

ANALYSIS OF THE CALCULATION OF COST OF GOODS MANUFACTURED USING THE FULL COSTING METHOD AT REN KITCHEN (A HOME-BASED PRODUCER OF CHICKEN BONE BROTH)

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ABSTRACT

This study aims to determine the cost of goods manufactured using the full costing method to determine the selling price at Ren Kitchen, one of the MSMEs located in Indonesia that produces chicken bone broth. Calculations in determining the cost of goods produced use the Full Costing Method. This method adds up all elements of production costs consisting of raw material costs, direct labor costs, and factory overhead costs, which are fixed or variable. The result of this research is the calculation of the cost of goods produced with the aim of providing selling prices to Ren Kitchen using the full costing method. There are differences in the calculation of the cost of production when using the calculation of the full costing method compared to the calculation according to Ren Kitchen. This difference affects the selling price and profit to be obtained by Ren Kitchen. With a COGM of IDR 26,450 per jar and a selling price of IDR 29,000 per jar, Ren Kitchen earns a profit of IDR 2,550 per jar or IDR 255,000 per month.

Keywords: Raw Material Cost, Direct Labor Cost, Factory Overhead Cost, Cost of Goods Manufactured, Full Costing

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1. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) have a strategic role in Indonesia's economy. MSMEs are not only the backbone of job creation but also the main driver of local economic growth, especially in areas not reached by large industries (Rinaldo et al., 2023). Data from the Ministry of Cooperatives and SMEs shows that the MSME sector contributes more than 60% of the national Gross Domestic Product (GDP) and absorbs around 97% of the workforce. However, behind their large contribution, MSMEs still face various limitations, especially in financial management and cost accounting (Novita, 2023). The culinary sector is one of the MSME subsectors experiencing the fastest growth. Food and beverages are always basic human needs, so businesses in this field have a broad and growing market. One culinary trend that is currently rising is bone broth, which is a bone broth cooked slowly over low heat for hours to extract nutrients and flavor. Bone broth is considered to have health benefits, such as maintaining joint health, improving digestion, and boosting the immune system. The healthy lifestyle trend has

increased demand for bone broth, especially among urban communities who care about nutritional intake (Salim et al., 2021).

Ren Kitchen is one of the startup MSMEs engaged in the culinary field and sells chicken bone broth. This business was established this year and operates from home. Ren Kitchen employs one permanent employee who helps with production and packaging, although the employee only comes once a week. The owner is also directly involved in operations, from cooking, packaging, to marketing the product. The selling price of Ren Kitchen's chicken bone broth is IDR 29,000 per 250 ml jar. Besides bone broth, Ren Kitchen also sells homemade nuggets and rice boxes, but the focus of this research is on the chicken bone broth product. Although Ren Kitchen has been operating and generating sales, the company does not yet have an adequate cost accounting system. The owner still mixes operational costs with personal expenses, so the Cost of Goods Manufactured (COGM) is not calculated accurately. In fact, according to Mulyadi (2018), COGM is all costs incurred to produce a good, consisting of raw material costs, direct labor costs, and factory overhead costs. If COGM is not calculated correctly, then selling price determination can be wrong, and the profit obtained does not reflect the actual condition. In the long term, this can threaten business sustainability.

One method that can be used to calculate COGM accurately is the full costing method. Mulyadi (2018) states that full costing is a method of determining COGM that takes into account all elements of production costs, both variable and fixed. These elements include raw material costs, direct labor costs, and factory overhead costs. With this method, all costs related to the production process, including electricity, water, equipment depreciation, and internet costs for promotion, are included in the COGM calculation. Sihite and Sudarno (2012) add that full costing can also include non production costs such as marketing and administrative costs, although in this research the focus is on production costs. The application of full costing in culinary MSMEs like Ren Kitchen has several benefits. First, this method helps business owners know how much it actually costs to produce one unit of product. Second, with accurate COGM, owners can set a selling price that covers all costs and generates a reasonable profit. Third, full costing allows identification of the largest cost components so that owners can make efficiency improvements. Several previous studies show that many culinary MSMEs fail to grow because they do not understand their cost structure (Wibowo, 2023; Alfiyah et al., 2022).

Ren Kitchen currently faces challenges in this regard. Based on a preliminary interview with the owner, it is known that the COGM calculation performed is still simple, namely only adding up raw material costs and employee salaries, without taking into account factory overhead costs. As a result, the COGM obtained is lower than it should be. If this is left unchecked, Ren Kitchen could incur losses without realizing it, or set a selling price that is too low so that profit is not optimal. Therefore, this research aims to apply the full costing method in calculating the COGM of Ren Kitchen's chicken bone broth, so that the actual COGM per jar can be known, as well as the profit obtained with a selling price of IDR 29,000 per jar. Thus, this research is expected to provide practical input for Ren Kitchen's owner in making decisions on selling price, cost efficiency, and profit planning, and to become a reference for other MSMEs facing similar problems.

2. LITERATURE REVIEW

Raw Material Cost

According to Mulyadi (2018), raw materials are materials that form an integral part of the finished product. Raw materials are the main elements or components used in the production process, which are then converted into finished goods using direct labor and factory overhead. Raw material cost is the cost arising from raw materials used in the production process of a product (Riwayadi, 2016). The formula for calculating raw material cost is beginning balance of raw materials plus purchases of raw materials minus ending balance of raw materials (Keith, 1980). In a culinary business like Ren Kitchen, raw materials include chicken bones, vegetables, spices, and packaging. Raw material cost is the component of production cost that is easiest to trace because it can be directly identified for each unit of product.

Direct Labor Cost

Direct labor cost is compensation given to employees directly involved in processing products, can be traced to specific products, and is a large cost of the products produced (Subiyanto & Suripto, 1993). According to Mulyadi (2018), labor is the physical or mental effort expended by employees to process products. There are various ways to calculate employee wages, one of which is by multiplying the wage rate by the employee's working hours. In the context of Ren Kitchen, direct labor cost consists of the salary of one permanent employee who assists with production and packaging. Although the employee only comes once a week, the salary is paid monthly, so this cost is fixed in the short term.

Factory Overhead Cost

According to Hansen (2009), factory overhead cost is a production cost other than direct labor cost and raw material cost. Costs categorized as overhead are costs that affect the calculation of the cost of goods manufactured of a product and are indirect in nature. Examples include maintenance costs, depreciation, electricity, water, and internet costs for promotion. Factory overhead cost is the most complex cost and cannot be defined on the finished product, so the collection of factory overhead costs can only be known after the ordered goods are completed in production (Mayrazaka et al., 2024). In home-based businesses, factory overhead costs are often ignored in the calculation of cost of goods manufactured, even though these costs must be taken into account so that the cost of goods manufactured is accurate.

Full Costing Method

Mulyadi (2018) states that full costing is a method of determining the cost of goods manufactured that takes into account all elements of production costs, namely raw material costs, direct labor costs, and factory overhead costs, both variable and fixed. Sihite and Sudarno (2012) add that full costing can also include non production costs such as marketing, administrative, and general costs, although in this research the focus is on production costs. The elements of product cost according to the full costing method include raw material cost, direct labor cost, fixed factory overhead cost, and variable factory overhead cost. The total of these four elements is the cost of goods manufactured. This method is considered more

accurate because it includes all costs related to the production process, so that the resulting cost of goods manufactured reflects the actual cost.

Variable Costing Method

Variable costing is a method of determining the cost of goods manufactured that only takes into account variable production costs in the cost of goods manufactured, consisting of raw material costs, direct labor costs, and variable factory overhead costs (Mulyadi, 2018). Fixed production costs in variable costing are treated as period costs in the accounting period in which they occur. This method is also known as direct costing. The main difference between full costing and variable costing lies in the treatment of fixed factory overhead costs. In full costing, fixed factory overhead costs are included in the cost of goods manufactured, while in variable costing, these costs are charged to the period in which they occur. For a business like Ren Kitchen that has fixed costs such as employee salaries and equipment depreciation, the full costing method is more appropriate because it provides a more complete picture of the cost of goods manufactured.

3. METHODS

This research uses a descriptive quantitative approach. The type of data used is primary data. According to Indriantoro and Supono (2013), primary data is a source of research data obtained directly from the original source, that is, not through intermediary media. Examples of primary data are data obtained from respondents through questionnaires, focus groups, and panels, or also data from researcher interviews with sources. This research uses observation and interview data collection techniques. According to Esterberg (2002), an interview is a meeting of two people to exchange information and ideas through questions and answers, so that meaning can be constructed in a certain topic. From the above understanding, the author concludes that an interview is a data collection technique in the form of questions and answers that can be done directly between the author and the party related to the object being researched by the author.

Analysis of the calculation of cost of goods manufactured using the full costing method in Ren Kitchen MSME uses the following data analysis methods and processes. This data analysis approach aims to describe or illustrate the condition of the cost of goods manufactured calculation carried out by the MSME. The descriptive approach is used to provide an understanding of how the full costing method is applied, from cost identification to result analysis. The data collection process includes interviews to explore information from MSME owners regarding production costs, production processes, and pricing strategies. Observation is done by direct observation of the production process and cost recording. Documentation is done by collecting documents such as financial statements, raw material purchase receipts, and other cost records. Primary data obtained from direct observation and secondary data obtained from related documents or literature will be combined to ensure the accuracy of the cost of goods manufactured analysis.

Data synthesis is done by organizing and grouping all collected data by cost category. The cost categories include raw material cost, which is the total cost of the main raw materials used in the production process. Direct labor cost, which is the salary or wages of workers directly involved in production. Factory overhead cost, which is indirect costs such as electricity, water, premises rent, and production equipment. After the cost of goods manufactured is calculated

using the full costing method, the product selling price is calculated by adding the desired profit margin. This analysis ensures that the selling price not only covers production costs but also generates profit. All costs associated with production are classified into fixed costs and variable costs. Fixed costs are costs that remain unchanged, such as rent. Variable costs are costs that change according to production volume, such as raw materials. In this full costing method, all production costs, both direct and indirect costs, are taken into account to determine the cost of goods manufactured. The basic formula used is cost of goods manufactured equals raw material cost plus direct labor cost plus factory overhead cost, then divided by production quantity. Once the cost of goods manufactured is calculated, the results are compared to the selling price to ascertain the profit margin. The results of this analysis usually provide strategic recommendations to MSMEs to optimize production processes, manage costs, and set competitive selling prices.

4. RESULT AND DISCUSSION

4.1 Result

This interview was conducted with the owner of Ren Kitchen, a business engaged in the culinary field with chicken bone broth as its main product. The purpose of this interview is to understand the management of production costs per month which includes raw material costs, labor costs, overhead costs, as well as the average sales of bone broth per month and the selling price per jar. From the interview, the owner explained that the cost of raw materials is the biggest expense each month. The ingredients used to make chicken bone broth include chicken bones, carrots, celery, onions, garlic, ginger, green onions, turmeric, salt, pepper, and packaging in the form of glass jars with lids and labels.

The owner also explained about labor costs. Ren Kitchen has one permanent employee in charge of assisting with the production and packaging process. Although the employee only comes once a week, the salary is still paid every month at IDR 1,500,000. The payroll system is done monthly to ensure operational continuity. Overhead costs are also an important component of production costs. These costs include electricity and water at IDR 250,000 per month, depreciation of cooking equipment at IDR 50,000 per month, and internet and promotion at IDR 50,000 per month. Overall, the average total production cost of Ren Kitchen each month is around IDR 2,645,000 with total average sales per month of around 100 jars. The following is a description of each cost element incurred by Ren Kitchen MSME.

Table 1. Raw Material Cost Breakdown

NO	Description	Quantity	Unit Price	Total
1.	Chicken Bones	20 kg	IDR 12,000	IDR 240,000
2.	Carrots	5 kg	IDR 8,000	IDR 40,000
3.	Celery	3 kg	IDR 10,000	IDR 30,000
4.	Onions	4 kg	IDR 20,000	IDR 80,000
5.	Garlic	2 kg	IDR 25,000	IDR 50,000
6.	Ginger	1 kg	IDR 30,000	IDR 30,000
7.	Green Onions	2 kg	IDR 15,000	IDR 30,000
8.	Turmeric	1 kg	IDR 15,000	IDR 15,000

9.	Salt and pepper	-	-	IDR 30,000
10.	Packaging(glass jars,lids,labels)	100 pcs	IDR 2,500	IDR 250,000
Total Raw Materials				IDR 795,000

Source: Interview results with the owner

The raw material costs in table 1 consist of 10 types of materials with a total raw material cost needed every month of IDR 795,000. This cost is calculated based on the purchase price of materials from suppliers and the quantity of needs adjusted to the average monthly production.

Table 2. Labor Cost Breakdown

Employee	Quantity	Monthly Salary
Permanent employee (assists production and packaging)	1 person	IDR 1,500,000
Total Direct Labor		IDR 1,500,000

Source: Interview results with the owner

In the table above, the direct labor cost at Ren Kitchen is one permanent employee with a monthly wage of IDR 1,500,000. The payroll system is carried out on a fixed monthly basis to ensure operational continuity.

Table 3. Factory Overhead Cost Breakdown

NO	DESCRIPTION	TOTAL COST
1.	Electricity and water	IDR 250,000
2.	Depreciation of cooking equipment	IDR 50,000
3.	Internet and promotion	IDR 50,000
Total Factory Overhead		IDR 350,000

Source: Interview results with the owner

Factory overhead costs include expenses other than raw materials and labor that support the production process. In table 3, the overhead components include electricity and water, depreciation of cooking equipment, and internet and promotion. Total overhead costs each month average IDR 350,000.

Table 4. Results of Calculation of Cost of Goods Manufactured with the Full Costing Method

NO	DESCRIPTION	TOTAL COST
1.	Raw Material Cost	IDR 795,000
2.	Direct Labor Cost	IDR 1,500,000
3.	Factory Overhead Cost	IDR 350,000
Total Cost of Goods Manufactured		IDR 2,645,000
Total production of bone broth per month		100 jars
Cost of Goods Manufactured per Jar		IDR 26,450

Source: Interview results with the owner

4.2 Discussion

The method used to calculate the Cost of Goods Manufactured in this case is the Full Costing Method. The full costing method is a method of determining production costs that calculates all elements of production costs consisting of raw material costs, direct labor costs, and factory overhead costs, both variable and fixed (Mariana Tandi, 2022). With this method, all cost elements associated with the production process are calculated thoroughly to determine the cost of goods manufactured.

The components calculated in the full costing method include raw material costs, direct labor costs, and factory overhead costs. Raw material costs are all expenses

for the main materials used in making products, such as chicken bones, vegetables, spices, and packaging in the Ren Kitchen business. Direct labor costs include the wages of employees directly involved in production, namely permanent employees who assist with the production and packaging process. Meanwhile, factory overhead costs include other expenses that support the production process, such as electricity and water, depreciation of cooking equipment, and internet and promotion.

The first step in calculating using the full costing method is to calculate the total cost of production by adding up raw material costs, direct labor costs, and factory overhead costs. After the total production cost is obtained, the cost of production per unit is calculated by dividing the total production cost by the number of product units produced. The results of the calculation and analysis of the cost of goods manufactured are shown in the following table.

Table 5. Results of Calculation of Cost of Goods Manufactured with the Full Costing Method

NO	DESCRIPTION	TOTAL COST
1.	Raw Material Cost	IDR 795,000
2.	Direct Labor Cost	IDR 1,500,000
3.	Factory Overhead Cost	IDR 350,000
Total Cost of Goods Manufactured		IDR 2,645,000
Total production of bone broth per month		100 jars
Cost of Goods Manufactured per Jar		IDR 26,450

Source: Interview results with the owner

The calculation using the full costing method on raw materials consisting of 10 types of materials produces a total raw material cost of IDR 795,000 per month. In labor costs, Ren Kitchen has one permanent employee with a base salary of IDR 1,500,000 per month. Ren Kitchen also has factory overhead costs consisting of electricity and water at IDR 250,000 per month, depreciation of cooking equipment at IDR 50,000 per month, and internet and promotion at IDR 50,000 per month. Furthermore, starting from the total cost of raw materials, direct labor costs, and factory overhead costs are summed up and produce a total cost of goods manufactured of IDR 2,645,000.

Table 5 shows the total production cost of chicken bone broth for one month, which is IDR 2,645,000 by producing 100 jars per month. The cost of goods manufactured per jar is IDR

26,450, where this result is obtained from the total cost divided by the amount of production. With the selling price set at IDR 29,000 per jar, Ren Kitchen earns a profit of IDR 2,550 per jar or IDR 255,000 per month for 100 jars.

This finding shows the importance of the full costing method in determining the cost of goods manufactured. With this method, all production costs, both raw materials, direct labor, and factory overhead, are calculated thoroughly. This is consistent with the theory of Mulyadi (2018) which states that full costing takes into account all elements of production costs. Raw material costs account for about 30.1% of the total cost of goods manufactured, direct labor 56.7%, and overhead 13.2%. With one permanent employee, direct labor cost becomes the largest component.

Although Ren Kitchen is already profitable, the profit margin is still relatively small at 8.8% of the selling price. Ren Kitchen can increase profit by further reducing production costs, for example by buying raw materials in bulk to get discounts, or reducing waste. Another alternative is to increase the selling price. If Ren Kitchen wants a profit of IDR 10,000 per jar, then the selling price must be IDR 36,450, which is the cost of goods manufactured of IDR 26,450 plus profit of IDR 10,000. However, the price increase must consider consumer purchasing power and competition. The limitation of this study is that it only uses one month of data and has not separated mixed costs. Future research is suggested to use multiple periods and high low or regression methods to separate mixed costs.

5. CONCLUSION

Based on the results of calculations using the Full Costing method, the total production cost of chicken bone broth for one month is IDR 2,645,000 to produce 100 jars of bone broth per month. This cost includes the components of raw material costs, direct labor costs, and factory overhead costs. Thus, the Cost of Goods Manufactured per jar is IDR 26,450. This result provides a solid basis for determining the product selling price and calculating the profit margin. With the selling price set at IDR 29,000 per jar, Ren Kitchen earns a profit of IDR 2,550 per jar or IDR 255,000 per month for 100 jars.

The factory overhead cost components, mainly electricity and water at IDR 250,000, depreciation of cooking equipment at IDR 50,000, and internet and promotion at IDR 50,000, contribute significantly to the total production cost. Therefore, efficiency in the use of raw materials and facility utilization can be a strategy to reduce total costs. The cost of raw materials is the largest component in total production costs, accounting for approximately 30.1% of total costs. Therefore, raw material management, such as selecting suppliers with competitive prices, is very important to reduce costs.

With a Cost of Goods Manufactured of IDR 26,450 per jar, Ren Kitchen needs to set a selling price that not only covers production costs but also provides a profit margin and takes into account consumer purchasing power. This research provides a thorough understanding of the production cost structure and supports strategic decision making

in operational management and product pricing. Ren Kitchen is advised to improve the efficiency of raw material use through evaluation and optimization of the production process. One way is to procure raw materials wholesale or cooperate with suppliers to get more

competitive prices. In addition, evaluation of the allocation of work time and the number of workers is very important to make the work system more efficient without reducing product quality.

To reduce overhead costs, Ren Kitchen can optimize the efficiency of energy usage, such as electricity and gas, and design a leaner production system. This step can be complemented by regular machine maintenance to prevent breakdowns and additional costs. Technology implementation can also be a solution, for example by using raw material processing machines or implementing a computerized production management system to increase efficiency and reduce costs. In addition, it is important for Ren Kitchen to conduct regular monitoring and evaluation of all production cost components. This monitoring can help identify areas that need improvement so that the production process becomes more efficient.

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