policy directions that are able to balance profitability and business sustainability amidst fierce competition. The full cost method is an approach to calculating production costs that comprehensively includes all cost elements, including raw material costs, direct labor, and factory overhead costs, both fixed and variable [4].

2) Complete Cost Calculation

The full cost method is a production costing approach that comprehensively covers all cost elements, including raw material costs, direct labor, and factory overhead costs, both fixed and variable [5] . The application of this method is very important for management in evaluating the efficiency of using total production capacity. By charging all overhead costs to products, companies can ensure that the selling price set will be able to cover all operational costs.

Referring to the theory presented by [6], the *Full Costing method* is understood as an approach to calculating production costs that integrates all elements of manufacturing costs comprehensively, which include:

1. Raw Material Costs
2. Direct Labor Costs
3. Fixed Overhead Costs
4. Variable Overhead Costs

The following is the formula for calculating production costs using the full cost method:

$$Cost\ of\ Goods\ Sold = Raw\ Material\ Costs + Direct\ Labor\ Costs + Overhead\ Costs \quad (1)$$

3) Activity Based Costing (ABC) Accounting

According to [7], the use of the Activity Based Costing method significantly clarifies the relationship between operations and resource consumption, which ultimately increases overall cost transparency. This facilitates a deeper understanding of the root causes of cost complexity, so that management can optimize key processes. The ABC method is more complex because it uses cost drivers to allocate overhead costs.

a. Calculation of Rate per Cost Driver Unit:

$$Cost\ Driver\ Tarif = \frac{Activity\ Cost}{Total\ Cost\ Driver} \quad (2)$$

b. Allocating Overhead Costs to Products:

$$Assigned\ Overhead\ Costs = Tarif\ Cost\ Driver \times Activity\ Volume \quad (3)$$

c. Cost of Goods Sold (COGS) ABC:

$$Cost\ of\ Goods\ Sold_{ABC} = Raw\ Material\ Costs + Direct\ Labor\ Costs + \sum (Total\ Assigned\ Overhead\ Costs) \quad (4)$$

4) Segmentation, Targeting, and Positioning (STP) Approach

Marketing strategy is a series of planning processes and implementation of organizational policies to achieve company goals that are aligned with its main vision [8] . One of the marketing strategies is STP, which involves market segmentation to identify consumer groups, determine specific target markets, and build a strong brand position so that company goals can be achieved effectively. STP marketing strategy is said to be the essence of strategic marketing. The STP concept includes three steps: segmentation, targeting, and positioning . The STP concept can be explained as follows:

a) Segmentation is the process of dividing or mapping the market into groups of buyers who are estimated to need products according to their needs and desires.

b) Targeting is the activity of evaluating the active attractiveness of each market segment and selecting which segments to target.
c) Placement Placing a product in a company's target market, so that the company's product can compete with similar products from other companies.

5) Package Pricing Strategy

Pricing strategy is a systematic framework designed by a company to determine the nominal value of a product in exchange. This policy is an important instrument because the selling price directly affects the company's bargaining position in the market competition map. In addition, price is a major determinant that determines revenue acquisition and net operating profit [9] . Marketing strategies include product bundling strategies . As a manifestation of this pricing policy, companies can implement marketing strategies through product bundling mechanisms. This strategy is carried out by combining two or more products or services in one sales package with a price level that is more competitive than the total unit price of the product. A bundled pricing strategy is understood as a marketing approach in which a collection of different products is combined into one offering package with a certain price scheme. Although organically each product has an independent market segmentation, this integration is carried out strategically to create synergies that can optimize the attractiveness of the offering in the eyes of consumers [10] .

$$Bundle\ Price = [100\% - discount\ bundle\%] \times \sum_{i=1}^{l} \quad (COGS + margin) \qquad (5)$$

3. Results and Discussion

1) Complete Cost Calculation

The cost of goods manufactured is obtained by integrating all cost components from the collected data. This accumulation includes Raw Material Costs (BBB), Direct Labor Costs (BTKL), and Factory Overhead Costs (BOP), all of which have been classified in detail in the previous chapter. The calculation of the cost of goods manufactured using the full costing method is applied to three main food products: grilled rujak chicken (product 1), grilled soy sauce chicken (product 2), and fried chicken (product 3), as well as two beverage menus consisting of iced tea (product 4) and iced orange juice (product 5), and a rice menu (product 6). Detailed calculations are given in Table 1-3.

Table 1. Product Cost Calculation for (a) Product 1 and (b) Product 2

Types od cost	Cost (Rp)	Total (Rp)
Raw Material Cost		
Chicken	22.500.000	
Spice	5.000.000	
Oil	1.000.000	
Total Cost Of Raw Material		28.500.000
Direct Labor Cost		
Kitchen Staff Salary	5.900.000	
Total Direct Labor Cost		5.900.000
Fixed Overhead Costs		
Electricity and water	655.000	
Equipment depreciation	139.833	
Total Fixed Overhead Cost		794.833
Variabel overhead cost		
Gas	495.000	
Packaging Cost	1.500.000	
Ancillary cost	2.102.000	
Total variable overhead cost		4.097.000
Total Production Cost		39.291.833
Quantity produced		500
Cost of goods sold per unit		78.500

(a)

Types od cost	Cost (Rp)	Total (Rp)
Raw Material Cost		
Chicken	22.500.000	
Spice	4.000.000	
Oil	1.000.000	
Total Cost Of Raw Material		25.500.000
Direct Labor Cost		
Kitchen Staff Salary	5.500.000	
Total Direct Labor Cost		5.500.000
Fixed Overhead Costs		
Electricity and water	610.000	
Equipment depreciation	139.833	
Total Fixed Overhead Cost		749.833
Variabel overhead cost		
Gas	460.000	
Packaging Cost	1.500.000	
Ancillary cost	2.102.000	
Total variable overhead cost		4.062.000
Total Production Cost		35.811.833
Quantity produced		500
Cost of goods sold per unit		71.500

(b)

Table 2. Product Cost Calculation for (a) Product 3 and (b) Product 4

Types od cost	Cost (Rp)	Total (Rp)
Raw Material Cost		
Chicken	22.500.000	
Spice	3.500.000	
Oil	2.000.000	
Total Cost Of Raw Material		28.000.000
Direct Labor Cost		
Kitchen Staff Salary	5.500.000	
Total Direct Labor Cost		5.500.000
Fixed Overhead Costs		
Electricity and water	610.000	
Equipment depreciation	139.833	
Total Fixed Overhead Cost		749.833
Variabel overhead cost		
Gas	460.000	
Packaging Cost	1.500.000	
Ancillary cost	2.102.000	
Total variable overhead cost		4.062.000
Total Production Cost		38.311.833
Quantity produced		500
Cost of goods sold per unit		76.500

(a)

Types od cost	Cost (Rp)	Total (Rp)
Raw Material Cost		
Ta bag	160.000	
Sugar	288.000	
Ice	130.000	
Total Cost Of Raw Material		578.000
Direct Labor Cost		
Kitchen Staff Salary	1.500.000	
Total Direct Labor Cost		1.500.000
Fixed Overhead Costs		
Electricity and water	100.000	
Total Fixed Overhead Costs		100.000
Variabel overhead cost		
Packaging Cost	400.000	
Total variable overhead cost		400.000
Total Production Cost		2.578.000
Quantity produced		800
Cost of goods sold per unit		3.500

(b)

Table 3. Product Cost Calculation for (a) Product 5 and (b) Product 6

Types od cost	Cost (Rp)	Total (Rp)
Raw Material Cost		
Orange	1.000.000	
Sugar	288.000	
Ice	130.000	
Total Cost Of Raw Material		1.418.000
Direct Labor Cost		
Kitchen Staff Salary	1.500.000	
Total Direct Labor Cost		1.500.000
Fixed Overhead Costs		
Electricity and water	100.000	
Total Fixed Overhead Costs		100.000
Variabel overhead cost		
Packaging Cost	400.000	
Total variable overhead cost		300.000
Total Production Cost		3.318.000
Quantity produced		600
Cost of goods sold per unit		5.500

(a)

Types od cost	Cost (Rp)	Total (Rp)
Raw Material Cost		
Rice	900.000	
Water	100.000	
Pandan	100.000	
Total Cost Of Raw Material		1.100.000
Direct Labor Cost		
Kitchen Staff Salary	1.000.000	
Total Direct Labor Cost		1.000.000
Fixed Overhead Costs		
Electricity and water	150.000	
Total Fixed Overhead Costs	200.000	
	139.833	
		489.833
Variabel overhead cost		
Packaging Cost		
Total variable overhead cost		
	500.000	
Total Production Cost		500.000
Quantity produced		
Cost of goods sold per unit		3.089.833

(b)

2) Activity-Based Costing

The process of calculating the cost of goods sold (COGS) uses the activity-based costing method. The ABC method is carried out through four systematic stages. For the first product (grilled chicken rujak), the first stage begins by identifying monthly direct cost components that absorb a total cost of Rp46,500,000. This value includes the purchase of the main raw material in the form of 500 chickens (Rp22,500,000), the procurement of seasoning packages and monthly complementary ingredients (Rp6,000,000), and wages for 9 kitchen workers (Rp18,000,000). The second stage involves collecting indirect costs or overhead costs. for a monthly period with a total value of Rp5,139,833. This balance sheet allocates expenses for electricity and water costs of Rp2,000,000, gas costs of Rp1,500,000, packaging costs of Rp1,500,000, and kitchen asset depreciation costs of Rp139,833. It is determined to calculate the rate per unit of activity and allocate it to the cost pool. Based on monthly activity, the cost drivers are determined in the form of kitchen working hours of 200 hours to allocate electricity and water costs, gas volume of 250 m^3 , number of packages of 1,000 pcs, and estimated equipment usage for 100 hours for depreciation costs. By dividing the activity cost by the total cost drivers, the appropriate activity unit rate is obtained, namely the gas rate of Rp6,000/ m^3 , The packaging rate is Rp3,000/piece, and the depreciation rate is Rp1,398/hour. Through this proportional calculation, the entire accumulated overhead cost of Rp5,139,833 was successfully traced and accurately charged to the cost structure of

the Ayam Panggang Rujak product. The other five products (products 2 to 6) were calculated using the same procedure. A summary of the COGS calculation using ABC can be seen in Table 4-6.

Table 4. ABC Cost Calculation for Product 1: Grilled Chicken Rujak and Product 2: Grilled Chicken with Soy Sauce

Information	Cost amount (Rp)	Total
Raw material cost		
Chicken	22.500.000	
Spice	5.000.000	
Oil	1.000.000	
Total raw material cost		28.500.000
Direct labor cost		
Kitchen employe salary	5.870.000	
Total direct labor cost		5.870.000
Overhead cost		
Dark our electricity cost	2.000.000	
Gas fees	650.000	
Packaging cost	490.000	
Depresiation cost	139.833	
Total variable overhead cost		3.279.833
Total Production Cost		37.649.833
Quantity produced		500
Cost of goods sold per unit		75.500

Information	Cost amount (Rp)	Total
Raw material cost		
Chicken	22.500.000	
Spice	4.000.000	
Oil	1.000.000	
Total raw material cost		25.500.000
Direct labor cost		
Kitchen employe salary	5.450.000	
Total direct labor cost		5.450.000
Overhead cost		
Dark our electricity cost	605.500	
Gas fees	455.000	
Packaging cost	1.500.000	
Depresiation cost	139.833	
Total variable overhead cost		2.700.333
Total Production Cost		33.650.000
Quantity produced		500
Cost of goods sold per unit		67.500

Table 5. ABC Cost Calculation for Product 3: Fried Chicken and Product 4: Iced Tea

Information	Cost amount (Rp)	Total
Raw material cost		
Chicken	22.500.000	
Spice	3.500.000	
Oil	2.000.000	
Total raw material cost		28.000.000
Direct labor cost		
Kitchen employe salary	5.450.000	
Total direct labor cost		5.450.000
Overhead cost		
Dark our electricity cost	605.500	
Gas fees	455.000	
Packaging cost	1.500.000	
Depresiation cost	139.833	
Total variable overhead cost		2.700.333
Total Production Cost		36.150.333
Quantity produced		500
Cost of goods sold per unit		72.500

Keterangan	Besar Biaya (Rp)	Jumlah
Raw material cost		
Tea, sugar, ice	960.000	
Total raw material cost		960.000
Direct labor cost		
Kitchen employe salary	1.500.000	
Total direct labor cost		1.500.000
Overhead cost		
Dark our electricity cost	250.000	
Gas fees	150.000	
Packaging cost	480.000	
Depresiation cost	40.000	
Total variable overhead cost		920.000
Total Production Cost		3.380.000
Quantity produced		800
Cost of goods sold per unit		4.500

Table 6. ABC Costing for Product 5: Orange Juice and Product 6: Rice

Keterangan	Besar Biaya (Rp)	Jumlah
Raw material cost		
Orange, sugar, ice	1.500.000	
Total raw material cost		1.500.000
Direct labor cost		
Kitchen employe salary	1.500.000	
Total direct labor cost		1.500.000
Overhead cost		
Dark our electricity cost	250.000	
Gas fees	150.000	
Packaging cost	360.000	
Depresiation cost	40.000	
Total variable overhead cost		800.000
Total Production Cost		3.800.000
Quantity produced		600
Cost of goods sold per unit		6.500

Keterangan	Besar Biaya (Rp)	Jumlah
Raw material cost		
Rice	900.000	
Complementary ingredients	200.000	
Total raw material cost		1.100.000
Direct labor cost		
Kitchen employe salary	420.000	
Total direct labor cost		420.000
Overhead cost		
Dark our electricity cost	47.000	
Gas fees	35.000	
Packaging cost	1.500.000	
Depresiation cost	139.833	
Total variable overhead cost		1.721.833
Total Production Cost		3.241.000
Quantity produced		1.000
Cost of goods sold per unit		3.241

The result for the full costing and activity-based costing (ABC) methods are obtained, which are presented in the Table 7.

Table 7. Recapitulation of calculation results

Menu	Existing COGS	*Full costing* COGS	ABC COGS	Difference (Rp)	Price Distortion
Grilled Chicken Rujak	Rp 93,000	Rp 107,500	Rp 104,000	+3,500	Overcosting
Grilled Chicken Soy Sauce	Rp 87,000	Rp 101,500	Rp 97,500	+4,000	Overcosting
Fried chicken	Rp 92,000	Rp 106,500	Rp 102,500	+4,000	Overcosting
Ice Tea	Rp 2,598	Rp 3,500	Rp 4,500	-1,000	Undercosting
Orange juice	Rp 4,863	Rp 5,500	Rp 6,500	-1,000	Undercosting
Rice	Rp 2,100	Rp 3,100	Rp 3,241	-141	Undercosting

Based on the calculation results, there is a difference in COGS between the Full Costing and Activity Based Costing (ABC) methods. The full costing method tends to produce higher COGS compared to the existing method, which is caused by the even distribution of overhead costs. Therefore, the ABC method was chosen because it can precisely track overhead costs based on actual activities, thereby avoiding the distortion of overcosting or undercosting. ABC calculations show that the current selling price is still too low. The main focus of the ABC method is not to find the lowest cost, but rather to see how far the ABC method is able to analyze the COGS structure in identifying and charging overhead costs proportionally.

Compared to existing conditions, the selling price set by restaurants is currently too low, indicating hidden losses. The accuracy of the COGS value then becomes the reference for the floor price in determining Pricing , especially in designing Product Bundling strategies so that the price of the promotional package offered still produces a safe profit margin. Furthermore, this figure is aligned with the STP (segmenting, targeting, positioning) strategy to ensure that the selling price is set in accordance with the purchasing power of the targeted market and has the right competitiveness in the market.

3) STP Analysis and Product Bundling

The STP approach is used to guide the implementation of product bundling strategies:

a) Segmentation

This market is grouped geographically into the Magersari District community, Mojokerto; demographically into groups of daily workers and families; and behaviorally into consumers who prioritize high economic value (perceived value).

b) Targeting

The primary target groups are families (communities) and office workers. These segments were chosen because they exhibit high-volume purchasing behavior, which is effective in stimulating the depot's daily sales volume.

c) Placement

Depot Sekar Sari positions itself as a "Traditional Family Culinary Restaurant with Fair & Scientific Pricing." This strategy builds a unique image in the minds of consumers that the price of the promotional package offered is considered fair and equitable because it is calculated scientifically based on accurate tracking of real activity costs (ABC method), not just relying on the owner's intuition or imitating competitors.

Before determining the package price , a target profit margin is first established to determine the normal unit selling price. Based on general culinary industry standards, the target margin is set at 25% for food products (chicken and rice) and 40% for beverages. The formula for determining the normal unit selling price is given by Equation 6.

$$Normal\ Selling\ Price = ABC\ COGS + (ABC\ COGS \times\ Margin\%) \quad (6)$$

Table 8. Recapitulation *of product bundling*

Package Name	Package Contents Details	Normal Price	Bundling Price	Discount
Package 1	1 Roasted Chicken with Rujak + 4 Rice + 4 Orange Juices	Rp182,400	Rp. 164,000	10%
Package 2	1 Grilled Chicken with Soy Sauce + 4 Rice + 4 Iced Teas	Rp163,200	Rp. 147,000	10%
Package 3	1 Fried Chicken + 4 Rice + 4 Iced Tea	Rp169,200	Rp. 152,000	10%

Package Name	Package Contents Details	Normal Price	Bundling Price	Discount
Package 4	1/4 Roasted Chicken Rujak + 1 Rice + 1 Orange Ice	Rp. 45,600	Rp. 41,000	10%
Package 5	1/4 Grilled Chicken with Soy Sauce + 1 Rice + 1 Iced Tea	Rp. 40,800	Rp. 37,000	10%
Package 6	1/4 Fried Chicken + 1 Rice + 1 Iced Tea	Rp. 42,300	Rp. 38,000	10%

To validate the advantages of the activity-based costing (ABC) method quantitatively compared to the full costing method, a cost distortion analysis was conducted as well as a simulation of the financial impact on the profitability of Depot Sekar Sari.

a. Cost Distortion

The cost distortion rate is calculated to measure how much the traditional full costing method overcosts or undercosts a product's actual cost of goods sold (COGS). The distortion percentage is calculated using the formula given by Equation 7.

$$Cost\ Distortion\ Rate\ (\%) = \frac{COGS\ Full\ Costing - COGS\ ABC}{COGS\ ABC} \times 100\% \quad (7)$$

1. Main Menu (Chicken): The full costing method resulted in an overcosting of 3.97% on the Roasted Chicken with Rujak (a difference of Rp3,000), 5.93% on the Roasted Chicken with Soy Sauce (a difference of Rp4,000), and 5.52% on the Fried Chicken (a difference of Rp4,000). This proves that the traditional method imposes too high overhead on the main product, thus risking making the selling price uncompetitive in the market.
2. Supporting Menu (Rice & Beverages): In contrast, the full costing method experienced undercosting of -4.67% on Rice (difference -Rp151), -22.22% on Iced Tea (difference -Rp1,000), and -15.38% on Orange Juice (difference -Rp1,000). Significant undercosting in the beverage category indicates that the traditional method conceals the real consumption of overhead resources, thereby eroding the actual profit margin without management realizing it. Supporting Menu (Rice & Beverages): In contrast, the Full Costing method experienced undercosting of -4.67% on Rice (difference -Rp151), -22.22% on Iced Tea (difference -Rp1,000), and -15.38% on Orange Juice (difference -Rp1,000). Significant undercosting in the beverage category indicates that the traditional method conceals the real consumption of overhead resources, thus eroding the actual profit margin without management realizing it.

b. Increase in Selling Price

Bundling-based pricing strategies, a monthly financial performance comparison simulation was conducted between existing conditions (traditional/intuitive pricing) and the implementation conditions of the ABC bundling package.

Based on historical sales data of an average of 500 chicken portions/month:

1. Existing Conditions: Average Total Monthly Revenue is around Rp42,500,000 with an estimated Total Gross Profit Margin of Rp8,500,000 (effective margin ~20%).
2. Post-Implementation Simulation of ABC Package (Conservative Scenario): With the transfer of 40% of single unit sales to Bundling Packages (designed to increase average transaction value), the Total Revenue projection increases to Rp48,200,000 (up 13.4%). Each package calculated from the accurate ABC COGS still secures an average net profit margin of 22.5% despite being given a 10% package discount.

c. Sensitivity Analysis

Sensitivity testing was conducted on a scenario of a 10% increase in the price of key raw materials (chicken and spices). The analysis showed that the ABC-based bundling pricing structure could still tolerate the increase in raw material costs while maintaining a minimum profit margin of 14.2% without requiring a sudden increase in the package's

selling price. This confirms that the ABC-based pricing framework provides superior financial robustness for the business .

From the calculations above, we get a summary table for determining the selling price after product bundling as follows:

Table 9. Summary of selling price determination

Product Menu	Cost of Goods Sold (COGS) based on ABC	Target Margin (%)	Selling Price Calculation	Normal Selling Price
Chicken P. Rujak	Rp 75,500	25%	Rp 75,500 + 18,875	Rp 94,500
Chicken P. Soy Sauce	Rp 67,500	25%	Rp 67,500 + 16,875	Rp 84,500
Fried chicken	Rp 72,500	25%	Rp 72,500 + 18,125	Rp 90,500
Rice	Rp 3,241	25%	Rp 3,241+810	Rp 4,000
Iced tea	Rp 4,500	40%	Rp 4,500+1,800	Rp 6,300
Orange juice	Rp 6,500	40%	Rp 6,500+2,600	Rp 9,100

In accordance with the marketing strategy designed to reach the communal/family consumer segment, a sales package is formulated with a 10% discount incentive (*package price*). The normal price calculation for Package 1 is given below.

$$\sum_{i=1}^{I} (COGS + Margin) = Rp94.500 + (4 \times Rp4.000) + (4 \times Rp9.100)$$

$$Normal\ Price\ for\ Package\ 1 = Rp94.500 + Rp16.000 + Rp36.400 = Rp146.900$$

Meanwhile, the package price calculation for package 1 (with a 10% discount) is calculated as follows:

$$Bundle\ Price\ Package\ 1 = [100\% - 10\%] \times Rp146.900 = Rp132.210$$

The price for this package has been rounded to Rp 132,000 for ease of transaction. The calculations for all packages are summarized in Table 7.

Table 7. Summary of Product Merger Calculations for All Packages

No.	Package	Detailed Menu	Normal Price	Bundling Price
1.	Package 1	4 Rice, 4 Iced Tea, 1 Grilled Chicken Rujak	Rp. 146,900	Rp. 132,000
2.	Package 2	4 Rice, 4 Iced Tea, 1 Grilled Chicken with Soy Sauce	Rp. 125,700	Rp. 113,000
3.	Package 3	4 Rice, 4 Iced Tea, 1 Fried Chicken	Rp. 131,700	Rp. 118,500
4.	Package 4	1 Rice, 1 Orange Juice, 1/4 Grilled Chicken Rujak	Rp. 36,700	Rp. 33,000
5.	Package 5	1 Rice, 1 Iced Tea, 1/4 Grilled Chicken in Soy Sauce	Rp. 31,400	Rp. 28,000
6.	Package 6	1 Rice, 1 Iced Tea, 1/4 Fried Chicken	Rp. 32,900	Rp. 30,000

4. Conclusion

The results of the study indicate that the traditional Full Costing method causes cost distortion by overcharging the main menu item (chicken dish) and undercharging supporting items such as rice and beverages due to the uniform allocation of overhead costs. This distortion reduces the price competitiveness of the main menu item while potentially lowering profit margins on supporting items. In contrast, the Activity-Based Costing (ABC) method provides a more accurate allocation of overhead costs based on actual resource consumption, resulting in a more reliable calculation of Cost of Goods Sold (COGS). The ABC results are then integrated with the Segmentation, Targeting, and Positioning (STP) strategy to support pricing decisions and improve revenue performance. Based on customer segments and contribution margins, six product bundle packages with a 10% discount were developed for family and individual customers. These bundles offer competitive prices while maximizing profitability through more accurate cost information. Overall, the integration of ABC and product

bundling provides an effective pricing strategy that improves cost accuracy, strengthens market competitiveness, and supports sustainable profit growth for Depot Sekar Sari.

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