

Optimizing Financial Planning for Roof Tile-Producing MSMEs through Break-Even Point Analysis: A Case Study in Pejaten Village, Tabanan

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in promoting inclusive economic development in Indonesia. However, many MSME owners lack sufficient understanding of financial planning tools, particularly Break-Even Point (BEP) analysis, which is essential for determining minimum sales targets, planning profits, and making informed financial decisions. This study aims to examine the impact of BEP understanding and application on the sustainability and profitability of roof tile-producing MSMEs in Pejaten Village, Tabanan. Using a quantitative descriptive approach, data were collected from 10 MSMEs through questionnaires and structured interviews. The analysis employed BEP calculations to assess each enterprise's financial planning accuracy. The findings reveal that MSMEs that understand and apply BEP analysis achieve significantly higher average monthly profits (IDR 3,125,000) and show greater business stability. In contrast, MSMEs without BEP implementation experience average losses and fail to meet profit targets. The study concludes that BEP analysis is a critical component in improving MSMEs' financial planning and sustainability. It recommends integrating BEP training into local financial literacy programs and encouraging systematic financial recordkeeping. Future research should expand the sample size and explore additional factors influencing MSME performance in traditional industries.

Keywords: Break-Even Point; Financial Planning; MSMEs; Profitability; Sustainability; Roof Tile Industry; Pejaten Village

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in the national economy, particularly in driving regional economic growth and preserving local cultural values. Typically managed directly by business owners, MSMEs contribute significantly to income generation, employment creation, and grassroots economic development. According to Law No. 20 of 2008 concerning MSMEs (Articles 1–4), these enterprises must be empowered in an equitable and comprehensive manner to stimulate entrepreneurship, strengthen national economic resilience, and improve societal welfare. Article 3 further emphasizes that the main objective of MSME development is to build a community-based economy supported by a sound and sustainable financial system. Thus, MSMEs serve not only as business entities but also as foundational pillars for developing an inclusive and competitive economy (Pangestuti & Diantama, 2025).

One of the critical challenges faced by MSME actors lies in the lack of optimal financial planning practices, which often threatens business sustainability in the long term. Many entrepreneurs lack adequate understanding of fundamental financial concepts such as cost management, profit estimation, and pricing strategies—factors essential for informed and effective decision-making. In this context, the Break-Even Point (BEP) analysis can serve as a strategic financial planning tool, helping business owners identify the break-even level, where total revenue equals total cost, thus allowing them to determine the minimum sales volume needed to avoid losses and begin generating profit.

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The BEP is the point at which a business neither makes a profit nor incurs a loss. It is a critical indicator for assessing the financial implications of sales volumes, as any deviation above or below this point signifies potential profit or loss (Risdayani & Susilawati, 2024). However, a large proportion of MSMEs still face significant challenges in comprehending and applying BEP analysis effectively. This limited understanding hinders their ability to plan realistic sales targets, project attainable profits, and make data-driven decisions regarding pricing, cost control, and marketing strategies. Consequently, many MSMEs remain vulnerable to financial instability and constrained business growth.

Moreover, insufficient knowledge of BEP undermines the entrepreneurs' ability to identify their financial break-even point accurately—an essential component of strategic planning. Without this insight, decisions are often made arbitrarily, unsupported by empirical data, exposing businesses to the risks of losses and an inability to anticipate market fluctuations or manage production costs effectively.

Addressing these issues requires targeted education and training programs that enhance MSME owners' capacity to apply BEP analysis in everyday decision-making. Mastery of this concept can improve their ability to set realistic profit targets, manage risks proactively, and support the long-term sustainability of their businesses.

This study focuses on optimizing financial planning for roof tile-producing msme through break-even point analysis, a region where traditional craftsmanship meets modern market challenges. It seeks to explore how MSME owners' understanding, and application of BEP analysis influence their ability to determine minimum sales thresholds, plan profit targets, and make informed financial decisions. Furthermore, the study investigates whether these factors are associated with greater business resilience and profit growth. The goal is to provide practical insights that can inform financial literacy initiatives and policy support for MSMEs operating in local craft-based industries.

2. Literature Review

2.1. Break-Even Point (BEP)

According to Aminus and Sarina (2022), Break-Even Point (BEP) analysis is an analytical approach used to determine the volume of sales and product mix required to cover all operating costs, both fixed and variable, within a specific period. The break-even point is reached when total revenue equals total costs, placing the business in a zero-profit, zero-loss condition. In the context of financial management, BEP serves as a critical tool for business owners, including MSMEs, to formulate minimum sales strategies that ensure business continuity and minimize the risk of financial losses.

Ruslang and Sudirman (2024) describe BEP as the financial equilibrium where a firm neither incurs a loss nor earns a profit. This point reflects the minimum operational threshold required to avoid financial deficits. BEP also serves as an indicator for estimating potential profits or losses when actual sales exceed or fall below the defined break-even level.

Asyadi et al. (2023) add that BEP analysis not only identifies the balance between revenue and costs but also assists management in understanding cost behavior—both fixed and variable. It supports the projection of profit changes under varying cost structures and helps determine optimal sales volumes to achieve profit targets. Thus, sound comprehension of BEP significantly enhances financial decision-making and strategic sales planning in both the short and long term.

Furthermore, BEP analysis explains the relationship between costs, sales volume, and profit at specific sales levels, also known as cost-volume-profit analysis. As emphasized by Fauzi et al. (2024), BEP is essential in guiding strategic policy decisions, not only for well-established firms but also for businesses aiming for expansion or operational restructuring.

2.2. Micro, Small, and Medium Enterprises (MSMEs)

MSMEs play a vital role in supporting national economic development. According to Utami, Sasmita, and Yusniar (2022), MSMEs significantly contribute to job creation, income distribution, and economic stability. They are often credited with maintaining economic resilience during times of global uncertainty.

MSMEs refer to business activities carried out by individuals or entities with relatively small-scale operations but with high potential for growth. As Aliyah (2022) notes, MSMEs form the economic backbone of local communities, enhancing economic resilience and promoting inclusive development. Their presence is not only essential for economic growth but also for creating long-term economic equity.

2.3. Financial Planning

Financial planning is a structured process for managing financial resources with the aim of achieving long-term financial goals. It involves setting financial objectives, assessing assets and liabilities, budgeting, selecting investment strategies, and managing risks. For individuals and enterprises alike, financial planning is vital for achieving sustainable short-, medium-, and long-term outcomes.

For MSMEs, financial planning is especially crucial. It enables entrepreneurs to manage cash flow efficiently and reduce risks that could jeopardize business sustainability. Several studies highlight the tangible benefits of structured financial planning for MSMEs, such as:

- **Reducing business failure risks:** A lack of financial planning is a leading cause of business failure among MSMEs. Structured financial planning provides clear guidance for managing resources and helps minimize potential losses.
- **Enhancing competitiveness:** MSMEs that implement sound financial planning demonstrate stronger competitiveness, improved profitability, and better market positioning.
- **Improving access to funding:** Well-documented financial plans make MSMEs more attractive to lenders and investors, as they indicate prudent financial management and clear business direction

3. Methods

This study adopts a quantitative descriptive research design to provide an objective and measurable overview of how BEP analysis can be applied to optimize financial planning among MSMEs. The aim is to assess how BEP can help small business owners better plan their finances, avoid losses, and identify the minimum sales threshold required to break even.

The research was conducted in Pejaten Village, Tabanan Regency, an area known for its traditional roof tile production, which constitutes the main livelihood for many residents. The target population consists of MSMEs engaged in roof tile manufacturing.

The sample includes 10 MSMEs, selected using purposive sampling based on specific criteria: at least one year of operation, basic financial records, and willingness to provide relevant data. Data were collected through questionnaires and structured interviews.

The collected data were analyzed using Break-Even Point analysis to determine the minimum sales volume required to cover operational costs. The outcomes are expected to serve as a basis for short- and long-term financial planning decisions and to help MSME owners establish more effective sales targets and marketing strategies.

4. Result and Discussion

Break-even point analysis begins by classifying costs into fixed costs and variable costs. The table below presents a breakdown of production and overhead costs according to their nature:

Table 1 Breakdown of Production and Overhead Costs by Cost Behavior (Fixed and Variable Costs)

Cost Component	Details	Unit (Rp)	Total (Rp)
Production Costs			
- Raw Materials	Rp2.000 × 6.000 tiles	2.000	12,000,000
- Direct Labor	Rp500 × 6.000 tiles	500	3,000,000
Subtotal Production Costs			15,000,000
Overhead Costs			
- Electricity	Monthly Estimated	-	750,000
- Depreciation of Production Equipment	Estimate per month	-	1,250,000
Subtotal Overhead			2,000,000
Total Overall Cost	Production + Overhead		17,000,000

4.1. Cost Breakdown and BEP Calculation

The cost structure involved in the roof tile production process consists of two main components: direct production costs and overhead costs.

4.1.1. Direct Production Costs

- Raw material cost: IDR 2,000 per tile × 6,000 tiles = IDR 12,000,000/month
- Direct labor cost: IDR 500 per tile × 6,000 tiles = IDR 3,000,000/month Total direct production cost: IDR 15,000,000

4.1.2. Overhead Costs:

- Monthly electricity expense: IDR 750,000
- Depreciation of production equipment: estimated at IDR 1,250,000/month Total overhead costs: IDR 2,000,000

4.2. Total monthly cost (production + overhead): IDR 17,000,000

4.2.1. Break-Even Point (BEP) Analysis

- Variable Cost per Unit

Variable cost per unit = Raw Material + Direct Labor = 2,000 + 500 = IDR 2,500

- Contribution Margin per Unit

Contribution per unit = Selling Price – Variable Cost = 4,000 – 2,500 = IDR 1,500

- Break-Even Point (Units)

BEP (units) = Fixed Costs / Contribution Margin per Unit = 2,000,000 / 1,500 ≈ 1,334 units

- Break-Even Point (Revenue)

BEP (revenue) = BEP (units) × Selling Price = 1,334 × 4,000 = IDR 5,336,000

4.2.2. Profit Target Simulation

If the business owner aims to achieve a monthly profit of IDR 3,000,000, the sales target can be calculated as follows:

- Target Sales Volume (Units)

Target Units = (Fixed Costs + Desired Profit) / Contribution per Unit = (2,000,000 + 3,000,000) / 1,500 = 5,000,000 / 1,500 ≈ 3,334 units

- Target Sales (Revenue)

Target Revenue = 3,334 units × 4,000 = IDR 13,336,000

4.3. Data Analysis from 10 MSME Respondents

The following table presents the data collected from 10 roof tile producing MSMEs in Pejaten Village based on structured interviews.

Table 2 Data collected from 10 roof tile producing MSMEs in Pejaten Village

No	BEP Knowledge	Implementation BEP	Production (Unit)	Sales (Rp)	Profit/Loss	Target Achievement
1	Yes	YES	4,000	16,000,000	+4,000,000	Yes
2	Yes	YES	3,500	14,000,000	+ 2,750,000	No
3	No	NO	2,000	8,000,000	-1,000,000	No
4	Yes	YES	3,400	13,600,000	+2,600,000	No
5	No	NO	2,500	10,000,000	-500,000	No
6	Yes	YES	3,600	14,400,000	+3,100,000	Yes
7	No	NO	2,200	8,800,000	-800,000	No
8	Yes	YES	3,700	14,800,000	+3,550,000	Yes
9	No	No	2,800	11,200,000	-150,000	No
10	Yes	Yes	3,500	14,000,000	+2,750,000	No

4.3.1. Preliminary Conclusions:

- 6 out of 10 MSMEs understand and apply BEP.
- Of those 6, 4 achieved their profit targets, while 2 came close to their targets.
- The other 4 (who did not apply BEP) experienced losses or small profits.

4.3.2. Ability to Determine Minimum Sales Volume

Interview results indicate that SMEs that understand BEP are able to determine the minimum sales volume that must be achieved each month. Conversely, SMEs that do not understand BEP tend to set production targets subjectively or based solely on experience. Out of 10 respondents:

- 6 SMEs that understand BEP can clearly state the minimum sales target (above 1,334 units).
- 4 SMEs that do not understand BEP tend to produce only based on orders without considering the break-even point.

4.3.3. The Impact of BEP Implementation on Profit Target Planning and Financial Decisions

SMEs that apply BEP analysis have better profit target planning.

Simulation results show:

- To achieve a profit of Rp3,000,000, approximately 3,334 units of roof tiles (Rp13,336,000) need to be sold.
- SMEs that apply BEP tend to adjust production targets and marketing strategies to achieve profit targets.
- SMEs that do not apply BEP often experience profit fluctuations, and some even incur losses.

4.3.4. The Relationship Between Understanding and Applying BEP with Profit Sustainability and Improvement

Table 3 Understanding & Applying BEP and Average profit calculation per group

No.	Average Profit (Rp)
1	+4,000,000
2	+2,750,000
4	+2,600,000
6	+3,100,000
8	+3,550,000

10	+2,750,000
Total	+18,750,000

Average Profit:

$$= \frac{18,750,000}{6}$$

= Rp 3,125,000

Table 4 Not Understanding & Applying BEP and Average profit calculation per group

No	Profit (Rp)
3	-1,000,000
5	-500,000
7	-800,000
9	-150,000
Total	-2,450,000

Average Profit:

$$= \frac{-2,450,000}{4}$$

= - Rp 612,500

The study found that MSMEs with a strong understanding and application of BEP analysis demonstrated:

- An average monthly profit of +IDR 3,125,000, indicating improved business sustainability.
- The majority still earned profits even when failing to meet their full sales targets, suggesting operational stability and long-term viability.

In contrast, MSMEs that did not understand or apply BEP showed:

- An average monthly loss of -IDR 612,500, indicating financial instability.
- None of the businesses in this group met their profit targets.

Overall, MSMEs that applied BEP analysis consistently optimized their profits more effectively, while those that did not were more likely to experience losses or marginal earnings.

5. Conclusion

Based on the research findings on the influence of BEP understanding and application on the sustainability and profitability of roof tile-producing MSMEs in Pejaten Village, several conclusions can be drawn:

MSME owners who understand the BEP concept demonstrate better capability in determining the minimum sales volume required to break even. They can clearly identify the number of units that need to be produced and sold to cover both fixed and variable costs, thereby minimizing the risk of loss.

The application of BEP analysis has a significant effect on profit planning and financial decision-making. MSMEs that apply BEP tend to adopt more structured and realistic financial plans and achieve more stable profit outcomes compared to those who do not. These businesses are also more oriented toward achieving long-term profit targets.

There is a positive relationship between BEP understanding and application with both business sustainability and profit growth. MSMEs that apply BEP show:

- Higher average profits.

- Greater achievement of profit targets.
- More consistent business sustainability.

Suggestion

Based on the results and conclusions of this study, several recommendations are proposed. First, for MSME owners in Pejaten Village, it is essential to enhance their understanding of Break-Even Point (BEP) analysis through financial training or mentoring programs. By doing so, they can integrate BEP into their business planning processes, enabling them to manage production targets, sales volumes, and profitability more effectively. Second, local government and relevant agencies are encouraged to provide continuous and accessible financial management training, particularly on BEP, profit planning, and cost control. In addition, these institutions should promote better financial recordkeeping practices among MSMEs, as proper documentation is a prerequisite for effective financial analysis and decision-making. Finally, for future researchers, it is recommended to expand the scope of research by including a larger number of respondents, extending the study period, and incorporating other influential factors such as market competition, product quality, and consumer demand. Further research could also focus on developing practical and context-specific BEP training models that align with the operational characteristics of traditional production-based MSMEs, such as those engaged in roof tile manufacturing.

Research Limitation

This study has several limitations that should be acknowledged. First, the research was conducted on a relatively small sample of ten MSMEs in Pejaten Village, which may limit the generalizability of the findings to broader populations or other regions with different economic and cultural contexts. Second, the study relied on self-reported data obtained through questionnaires and interviews, which may be subject to respondent bias or inaccuracies in financial recordkeeping. Third, the focus of the analysis was limited to the understanding and application of Break-Even Point (BEP) analysis, without considering other internal or external factors such as market dynamics, competition, or access to capital that could also influence business sustainability and profitability. Additionally, the study used a cross-sectional approach, capturing data at a single point in time, which restricts the ability to observe changes or trends over time. These limitations highlight the need for more comprehensive, longitudinal, and multi-variable research in the future to build on the insights provided by this study.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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