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# Break-Even Analysis under Two Cost Scenarios for Profit Planning: Evidence from Donat Zahira MSME in Rengasdengklok

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**ABSTRACK**

Donat Zahira, a microenterprise in Rengasdengklok, has not systematically applied break-even point (BEP) analysis to determine its minimum sales threshold and profit targets, despite fluctuations in raw material costs. This study analyzes the application of BEP analysis as a basis for profit planning. A descriptive case-study design was employed. Data were collected through observation, an interview with the owner, and records of costs and production volume over four weeks. The data were analyzed using a cost-volume-profit approach. Profit amounted to IDR 2,125,000 in Weeks 1 and 3 and IDR 2,325,000 in Weeks 2 and 4. The weighted-average variable cost was IDR 1,449.04 per unit. Under the average-cost scenario, the break-even point was 1,023 units, equivalent to sales of IDR 2,557,197. Under the conservative scenario, it was 1,075 units, equivalent to IDR 2,687,500. An average weekly profit target of IDR 2,225,000 required sales of approximately 3,140 units, or IDR 7,850,000. The enterprise operated above the break-even threshold; however, regular cost recording and periodic sales-target updates are required to support more systematic decisions.



## INTRODUCTION

Micro, small, and medium enterprises (MSMEs) occupy a strategic position in Indonesia's economic structure by expanding employment opportunities, stimulating local economic activity, and sustaining businesses at the household and community levels. In a rapidly changing economic environment, MSMEs often support production and consumption when large-scale enterprises face pressure. The Indonesian government has therefore made MSME development part of its economic growth agenda, particularly through wider access to financing, business capacity development, digitalization, and stronger governance. Nevertheless, various reports indicate that many MSME operators continue to face fundamental problems in financial recordkeeping, cost control, and the formulation of measurable business targets (Statistics Indonesia, 2024; Bank Indonesia, 2021; Ministry of Cooperatives and SMEs of the Republic of Indonesia, 2023; Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2022).

At the microenterprise level, production and sales decisions are generally based on the owner's experience. This approach is not inherently inappropriate, but it becomes inadequate when raw material prices fluctuate, production capacity is limited, and demand is unstable. Without systematic cost records, business owners cannot readily determine the minimum number of products that must be sold to cover all costs. The same difficulty arises when a business seeks to establish profit targets, evaluate its selling price, or decide whether to expand production capacity. Consequently, higher sales do not necessarily generate higher profits when cost increases are not carefully incorporated into the analysis. Cost management is therefore not merely an administrative activity; it is an integral part of the decision-making process that determines business sustainability.

Cost accounting provides a basis for identifying, classifying, and evaluating expenditures associated with production activities. The separation of fixed and variable costs is essential for accurately analyzing the relationship among costs, sales volume, and profit (Mulyadi, 2020). One widely used instrument is break-even point (BEP) analysis, which identifies the level at which total revenue equals total cost. At this point, a business earns neither a profit nor incurs a loss (Kasmir, 2021).

Break-even information enables owners to identify the minimum sales threshold, assess the adequacy of the contribution margin, and estimate changes in profit when sales volume or production costs change. Accordingly, BEP analysis serves not only as a computational tool but also as a foundation for business planning.

BEP analysis is particularly relevant to food businesses, including doughnut producers, because a substantial proportion of their production costs depends on raw material prices. The prices of wheat flour, sugar, eggs, cooking oil, butter, milk, yeast, and supplementary ingredients may change within a relatively short period. At the same time, business owners often maintain a stable selling price to preserve affordability and customer loyalty. A mismatch between rising costs and a fixed selling price can narrow the contribution margin. Food products also have a limited shelf life; therefore, higher production does not automatically translate into higher sales. When output exceeds demand, unsold products increase the operating burden and reduce expected profit. Production-volume planning should consequently be based on reliable cost information and realistic sales targets.

Previous studies have examined the application of BEP analysis in various MSMEs. Fitriani Dewi (2021) demonstrated that BEP analysis could be used to determine the sales threshold of a banana fritter business. Wahyuni et al. (2022) applied the method to a tofu-processing enterprise and illustrated the relationship among cost structure, production volume, and the ability to reach the break-even point. Risdayani (2024) combined BEP analysis with the margin of safety to support selling-price decisions. These studies show that the accuracy of the results depends heavily on proper cost separation and the availability of sales data. If fixed and variable costs are incorrectly classified, the resulting break-even point may be misleading and unsuitable as a basis for decision-making.

Other studies have treated BEP analysis as a profit-planning instrument. Husna et al. (2024) found that BEP and margin-of-safety analyses could help MSMEs formulate more measurable sales targets. Yessi et al. (2024) also used break-even analysis to evaluate profit planning and cost control in a regionally owned enterprise. Lailanoor and Indriatiumarni (2025), meanwhile, emphasized that BEP analysis could establish a minimum sales volume and estimate the profit to be achieved. Collectively, these studies reach a broadly similar conclusion: BEP analysis provides practical value to businesses that require a quantitative basis for production and sales planning. Its application, however, must be adapted to each enterprise's cost characteristics, production capacity, and operating pattern.

Although BEP analysis has been widely studied, several areas remain open for development. Some studies rely on data from a single period or use one variable-cost figure as the principal basis for calculation. Such an approach may provide an incomplete picture when raw material costs fluctuate from week to week. Changes in variable cost per unit affect the contribution margin, the number of units required to break even, and the sales target needed to earn a specified profit. An analysis covering multiple observation periods is therefore required to reveal cost variation more clearly. BEP analysis should also extend beyond identifying the no-profit/no-loss position by translating profit objectives into operational targets expressed in units and sales value.

Donat Zahira, an MSME located in Rengasdengklok, faces issues directly related to these conditions. The enterprise produces doughnuts with several topping options and maintained a relatively constant selling price throughout the observation period. Raw material expenditure, however, differed from week to week. Variations in the quality of flour and eggs, increases in the prices of cooking oil, sugar, and supplementary ingredients, and reliance on manual production processes may affect both production costs and output. Consumer demand is also unstable: sales may increase on certain days and decline on others. Without regularly updated calculations, the owner risks setting sales targets that are either too low or unrealistically high.

The enterprise's initial calculations were largely based on the week with the highest variable cost. Although this approach represents a cautious estimate, it does not capture the cost pattern across the four weeks of operations. A single-period calculation also cannot explain how the break-even point changes when average cost is used as the basis of analysis. Furthermore, the BEP results had not been fully translated into weekly production and sales targets linked to a planned profit. To address these issues, this study applies two scenarios: a weighted-average cost scenario and a conservative scenario based on the highest variable cost. The two scenarios are intended to produce a more realistic sales threshold while providing a safety benchmark when raw material costs increase.

This two-scenario approach distinguishes the present study from earlier work. The average-cost scenario represents conditions throughout the observation period, whereas the conservative scenario

identifies the minimum sales threshold when variable cost reaches its highest level. Comparing the two provides information on the extent to which cost fluctuations alter the break-even point. The calculations are then extended into sales targets based on planned profit. This approach enables the owner not only to determine the number of products that must be sold to avoid a loss, but also to obtain a more concrete estimate of the sales volume required to achieve a specified profit.

This study aims to analyze Donat Zahira's cost structure, production volume, revenue, and profit over four weeks of operations; calculate the break-even point in units and monetary terms under the average-cost and conservative scenarios; and determine the sales volume required to achieve the planned profit. It also identifies production and sales constraints that affect the implementation of the calculated targets. The study's contribution lies in its use of four-week data, comparison of two variable-cost scenarios, and extension of BEP results into operational profit targets. Academically, the study strengthens the application of cost-volume-profit analysis to a micro-scale food enterprise. Practically, the findings are expected to help the owner update cost records, establish a minimum sales threshold, formulate profit targets, and evaluate production decisions more systematically.

## RESEARCH METHOD

This study employed a descriptive approach with a case-study design at Donat Zahira in Rengasdengklok. The descriptive approach was selected to portray actual costs, production volume, sales, and profit during the observation period. A case-study design was appropriate because the investigation focused on a single enterprise with specific operating characteristics. The study did not seek to test causal relationships among variables; rather, it examined the application of break-even analysis to profit planning. This design allowed the researchers to combine quantitative data with qualitative information obtained from the owner. Quantitative data were used for cost-volume-profit calculations, while qualitative information was used to understand production and sales constraints. This choice is consistent with descriptive research, which systematically presents the condition of an object based on facts observed in the field (Sugiyono, 2022).

The research participant was the owner of Donat Zahira, located in Rengasdengklok, Karawang Regency. The unit of analysis comprised cost and production activities over four consecutive operating weeks. The primary data included fixed costs, variable costs, selling price per unit, production quantity, revenue, and weekly profit. These data were obtained from the owner's business records and verified through an interview. Fixed costs consisted of expenditures that remained relatively unchanged during the production period, whereas variable costs changed with the level of business activity. Production quantity was used as a proxy for sales volume because actual sales, unsold products, and returns had not been recorded separately. The analysis therefore assumed that all units produced each week were sold. This assumption is explicitly stated as a limitation to prevent the findings from being interpreted beyond the scope of the available data.

Data were collected through direct observation, a semi-structured interview, and documentation. Observation was used to examine the production process, raw material use, operating capacity, and sales conditions. The interview with the owner elicited information concerning changes in raw material prices, selling-price determination, production constraints, and the method used to set profit targets. Documentation was used to compile records of costs, production quantities, and revenue during the four-week observation period. Data validity was assessed by cross-checking the interview results, business records, and observations. Revenue and profit calculations were also re-examined by comparing the relationships among selling price, production volume, fixed costs, and variable costs. These procedures were undertaken to reduce recording errors and ensure that the analyzed data reflected the enterprise's actual operating conditions.

The data were analyzed using a cost-volume-profit approach in several stages. First, weekly revenue was calculated by multiplying the number of units produced by the selling price per unit. Second, profit was calculated by deducting fixed and variable costs from revenue. Third, variable cost per unit was obtained by dividing total variable cost by production quantity. Fourth, the break-even point was calculated in units and monetary terms using the contribution margin, defined as the difference between the selling price and variable cost per unit. Two scenarios were developed: a weighted-average scenario and a conservative scenario based on the highest variable cost. The average scenario represents general conditions during the study period, whereas the conservative scenario provides a safety threshold when raw material costs increase. The sales volume required for a target

profit was then calculated by adding planned profit to fixed costs and dividing the result by the contribution margin per unit. Cost classification and break-even analysis followed the principles of cost accounting and financial statement analysis (Mulyadi, 2020; Kasmir, 2021).

## RESULTS AND DISCUSSION

### Cost Structure, Production Volume, and Profit

Donat Zahira is a micro-scale food enterprise that produces and sells doughnuts in Rengasdengklok. Its products are offered with several toppings, including chocolate, sprinkles, cheese, tiramisu, matcha, and peanuts. Although the supplementary ingredients differ among variants, all products were sold at IDR 2,500 per unit during the study period. The primary ingredients included wheat flour, sugar, eggs, butter, yeast, milk, cooking oil, and supplementary ingredients for toppings and fillings. Production remained manual; consequently, output volume depended on the availability of ingredients, working time, and labor capacity. Changes in raw material costs were therefore a major determinant of business profit.

The cost structure was analyzed by classifying expenditures into fixed and variable costs. Fixed costs are expenditures that remain relatively unchanged as production volume changes within the relevant range, whereas variable costs vary with the number of units produced. This distinction is necessary because each cost category affects the contribution margin, break-even point, and profit differently. Mulyadi (2020) explains that classifying costs according to their behavior provides a basis for assessing cost-volume-profit relationships more systematically. In this study, fixed costs amounted to IDR 1,075,000 per week, while variable costs ranged from IDR 4,300,000 to IDR 4,800,000.

The four-week data show that changes in production volume were not always accompanied by profit changes in the same direction. Production in Weeks 1 and 3 reached 3,200 units, whereas production in Weeks 2 and 4 reached 3,080 units. Revenue at 3,200 units was IDR 8,000,000, compared with IDR 7,700,000 at 3,080 units. Although revenue was higher in Weeks 1 and 3, profit was lower because variable costs were also at their highest level. This finding demonstrates that business performance cannot be assessed solely on the basis of production quantity or sales revenue. The cost structure underlying the production process must also be considered to explain changes in profit accurately.

**Table 1. Weekly Costs, Production Volume, Revenue, and Profit**

| Item | Week 1 | Week 2 | Week 3 | Week 4 | Average |
|---|---|---|---|---|---|
| Fixed costs | IDR 1,075,000 | IDR 1,075,000 | IDR 1,075,000 | IDR 1,075,000 | IDR 1,075,000 |
| Variable costs | IDR 4,800,000 | IDR 4,300,000 | IDR 4,800,000 | IDR 4,300,000 | IDR 4,550,000 |
| Selling price per unit | IDR 2,500 | IDR 2,500 | IDR 2,500 | IDR 2,500 | IDR 2,500 |
| Production volume* | 3,200 units | 3,080 units | 3,200 units | 3,080 units | 3,140 units |
| Revenue | IDR 8,000,000 | IDR 7,700,000 | IDR 8,000,000 | IDR 7,700,000 | IDR 7,850,000 |
| Profit | IDR 2,125,000 | IDR 2,325,000 | IDR 2,125,000 | IDR 2,325,000 | IDR 2,225,000 |
| Variable cost per unit | IDR 1,500.00 | IDR 1,396.10 | IDR 1,500.00 | IDR 1,396.10 | IDR 1,449.04 |

**Production quantity is used as a proxy for sales volume because separate data on unsold products and returns were unavailable.*

Table 1 shows an average production volume of 3,140 units and average weekly revenue of IDR 7,850,000. The difference between the highest and lowest weekly volumes was only 120 units, or approximately 3.75% of the highest volume. However, weekly variable costs differed by IDR 500,000, producing a profit pattern that moved in the opposite direction from revenue. Weeks 1 and 3 generated profits of IDR 2,125,000, whereas Weeks 2 and 4 generated IDR 2,325,000. The IDR 300,000 decline in revenue in Weeks 2 and 4 was smaller than the IDR 500,000 decline in variable costs. Cost efficiency therefore generated an additional IDR 200,000 in profit despite lower production volume and revenue.

The initial calculations required correction because profit in Weeks 1 and 3 had previously been reported at a level higher than that supported by the data. The correct profit was IDR 2,125,000, calculated as revenue of IDR 8,000,000 less variable costs of IDR 4,800,000 and fixed costs of IDR 1,075,000. In Weeks 2 and 4, revenue of IDR 7,700,000 less variable costs of IDR 4,300,000 and fixed costs of IDR 1,075,000 yielded a profit of IDR 2,325,000. This correction highlights the importance of

reconciling revenue, costs, and profit before the information is used for decision-making. Even a seemingly minor arithmetic error can lead to an inaccurate assessment of profitability and the enterprise's capacity to achieve its planned targets.

Donat Zahira's average weekly profit was IDR 2,225,000, equivalent to a profit margin of approximately 28.34% of average revenue. The profit margin was 26.56% in Weeks 1 and 3 and approximately 30.19% in Weeks 2 and 4. This difference confirms that higher revenue does not necessarily produce a higher rate of return. The owner must evaluate net profit after all production costs have been recognized rather than focusing solely on cash receipts. Profit-margin information can also be used to compare efficiency across weeks. If volume remains relatively stable while the margin declines, the change signals a need to evaluate ingredient costs, material usage, or the rate of defective products.

Variable cost per unit was IDR 1,500 in Weeks 1 and 3 and IDR 1,396.10 in Weeks 2 and 4. The difference of IDR 103.90 per unit represents an increase of approximately 7.44% relative to the lower-cost level. This change reduced the contribution margin from approximately IDR 1,103.90 to IDR 1,000 per unit, a decline of about 9.41%. If the cost difference is not recorded, the owner may overestimate actual profit. Unit cost should therefore be recalculated whenever the prices of flour, eggs, oil, sugar, or toppings change. Regular updates enable the enterprise to establish minimum sales and profit targets that reflect current cost conditions.

The weighted-average variable cost over the four weeks was IDR 1,449.04 per unit, obtained by dividing total variable costs of IDR 18,200,000 by total production of 12,560 units. A weighted average is more representative than a simple average because it incorporates differences in weekly production volume. This value was used to represent general conditions during the study period, while IDR 1,500 per unit was retained to represent the highest-cost condition. Wahyuni et al. (2022) found that the accuracy of break-even analysis is strongly affected by consistent cost classification and reliable business-volume data. The Donat Zahira findings support this view because changes in unit cost altered profit even though production-volume variation was relatively limited.

Weekly cost differences may arise from changes in purchase prices, differences in ingredient quality, variation in quantities used, defective products, or production-process efficiency. The available data did not isolate these sources; therefore, their individual effects could not be measured. Nevertheless, the observed pattern was consistent: weeks with lower variable cost per unit generated higher margins and profits. This finding provides a basis for comparing material use across periods. Standardized recipes, records of ingredients consumed, and measurement of defective output can help determine whether a cost change originates in the market or in internal processes. Such information is also necessary before the enterprise changes suppliers or adjusts its selling price.

**Break-Even Analysis under Two Cost Scenarios**

Break-even analysis determines the sales level at which total revenue equals total cost. At this level, the enterprise earns neither a profit nor incurs a loss. The calculation is based on fixed costs, selling price per unit, variable cost per unit, and contribution margin. The contribution margin is the portion of the selling price remaining after variable cost is deducted; it is used to cover fixed costs and generate profit. Kasmir (2021) explains that the break-even point represents the minimum sales activity required to avoid a loss. In this study, the analysis employed an average-cost scenario and a conservative scenario to capture the effect of changes in raw material costs.

**Table 2. Break-Even Point under Two Cost Scenarios**

| Component | Average-cost scenario | Conservative scenario | Notes |
|---|---|---|---|
| Fixed costs | IDR 1,075,000 | IDR 1,075,000 | Per week |
| Selling price per unit | IDR 2,500 | IDR 2,500 | Constant during observation |
| Variable cost per unit | IDR 1,449.04 | IDR 1,500 | Weighted average and highest value |
| Contribution margin per unit | IDR 1,050.96 | IDR 1,000 | Selling price less variable cost |
| Contribution-margin ratio | 42.04% | 40.00% | Contribution margin divided by selling price |
| BEP (units) | 1,023 units | 1,075 units | Rounded up |

| Component | Average-cost scenario | Conservative scenario | Notes |
|---|---|---|---|
| BEP (sales value) | IDR 2,557,197 | IDR 2,687,500 | Sales at the break-even point |

Under the average-cost scenario, the contribution margin was calculated by subtracting the average variable cost of IDR 1,449.04 from the selling price of IDR 2,500, yielding IDR 1,050.96 per unit. Dividing fixed costs of IDR 1,075,000 by this contribution margin produced a break-even point of 1,022.88 units. Because products cannot be sold in fractional units, the result was rounded up to 1,023 units. Sales at the break-even point amounted to approximately IDR 2,557,197. The contribution-margin ratio of 42.04% indicates that each IDR 1 of sales provides approximately IDR 0.4204 to cover fixed costs and generate profit. Once revenue exceeds the break-even point, the contribution margin from each additional unit increases profit, provided that the price and cost structure remain unchanged.

The conservative scenario used the highest variable cost, IDR 1,500 per unit. Under this condition, the contribution margin fell to IDR 1,000 per unit, with a contribution-margin ratio of 40%. Dividing fixed costs of IDR 1,075,000 by the IDR 1,000 contribution margin yielded a break-even point of 1,075 units and sales of IDR 2,687,500. Relative to the average-cost scenario, the required volume increased by 52 units, equivalent to approximately IDR 130,303 in sales. Although this difference was small relative to actual volume, it demonstrates that higher material costs directly increase the minimum sales threshold. If costs continue to rise while the selling price remains unchanged, the break-even point will increase and the scope for generating profit will narrow.

The two scenarios provide more decision-relevant information than a calculation based on a single variable-cost figure. The average-cost scenario represents conditions over the entire observation period, whereas the conservative scenario serves as a safety threshold when costs reach their highest level. The owner may use the average scenario for routine planning and switch to the conservative scenario when raw material prices rise. This approach reduces the risk of setting sales targets too low. Risdayani (2024) emphasizes that changes in costs and contribution margin should be incorporated into break-even calculations and selling-price decisions. BEP should therefore not be treated as a permanent figure, but as a measure that is updated in response to cost and market changes.

Donat Zahira's average production was 3,140 units per week. Assuming that all units were sold, this volume was 2,117 units above the break-even point under the average-cost scenario and 2,065 units above the conservative break-even point. The comparison indicates that the enterprise operated substantially above the no-profit/no-loss threshold. Even at the highest variable-cost level, actual volume was almost three times the break-even quantity. This conclusion must nevertheless be interpreted cautiously because production quantity was used as a proxy for sales. If products remained unsold, were damaged, or were returned, the actual distance between sales and the break-even point would be smaller than the calculated figure.

The findings are consistent with Fitriani Dewi (2021), who showed that BEP analysis provides a quantitative threshold for the number of products a small business must sell. Similar evidence was reported by Lailanoor and Indriatiumarni (2025), who positioned the break-even point as a basis for determining minimum sales and planning MSME profit. The present study differs by comparing the weighted-average cost with the highest observed cost. This comparison directly reveals the effect of cost fluctuations on the minimum sales requirement. The approach is particularly relevant to food businesses, where raw material prices may change quickly while products have a limited shelf life and cannot always be carried into a subsequent sales period.

**Profit Planning and Margin of Safety**

BEP analysis extends beyond the determination of a minimum sales threshold. Cost and contribution-margin data can be used to calculate the sales volume required to achieve a specified profit. Profit planning converts a financial objective into measurable production and sales targets. In this study, the first target was set at the actual average profit of IDR 2,225,000 per week. The second target simulated an increase in weekly profit to IDR 2,500,000. Both targets were calculated using the average contribution margin of IDR 1,050.96 per unit. The average value was used so that the result would represent the enterprise's capacity across the full observation period rather than reflect only one week, thereby providing a basis for weekly operational planning.

**Table 3. Sales Targets Based on Planned Profit**

| Profit target | Minimum volume | Sales value | Managerial meaning |
|---|---|---|---|
| IDR 0 | 1,023 units | IDR 2,557,197 | No-profit/no-loss threshold |
| IDR 2,225,000 | 3,140 units | IDR 7,850,000 | Equivalent to actual average profit |
| IDR 2,500,000 | 3,402 units | IDR 8,505,000 | Simulated profit increase |

A profit target of IDR 2,225,000 requires sales of approximately 3,140 units, equivalent to IDR 7,850,000 per week. This result is identical to the average production volume and revenue over the four-week period, confirming the internal consistency of the cost, volume, revenue, and profit data. Assuming that all units are sold, 3,140 units may serve as a baseline target for maintaining current performance. However, this figure should not be converted directly into a production target without considering actual sales. Meeting a production target while leaving units unsold will not generate the same profit. The owner should record separately the number of units produced, sold, damaged, distributed as samples, and remaining unsold.

The simulation for a profit of IDR 2,500,000 indicates that the enterprise must sell at least 3,402 units, equivalent to IDR 8,505,000 per week. Relative to the actual average, sales must increase by approximately 262 units or IDR 655,000. Increasing the profit target by IDR 275,000 requires an additional volume of approximately 8.34% of average sales. Mathematically, the contribution margin generated by 262 additional units approximates the planned increase in profit. The feasibility of this target, however, depends on production capacity and market absorption. If the additional units are not fully sold, increased production may instead generate greater material waste and unsold inventory. Profit targets should therefore be accompanied by an assessment of demand, working time, and the enterprise's ability to maintain product quality.

**Table 4. Margin of Safety Based on Average Sales**

| Component | Average-cost scenario | Conservative scenario |
|---|---|---|
| Average sales volume* | 3,140 units | 3,140 units |
| Break-even volume | 1,023 units | 1,075 units |
| Margin of safety (units) | 2,117 units | 2,065 units |
| Average sales value | IDR 7,850,000 | IDR 7,850,000 |
| Break-even sales | IDR 2,557,197 | IDR 2,687,500 |
| Margin of safety (IDR) | IDR 5,292,803 | IDR 5,162,500 |
| Margin of safety | 67.42% | 65.76% |

**Production quantity is used as a proxy for sales on the assumption that all units produced were sold.*

The margin of safety indicates the decline in sales that can be tolerated before the enterprise reaches the break-even point. Under the average-cost scenario, the margin of safety was 67.42%, compared with 65.76% under the conservative scenario. In nominal terms, sales could decline by approximately IDR 5,292,803 in the average-cost scenario or IDR 5,162,500 in the conservative scenario before the enterprise ceased to earn a profit. These percentages suggest a relatively secure position as long as the assumption that all units are sold holds. The margin can change rapidly, however, if material prices rise, the effective selling price falls, or part of the output is not absorbed by the market. The calculation should therefore be updated periodically, particularly when material cost changes are substantial.

The margin-of-safety results support Risdayani (2024), who used BEP and margin-of-safety analyses to assess the tolerable decline in sales and support pricing decisions. Yessi et al. (2024) likewise demonstrated that break-even analysis can be developed into a profit-planning tool rather than used only to identify the no-profit/no-loss position. At Donat Zahira, its practical value lies in translating profit objectives into the number of units that must be sold. Mathematical targets must nevertheless be interpreted alongside production capacity and demand conditions. A target that appears attainable in a

calculation may not be operationally feasible if labor, raw materials, equipment, and the market cannot support the required volume increase.

Profit may be planned by increasing sales volume, adjusting the selling price, reducing variable costs, or combining these measures. Higher volume requires additional demand and sufficient production capacity. A higher price can increase the contribution margin but may reduce consumer interest unless accompanied by greater product value. Cost reduction is safer when achieved through more efficient material use and fewer defective products rather than through lower quality. Setiawan (2022) states that assistance in BEP calculation helps business operators understand the relationship between costs and sales targets in practical terms. At Donat Zahira, this understanding can be incorporated into simple, consistent, and record-based weekly decisions.

**Operational Constraints and Managerial Implications**

The interview indicated that raw material quality was a major production constraint. Wheat flour and eggs did not always have consistent quality, and changes in ingredient characteristics affected mixing and fermentation. Dough that did not rise properly produced dense doughnuts that failed to meet quality standards and were difficult to sell. Defective products still consumed ingredients, oil, labor, and time, but did not fully generate revenue. These expenditures increased variable cost per unit. Because defective output was not recorded separately, its effect remained embedded in total weekly costs. Recording defective products is necessary to measure production losses, assess ingredient consistency, and improve the stages of the process most prone to failure.

Raw material price volatility was another constraint. The prices of cooking oil, sugar, eggs, and toppings can rise within a short period. Because the selling price was maintained at IDR 2,500, any cost increase directly reduced the contribution margin. The difference between variable costs of IDR 1,396.10 and IDR 1,500 per unit already affected weekly profit and the break-even point. If prices continue to rise, the current conservative scenario may no longer provide an adequate benchmark. The owner should recalculate unit cost using the latest purchase prices. Cost information must be aligned with the purpose of the decision and the conditions being faced (Mulyadi, 2020); historical data should not continue to be used when the cost structure has materially changed.

The continued use of manual production processes limits the enterprise's ability to meet a higher sales target. An increase from 3,140 to 3,402 units requires an additional 262 units per week. Mathematically, this volume is sufficient to achieve the simulated profit of IDR 2,500,000. However, mixing, shaping, frying, decorating, and packaging require time and precision. Expanding production without corresponding adjustments in labor or equipment may increase fatigue, size inconsistency, and the risk of defective products. Production capacity should therefore not be assessed solely on the basis of the maximum number of units that can be produced in one day. Sustainable capacity must account for product quality, normal working hours, ingredient availability, and the ability to sell the entire output.

Consumer demand varies by day, time, and market conditions. On some days, sales rise because of event orders or higher foot traffic near the business location; on others, products remain unsold because demand is lower. Doughnuts have a limited shelf life, and units not sold on the day of production risk deteriorating in quality. This characteristic distinguishes food enterprises from businesses whose products can be stored for extended periods. Additional output intended to achieve a profit target must therefore be based on demand data rather than production capacity alone. Lailanoor and Indriatiumarni (2025) emphasize that BEP-based sales targets must be adjusted to the enterprise's operating conditions. Daily sales records are consequently essential.

A further data limitation is the absence of separate records for production and actual sales. Existing records show the number of units produced but do not distinguish units sold, unsold, damaged, returned, or distributed free of charge. The study assumed that all output was sold to permit the calculations. This assumption may overstate actual profit and the margin of safety. Improving the records does not require a complex system. The owner may use a daily table containing the number of units produced, sold, and unsold, together with cash receipts, material purchases, and other costs. These data would be sufficient to update unit cost and evaluate the break-even point weekly.

From a managerial perspective, 1,075 units may be used as the minimum sales threshold when material costs are at their highest observed level. A target of 3,140 units may be used to maintain actual average profit, whereas the 3,402-unit target should be adopted only when demand and capacity can

support it. Recipe standardization is required to reduce variation in material use and maintain product consistency. The owner should also compare the prices and quality offered by multiple suppliers, particularly for flour, eggs, oil, and toppings. These controls are preferable to directly lowering ingredient quality. Efficiency measures that compromise quality may trigger complaints, reduce repeat purchases, and ultimately lower revenue even when short-term costs appear lower.

Investment in production equipment may be considered when demand consistently exceeds manual production capacity. The purchasing decision, however, should not be based solely on the desire to expand output. Equipment price, useful life, electricity consumption, maintenance, and additional fixed costs must be calculated. Higher fixed costs increase the break-even point, although equipment may accelerate production or reduce labor costs. An investment is feasible when the additional contribution margin can cover depreciation and operating costs within an acceptable period. BEP analysis should therefore be repeated using the post-investment cost structure. In this way, break-even analysis can support both routine operations and capacity-expansion decisions.

This study is limited by its four-week observation period and its focus on a single enterprise. The period does not fully capture seasonal demand, long-term price increases, or sales conditions during holidays and special events. Costs were not separated by product variant, and production was used as a proxy for sales. The results are therefore not intended to be generalized to all doughnut businesses or food-sector MSMEs. Nevertheless, the findings provide a factual account of the relationship among costs, volume, and profit in the enterprise studied. The two-scenario approach also demonstrates that relatively small changes in variable cost can alter the break-even point, margin of safety, and sales target.

Overall, Donat Zahira operated above the break-even point during the observation period, subject to the assumption that all units produced were sold. The enterprise was profitable, but the level of profit remained sensitive to material prices, production-process stability, and the market's capacity to absorb output. The average-cost scenario provides a basis for routine planning, whereas the conservative scenario offers a safer threshold when costs increase. Extending the analysis to profit targets and the margin of safety provides the owner with more operationally useful information. This value can be maintained only when cost and sales data are updated regularly. With improved recordkeeping, decisions concerning production, pricing, profit targets, and investment can be based on more accurate and accountable information.

## CONCLUSION

The application of break-even analysis at Donat Zahira indicates that the enterprise operated above the break-even point throughout the observation period. Profit in Weeks 1 and 3 was IDR 2,125,000, while profit in Weeks 2 and 4 was IDR 2,325,000. At an average variable cost of IDR 1,449.04 per unit, the break-even point was 1,023 units, equivalent to sales of IDR 2,557,197. Under the highest variable-cost condition, the break-even point increased to 1,075 units, equivalent to IDR 2,687,500 in sales. The calculations also show that the average weekly profit target of IDR 2,225,000 can be achieved through sales of approximately 3,140 units, or IDR 7,850,000. A profit target of IDR 2,500,000 requires at least 3,402 units, equivalent to sales of IDR 8,505,000. These findings indicate that break-even analysis is useful not only for establishing the no-loss threshold but also as a basis for formulating measurable sales and profit targets.

The findings nevertheless depend on the assumption that all units produced were sold. Unsold products, returns, damaged products, and actual sales had not been recorded separately. The owner should therefore improve weekly cost and sales records, apply the conservative scenario when raw material prices rise, and align production targets with market absorption. These measures are necessary to support more accurate decisions concerning pricing, production volume, and profit targets.

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