Analysis of Tofu Production Costs to Find Out the Number of Pieces and Time to Achieve Profits Using the Break Event Point Method for Tofu SMEs in KekalikJaya Mataram

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ABSTRACT:*Small and Medium Enterprises (SMEs) are a sector that has an important role in a country's economic progress. SMEsInaq Pesah is one of the SMEs that produces tofu every day. During its operation, this SMEs never carried out a profit and loss calculation analysis and a comprehensive calculation of how many pieces of product were made so that the business could return on capital by taking into account production factors and the resources used. This research aims to determine the amount of tofu produced to reach the Break Even Point (BEP). The method used in this research is Break Even Point (BEP), where the data is obtained by collecting data directly at SMEs Ina Pesah then it will be processed and presented in tabular form, after that data processing and calculations are carried out to get conclusions from this research . The results of data processing and calculations show that the number of tofu sold to reach the break-even point was 222,784 pieces of tofu with a sales value of IDR. 155,949,293 and with an average monthly production of 72,225 pieces, the time required to reach the break-even point is 3.08 months*
***Keywords**: SMEs, Break Even Point, Tofu*

I.INTRODUCTION

Small and Medium Enterprises (SMEs) are a sector that has an important role in a country's economic progress. Most of the population has quite low education and lives in small and medium business activities in both traditional and modern sectors and can absorb a variety of workers. Therefore, it is important to develop SMEs both in quality and quantity, especially in improving their performance so that they can contribute to economic development [1]

The performance of SMEs in Indonesia is said to be quite low, making it difficult for Small and Medium Enterprises (SMEs) to compete with other businesses and develop. This condition makes SMEs unstable and less able to develop well. What can be done is to increase the skills of SMEs in knowledge about marketing, finance and technology so that their management can be better held accountable like large companies [1]

One effort to improve the skills of SMEs is by creating a home industry business. One of them is a tofu home industry business. Tofu is a healthy food that the body can utilize because it has a high protein content of around 85-90 percent. Therefore, tofu can be consumed by all levels of society. Tofu also contains other important nutrients, such as fat, vitamins and minerals in quite high amounts[2].

One of the home industry business areas that develops the process of processing tofu dregs into a usable product is the Kekalik Environment, Sekarbela District. The number of tofu and tempe entrepreneurs in the Kekalik environment has 97 producers, divided into 4 environments consisting of KekalikGerisak with 45 producers, Kekalik Timur with 14 producers, Kekalik West with 28 producers and KekalikKijang with 10 producers [3]. Tahu Inaq Pesah SMEs is one of the many SMEs that is trying to increase its sales revenue by prioritizing the product side. The SMEs is located in the Kekalik Jaya neighborhood at Inaq Pesah's residence. This is a home industry that focuses on making tofu only.

Break Even Point (BEP) analysis or break even point is an analysis technique for studying the relationship between total costs, expected profits and sales volume. This Break Even Point (BEP) analysis is able to show that the amount of profit obtained will change if there is a change in one of the factors, namely, the selling price of the product and the number of pieces sold [4]. Break Even Point (BEP) analysis is carried out to see the performance of the company itself, providing insight into how important it is to carry out financial bookkeeping and technical economic analysis which can help entrepreneurs in taking proposed actions in considering alternatives or decision making goals that can improve company competitiveness[5].

II. STUDIES OF METHOD

The data required for this research is primary data and secondary data. Primary data is data obtained through direct surveys in the field regarding data on fixed costs and variable costs used in producing tofu using action research methods and direct interviews. Meanwhile, secondary data was obtained from the SMEs where the research was conducted in the form of data on the number of sales every day. After this process is carried out, the total fixed costs, total variable costs and total income per pieces of time will be calculated and the variable costs and sales price per pieces of product will be calculated. From the data from these calculations, the number of production pieces and the time required to reach the break-even point can be calculated.

Scope of Study

This research was conducted in Kekalik District, Mataram City to obtain related data; (1) Fixed costs, (2) variable costs (3) selling price, (4) Average production quantity per month, (5) number of *pieces* to achieve BEP, (6) Time required to achieve BEP (months).

Tools used in research

The tools used in this research are recording equipment for interviews, stopwatches for measuring time, scales for measuring product weight, meters for measuring production volume, laptops for processing data and writing tools.

Determining the number of pieces and time required to reach the break-even point/profit

The Break Even Point formula used to determine the break even point value is as follows[6]:

$$BEP\ (X) = FC/(p-c) \tag{1}$$

Where:

BEP (X) = Break Even Point / production volume

FC = Fixed Cost (IDR)

X = Production volume (pieces)

p = Price / selling price per pieces (IDR/pieces)

c = Cost / variable costs of making one pieces of product (IDR/pieces)

By knowing BEP(X), the time needed to reach BEP can also be determined in the following way:

$$BEP\ (t) = (BEP\ (X))/Xmonth \tag{2}$$

Where:

t = Time to reach BEP (Months)

BEP(X) = Breakeven point in quantity of products

XMonth = Number of products produced per month (Pieces/month)

III. RESULTS AND DISCUSSION

The costs of making tofu consist of fixed costs and variable costs. In this research, fixed costs include equipment costs and building rental costs. What is included in non-fixed costs (variable costs) are raw material costs, operational costs and direct labor costs. Meanwhile, the income obtained from the tofu business is total income (Total Revenue).

Table 1 Number of tofu products
produced each month in the period (2022-20223).

No	Month	Number of Working Days per month	Number of Tofu every Month (units)
1	October	27	72.900
2	November	27	72.900
3	December	26	70.200
4	January	27	72.900
5	February	26	70.200
6	March	26	70.200
7	April	26	70.200
8	May	27	72.900
9	June	26	70.200
10	July	28	75.600
11	August	27	72.900
12	September	28	75.600
	Total	321	866.700
Average per month		26,75	72.225

Average pieces of tofu produced per day$= \dfrac{\text{Average number of tofu produced per month}}{\text{Average number of working days per month}}$

$$= \frac{72.225 \; picees/\text{month}}{26.75 \; \text{days/month}} = 2{,}700 \text{ pieces/days}$$

From the average amount of tofu produced by tofu companies per month, the average number per day is 2,700 pieces of tofu per day.

Fixed costs in the manufacture of SMEsInaq Pesah are costs incurred by the industry owner whose size is not influenced by the amount of production or the expenditure is constant during the production process. In the tofu industry, data on fixed costs (FC) in producing tofu include equipment costs, maintenance costs and building rental costs. The total fixed costs incurred by the tofu industry owner are:

FC   = Equipment Costs + Maintenance Costs + Building Rental Costs
       = IDR. 8,630,000 + IDR. 420,000 + IDR. 36,000,000
    = IDR. 45,050,000

Meanwhile, variable costs (VC) are costs incurred by the company owner during the tofu making process which are influenced by the number of products produced. Non-fixed costs consist of raw material costs, equipment operation, and direct labor costs.

Based on research and research data processing, the variable costs for making 1 piece of tofu (c) are obtained, namely:

c = Cost of raw materials + Cost of operating equipment + Cost of labor wages
  = IDR. 448.15 + IDR. 8.89 + IDR. 40.74= IDR. 497.78 per piece of tofu

So that variable costs per month (VC) can be obtained in making tofu, namely:

VC= c.X, where X is the amount of productionpermonth

From the total amount produced by tofu companies, the monthly average is 72,225 pieces of tofu.
Average monthly variable costs (VC)= c. Xmonth =IDR.497.78x 72,225 = IDR. 35,952,654
From the calculation results, it is known that the variable cost of tofu (VC) incurred to produce 72,225 pieces of tofu products in one month is IDR. 35,952,654.
The amount of income generated by tofu entrepreneurs each month is influenced by the number of working days per month. Based on research conducted, the average amount of tofu produced is 72,225 pieces of tofu per month. The selling price of tofu that is ready to be marketed is IDR. 700 per piece of tofu.
The monthly income received by SMEsInaq Pesah is the sum of the average number of tofu produced per month and the selling price per tofu.
Total Tofu Income (TR) = p . Xmonth
        = IDR. 700 x 72,225 = IDR. 50,557,500 per month

Table 2 Average total costs and income for the Inaq Pesah SME tofu company

Time (Month)	Average amount of tofu produced (pieces) (Accumulated)	Fixed Costs (FC) (IDR)	Variable Cost (VC) (Accumulated) (IDR)	Total Cost (TC) (Accumulated) (IDR)	Total Revunuen (TR) (Accumulation) (IDR)
0	0	45.050.000	0	45.050.000	0
1	72225	-	35.952.654	81.002.654	50.557.500
2	144450	-	71.905.308	116.955.308	101.115.000
3	216675	-	107.857.962	152.907.962	151.672.500
4	288900	-	143.810.617	188.860.617	202.230.000
5	361125	-	179.763.271	224.813.271	252.787.500
6	433350	-	215.715.925	260.765.925	303.345.000
7	505575	-	251.166.579	296.718.579	353.902.500
8	577800	-	287.621.234	332.671.234	404.460.000
9	650025	-	323.573.888	368.623.888	455.017.500
10	722250	-	359.526.542	404.576.542	505.575.000
11	794475	-	394.479.196	440.529.196	556.132.500
12	866700	-	431.431.851	476.481.851	606.690.000

Break Even Point (BEP) Analysis in SMEsInaq Pesah Kekalik Jaya
        Based on fixed cost and variable cost data that has been obtained in making tofu, it will then be used as data to analyze whether the business is feasible or not in terms of Break Even Point Analysis (BEP). This analysis is important to carry out to provide recommendations for business actors whether the business is profitable and to know the break-even point where total production costs are equal to total income. Next, you can see the Break Even Point value below.

Calculation:
Selling price per pieces (p)   = IDR 700
Variable costs per pieces (c)   = IDR 497.78
Fixed costs (FC) = IDR 45,050,000

The amount of tofu sold to break even is:
BEP(X) = (FC(T))/(p-c)
  = (IDR 45,050,000)/(IDR 700-I DR 497.78)
  = 222,784 pieces of tofu

Time to break even:
BEP (t) = (X BEP /(X per month)
  = 222,784/72,225
  = 3.08 months

Based on the table 2 above, and the results of the BEP calculation, a BEP graph can be created as in Figure 1. Below:
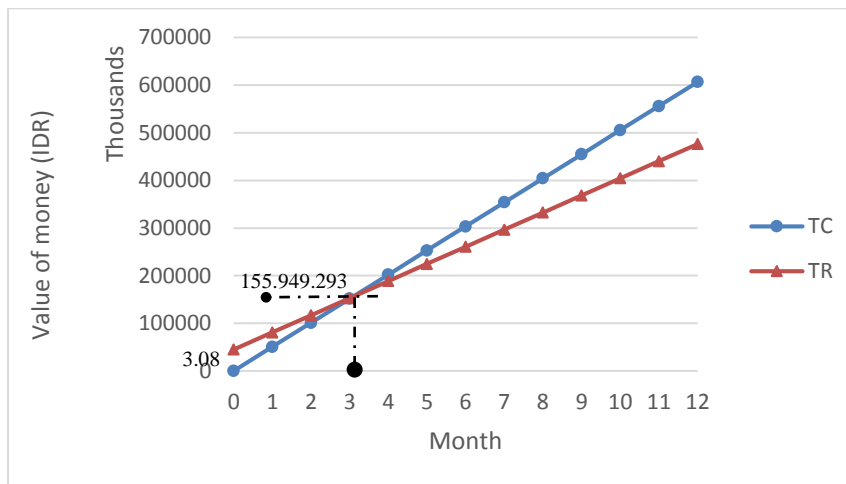

Figure 1. Break Even Point graph for tofu production

From table 2 and figure 1 are known that the total fixed costs (FC), variable costs (VC), total costs (TC), total income (TR) each month are: FC (IDR. 45,050,000), VC (IDR. 35,952,654) , TC (IDR. 81,002,654), and TR (IDR. 50,557,500), and other data, namely selling price per pieces (p) (IDR. 700), while variable costs per pieces (c) (IDR. 497 .78). From these data, after calculations were carried out, SMEsInaq Pesah achieved BEP on production of 222,784 pieces of tofu. By knowing that the average monthly production is 72,225 pieces of tofu, the time needed to reach BEP is 3.08 months with a sales value of IDR. 155,949,293

IV. CONCLUSION

Based on the results of the research and analysis carried out, it can be concluded as follows, In research on tofu SMEs, it is known that tofu production requires fixed costs (FC), (IDR. 45,050,000), monthly variable costs (VC) (IDR. 35,952,654) and average sales per month are obtained as many as 72,225 pieces with total income per mont(TR). 50,557,500. After carrying out calculations, it was found that the number of tofu sold to reach the break-even point was 222,784 pieces of tofu with a sales value of IDR. 155,949,293 and the time required to reach the break-even point is 3.08 months

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