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Development of a Cost of Goods Manufactured (COGM) for UMKM Rujak Manis Pak Imam Surabaya

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Abstract:
The purpose of this study is to develop a comprehensive Cost of Goods Manufactured (COGM) model for UMKM Rujak Manis Pak Imam in Surabaya, with the aim of providing accurate unit-cost information to support pricing and operational decisions. Data were collected through direct observation of production processes, detailed recording of raw material usage, labor time studies, and allocation of manufacturing overhead using the full costing approach. Raw materials accounted for 81 percent of total costs, direct labor comprised 11 percent, and manufacturing overhead represented the remaining 8 percent. The resulting COGM calculation reveals a production cost of Rp 16.354 per portion of rujak manis. This unit-cost figure enables the business to set competitive selling prices, target desired profit margins, and identify opportunities for cost control—particularly in raw material procurement and labor efficiency. By implementing the developed COGM model, UMKM Rujak Manis Pak Imam can enhance financial transparency, improve decision-making, and strengthen its long-term sustainability in the traditional culinary

Keywords: Cost of Goods Manufactured, Raw Materials, Direct Labor, Manufacturing Overhead

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economy, particularly in the traditional culinary sector such as rujak manis. However, many MSME actors still lack an understanding of the importance of accurately calculating the Cost of Goods Manufactured (COGM). This lack of knowledge may lead to inappropriate pricing, reduced competitiveness, and potentially, financial losses. For instance, the MSME “Rujak Manis Pak Imam" in Surabaya has not fully implemented the Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM) in its financial reporting. The financial statements prepared are still basic and do not comprehensively reflect all components of production costs, such as raw material costs, direct labor, and factory overhead. This highlights the need to improve knowledge and application of precise COGM calculations to support business sustainability (Haliza et al., 2024).

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Small enterprises often employ a simple cash-based recording system to track all cash inflows and outflows. In practice, every cash receipt—such as cash sales of rujak manis products, owner capital contributions, or short-term loans—is recorded on the cash receipts side (debit) of the daily cash book. Conversely, each cash disbursement—including the purchase of fruit raw materials, daily labor wages, and operating expenses such as transportation—is entered on the cash payments side (credit). By recording transactions chronologically and categorizing them by type, business owners can quickly determine the day's ending cash balance, maintain liquidity, and avoid errors when making payments (Fauzan & Irfan, 2024).

Because the focus is on cash recording, small enterprises using this method do not calculate the cost of goods manufactured using full costing. They typically record raw-material costs and direct wages as ordinary cash outflows, without separating overhead components or allocating fixed costs to each unit produced. As a result, the financial statements generated resemble a simple cash-flow report rather than a production-cost-based profit and loss statement (Musriyah & Anita Carolina, 2024). Although this approach simplifies daily cash management, business owners should be aware that per-unit profit margin information may be less accurate, and thus pricing decisions and long-term cost control require additional analysis beyond the cash records.

Accourding to Simamora et al., (2024) recording transactions on a cash basis indeed simplifies daily cash-flow monitoring and helps ensure adequate liquidity. However, this method only shows total receipts and disbursements without breaking down the cost contribution of each product unit. Consequently, business owners find it difficult to assess how raw materials, direct labor, and overhead costs affect the per-unit cost of goods sold. Without a detailed understanding of cost components, pricing decisions tend to rely on estimates, making per-unit profit margins less accurate and increasing the risk of under- or over-pricing.

Therefore, business owners need to transition to a full costing–based Cost of Goods Manufactured (COGM) calculation to obtain an accurate picture of actual costs. With the full costing method, all cost components—raw materials, direct labor, and manufacturing overhead—are accumulated and allocated to each unit produced. This approach not only supports the determination of competitive and profitable selling prices but also enables more effective cost control, identification of inefficiencies, and more informed production planning and business strategy (Yuniar et al., 2025).

The full costing method has been proven to yield more accurate COGM results compared to other methods. This approach includes all components of production costs and thus provides a strong foundation for pricing decisions and business strategies within MSMEs. Implementing the full costing method is essential for micro businesses to accurately determine the total cost of production. This approach allocates all costs—including direct materials, direct labor, and both fixed and variable overhead—to each unit produced, providing a comprehensive view of production expenses. Such detailed cost information is crucial for setting appropriate selling prices, ensuring profitability, and making informed business decisions (Kalsum et al., 2021).

For instance, a study on demonstrated Rujak Manis Pak Imam that using the full costing method revealed significant differences in the cost of goods produced compared to other methods. By accounting for all production costs, the business could more accurately determine its pricing strategy, leading to improved profitability. The research highlighted that the full costing method provided a more precise calculation of production costs, which is vital for micro businesses aiming to enhance their financial performance.

Full costing is indispensable for micro businesses because it allocates all production costs—raw materials, direct labor, and manufacturing overhead—to each unit produced,

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providing a complete picture of total expenses. By including these three components, small enterprises can accurately capture the full cost structure of their operations, which is critical for setting competitive selling prices and safeguarding profit margins. (Fauzan & Irfan, 2024) emphasize that a full costing approach ensures that raw material costs, labor expenses, and overhead charges are fully absorbed into product costs, thereby preventing under- or over-pricing and enhancing cost control in resource-constrained setting.

In practice, Haliza et al., (2024) demonstrate how a micro enterpriseapplied full costing by classifying costs into raw materials, direct labor, and factory overhead to calculate the unit cost of T-shirt production. This classification enabled the business to determine an accurate cost per unit, inform pricing strategies, and improve overall profitability. Their findings highlight that attention to these three cost components not only enhances financial transparency but also supports more informed managerial decisions in micro-scale operations. Therefore, it is essential for rujak manis MSMEs to understand and apply COGM calculations that comply with accounting standards. Doing so not only assists in determining competitive selling prices but also enhances operational efficiency and business sustainability. Based on the background that has been compiled, the problem formulations in this study are as follows

a. How can an application be designed and developed to calculate the cost of production and generate income statements for UMKM Pak Imam using Full Costing?

LITERATURE REVIEWS

1) Cost Accounting

Cost Accounting is the process of recording, classifying, analyzing, summarizing, and allocating the costs associated with producing goods or providing services. Its primary objectives are to determine the cost of products or services accurately, to control and reduce costs, and to support management in planning, budgeting, and decision-making. By tracing every element of cost—raw materials, direct labor, and manufacturing overhead—cost accounting provides detailed insight into where resources are consumed and how efficiencies can be improved (Mulyadi, 2014).

2) Cost of Goods Manufactured (COGM)

Cost of Goods Manufactured (COGM) is the total production cost of goods completed during a specific period. It represents the accumulation of all manufacturing costs—direct materials, direct labor, and manufacturing overhead—added to the beginning Work-in-Process (WIP) inventory and reduced by the ending WIP inventory. Accouring to (Mulyadi, 2014) COGM is a key input for preparing the Cost of Goods Sold in the income statement and provides critical insight into production efficiency and cost control. Components of COGM is :

a. Direct Materials Used

Direct Materials Used are the raw materials and components that become an integral part of a finished product and whose costs can be directly and conveniently traced to that specific good. These materials are physically incorporated into the product during the manufacturing process and their usage can be measured on a per-unit basis.

b. Direct Labor

Direct Labor refers to the wages and related benefits of the workforce directly involved in converting raw materials into finished goods. This labor is physically traceable to

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individual units of production and its cost varies with the level of output, making it a key variable component in product costing.

c. Manufacturing Overhead

Manufacturing Overhead comprises all production-related costs that cannot be directly traced to specific units of product. This includes indirect materials (e.g., lubricants, cleaning supplies), indirect labor (e.g., supervisors, maintenance staff), and other factory expenses such as utilities, depreciation of equipment, and factory rent. Because these costs support the overall manufacturing process rather than individual products, they are allocated to units produced using a chosen basis (e.g., machine hours or labor hours) to ensure each unit absorbs its fair share of overhead.

3) Costing Methods

Two main methods are identified based on (Mulyadi, 2018):

a. Absorption Costing (Full Costing)
   Under absorption costing, all manufacturing costs—direct materials, direct labor, variable overhead, and fixed overhead—are assigned to each unit produced. Fixed overhead costs (e.g., factory rent, equipment depreciation) remain in inventory until the goods are sold, ensuring compliance with external reporting standards such as IFRS. This method provides a complete picture of product costs and is required for external financial statements, but it may obscure the behavior of fixed costs in short-term decision making.
b. Variable Costing (Direct or Marginal Costing)
   Variable costing includes only the costs that vary with production volume—direct materials, direct labor, and variable overhead—in unit cost calculations. Fixed manufacturing overhead is treated as a period expense and charged in full against the revenue of that period. This approach offers clearer insights into the incremental cost and contribution margin of each unit, making it valuable for internal decision-making, pricing, and break-even analysis, though it cannot be used for external reporting under IFRS

RESEARCH METHODOLOGY

This study employs a descriptive qualitative approach. According to Sugiyono, (2018) In employing a descriptive qualitative design, the researcher acts as the primary instrument of data collection and analysis, engaging in iterative cycles of coding and thematic development to identify salient categories and relationships. Findings are presented in the form of thick descriptions—comprehensive depictions of settings, participants' perspectives, and interactions—that enable readers to understand the phenomenon's nuances and assess the transferability of the results to other contexts

Based on (Musriyah & Anita Carolina, 2024) the research focuses on financial transactions such as :

a. Raw Materials is Seasonal fruits (e.g., mangoes, jicama, pineapple, cucumber) purchase price per kg of each fruit ; Sweet and sour sauce ingredients such as palm sugar, tamarind, chili, salt, water ; Packaging materials such as plastic cups, bamboo skewers, cling wrap
b. Direct Labor is Preparation labor (Hours spent washing, peeling, slicing fruits ; Assembly labor (Time to arrange fruit and sauce in serving cups/skewers portioning and serving ; Cleaning and maintenance – Time spent cleaning equipment and work area
c. Manufacturing Overhead is Utilities such as Electricity for refrigeration and lighting, water for washing ; Depreciation of equipment such as Knife,

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cutting board, refrigerator (allocated monthly) ; Rent and facility costs such as stall or kiosk rental per month

RESULTS AND DISCUSSION

Based on the January 2024 cash report, data pertaining to raw materials, direct labor, and manufacturing overhead used in the calculation of the cost of goods manufactured for Pak Imam's Rujak Manis were obtained :

a. Raw Materials is Seasonal fruits e.g., Mango, Cucumber, Pineapple, Water, Apple, Ambarella, Green papaya, Peanuts, Tamarind, Palm sugar, Salt, Granulated sugar, Flavor enhancer (MSG), Fried garlic, Chilli
b. Direct Labor is 1 person who preparation labor (Hours spent washing, peeling, slicing fruits Assembly labor, Time to arrange fruit and sauce in serving cups/skewers portioning and serving ; Cleaning and maintenance
c. Manufacturing Overhead is Utilities such as Electricity for refrigeration and lighting, water for washing ; Depreciation of equipment such as Knife, cutting board, refrigerator (allocated monthly) ; Rent and facility costs such as stall or kiosk rental per month

According to PSAK 14 (Ikatan Akuntan Indonesia, 2018) on Inventories, the cost of goods manufactured comprises all fair acquisition costs of inventories, namely: Direct raw material costs: all acquisition costs of materials that become integral parts of the product. Direct labor costs: wages and benefits of employees directly involved in the production process. Manufacturing overhead costs: indirect costs incurred in the factory, such as electricity, water, rent, depreciation, and packaging costs. All of the above costs are recognized as part of inventories on the balance sheet until the finished goods are ready for sale, and are only recognized as cost of goods sold in the income statement when the sale occurs (Mulyadi, 2018). The following is the calculation of the cost of goods manufactured for Pak Imam's Rujak Manis:

Rujak Manis Pak Imam

Calculation of Cost of Goods Manufactured

Raw material	
Mango	1,620,000
Cucumber	450,000
Pineapple	1,800,000
Water apple	2,100,000
Ambarella	2,150,000
Green papaya	1,170,000
Peanuts	1,500,000
Tamarind	450,000
Palm sugar	1,200,000
Salt	60,000
Granulated sugar	720,000
Flavor enhancer (MSG)	540,000
Fried garlic	1,200,000
Chilli	2,350,000
Total Raw Material	**17,310,000**

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Direct Labor	**2,250,000**
Manufacturing Overhead	
Electricity cost	300,000
Water cost	100,000
Rental cost	1,000,000
Packaging cost	200,000
Cart depreciation expense	100,000
Total Manufacturing Overhead	**1,700,000**
Total Raw Material + Direct Labor + Manufacturing Overhead	**21,260,000**
Manufacturing per Day	**16,354**

Table 1
Calculation Cost of Goods Manufactured

Raw Material Cost Analysis the total monthly expenditure for raw materials amounts to IDR 17,310,000. The highest cost components are bird's eye chilies (IDR 2,350,000), water apples (IDR 2,100,000), and ambarella (IDR 2,150,000), indicating that the primary ingredients of rujak—fresh fruits and spices—account for approximately 81 % of total raw material costs. Under the Financial Accounting Standards (SAK), raw material purchases are initially recorded at their acquisition cost (including freight and handling) and subsequently issued to production using the First-In, First-Out inventory method. Direct Labor Cost Analysis, direct labor costs amount to IDR 2,250,000. This represents the monthly wage expense for one worker responsible for preparing the rujak, including all directly attributable payroll and benefits, which is allocated in full to the calculation of the cost of goods manufactured. Under Standar Akuntaansi Keuangan, this cost component must encompass all employee remuneration that can be directly attributed to production activities. Manufacturing overhead analysis, manufacturing overhead is allocated to products on a proportional basis. According to SAK, the chosen allocation method—for example, based on daily labor hours—must be documented consistently. The cart depreciation expense of IDR 100,000 reflects the allocation of fixed-asset depreciation to the cost of goods manufactured, in accordance with PSAK 16.

Total Cost of Goods Manufactured

Total COGM=

Raw Materials	Rp. 17,310,000
Direct Labor	Rp. 2,250,000
Overhead	Rp, 1,700,000
	Rp. 21,260,000

Assuming 1,300 portions produced per month, the cost per portion is approximately Rp. 16,354. This analysis shows that raw material costs—at 81 % of the total—are substantially higher than direct labor and overhead combined, underscoring that Pak Imam's Rujak Manis business is highly dependent on the prices of fruits and spices. Raw materials account for the largest share of costs at 81 %, contributing approximately Rp 13,245 per portion. While this is expected in a fresh-ingredient culinary

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venture, it also highlights the greatest potential for cost savings. Possible actions include negotiating volume-discounted or consignment purchasing agreements with suppliers, optimizing fruit usage to minimize waste and over-portioning, and selecting lower-cost seasonal substitutes without compromising flavor quality.

Direct labor represents 11 % of total production cost, or about Rp 1,799 per portion, reflecting commendable workforce efficiency. Nevertheless, productivity gains can be achieved by standardizing process times—for example, by implementing detailed Standard Operating Procedures (SOPs) for fruit preparation, sauce mixing, and portion assembly.

Overhead costs comprise 8 % of total cost—approximately Rp 1,308 per portion—including electricity, water, cart rental, and equipment depreciation. Despite its smaller proportion, controlling overhead is vital to maintain profitability. Measures such as adopting energy-efficient solutions (e.g., LED lighting), scheduling refrigerator usage to off-peak hours, renegotiating rental terms or relocating to more competitive sites, and performing regular maintenance to evenly distribute depreciation over equipment lifespans are recommended.

By concentrating cost-control efforts on raw materials—given their dominant impact on overall cost—while continuously refining labor efficiency and overhead management, the UMKM Rujak Manis can lower its per-unit production cost, enhance profit margins, and strengthen price competitiveness without sacrificing product quality.

CONCLUSION

Based on the analysis and discussion of the cost of goods manufactured for Pak Imam's Rujak Manis, it is necessary to implement inventory control using either the FIFO method or a moving-average approach to offset seasonal fluctuations in fruit prices. The owner of Pak Imam's Rujak Manis business should also monitor labor efficiency by measuring workforce productivity and establishing output standards to control direct labor costs. By adhering to the Financial Accounting Standards' guidelines on cost recognition, measurement, and allocation, the COGM calculation for Pak Imam's Rujak Manis not only complies with prevailing accounting principles but also provides a solid foundation for pricing decisions, cost control, and enhanced operational efficiency..

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