

The Determination of the Brick Basic Price at Toba Trading Company

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Abstract—The reasearh aims to know the calculation of the cost production Brick Basic at Toba Trading Company, to compare the cost of production of Brick Basic established by UD. Toba by determining the cost of production based on a theoretical approach full costing method. The difference between the cost of production of Brick basic per unit assigned UD. Toba in compared by the authorin 2018 are 1) Direct Production Costs per brick produced: Cost of using raw materials: IDR. 40,51/piece + Direct labor wage: IDR. 63.90, / piece, The Total Direct Production Costs: IDR 104.41, /Piece. 2) The Indirect Production Costs per piece of Bricks produced: Usage Costs for Indirect Materials: IDR. 40,51 / piece + Indirect wages: IDR. 21.19, - / piece + Other Indirect Production Costs: IDR. 19.99, - / piece, The Total Indirect Production Costs: IDR. 81.69, - / piece. Based on the results of the analysis can be seen that the calculation of the cost of production of that has been established by UD . Toba is greater than the cost of Brick Basic production calculation based on a full costing method of cost accounting theory approach. The difference cal culation cost of production Brick Basic between theory and companies due to differences in acknowledging the large amount of raw material costs and the large number of factory overhead costs both fixed and variable.

Keywords—Determination, bricks' basic price.

I. INTRODUCTION

The key goal of most business entities or companies is to obtain the prices that can contribute as much as possible to be profit. This is what economists call profit maximization. Earnings per unit are not as important as realized profits from all units sold. Therefore, the price that will generate the greatest profit for a certain sales volume must be charged to the consumer. The determination of cost of goods is a complex problem and is not the task of one person or one activity. Theorists and practitioners disagree for a variety of pricing theories, therefore research works that require collaboration and coordination between economists, statisticians, marketing specialists, industrial engineers and accountants to decide. Because setting the selling price requires consideration of many factors, some of which may not be measured, or controlled, a wise judgment is needed from the practitioner. The Accountants can help executive management and marketing managers with benchmarks that can be used as guidelines in exploring relatively uncharted paths to successful pricing. The Cost is generally seen as a starting point in the business of pricing, although the relationship between the two should not be seen rigidly. The pricing policies change in relation to costs and market situation, and also with long-term and short-term views. The long-term approach allows changes in product types, production methods, factory capacity, marketing and the distribution methods. It is intended for prices that can recover all costs plus a reasonable return on invested capital. The Normal or average production costs are the basis used for pricing in the short term aimed at covering / replacing at least a portion of the total costs in order to meet changing needs as a result of fluctuations

in sales volume, a combination of sales and prices in such circumstances Product diffraction costs can act as a guideline for pricing. The relationship between costs and prices is one of the most difficult problems for managers to determine. Pricing is an area where management really is an art. Selling prices, which are generally seen as the level of exchange between two types of commodities in many industries, are determined in such a way as to allow certain controls over these prices. Even companies that face intense competition can still control the selling prices because there may be differences in the types of production, quality and services provided. . However, if compared with controlling the costs incurred, the company's ability to control selling prices is certainly much smaller.

II. REVIEW OF LITERATURE

The amount of money spent by producers to pay for inputs or factors of production used in the production process of output is called the amount of production costs. The size depends on the amount of input and the high and low prices of the inputs used. The amount and price of inputs depends on how much the output (goods / services) produced by producers can therefore be stated that the amount of production costs is influenced by the amount of output. Mathematically it can be seen that the total cost is a function of the amount of output or:

TC = F (Q)
TC = Total cost
F = Function
Q = Number of outputs

In a broad sense, the cost is the sacrifice of an economic resource that is measured in units of money that have occurred or might occur to achieve a certain goal. The economic source itself can be divided into two parts, namely the sacrifice that has occurred, for example for capital loan interest that must be paid months later.

In order to avoid chaos in managing funds or costs, an entrepreneur must be able to distinguish expenses that do not include costs. Before learning about production costs, production costs can be reviewed in advance the types of production costs from various aspects, among others:

1. Costs based on its characteristics

The types of costs seen from their nature can be divided into two namely costs:

- General
- Specific

Special Costs are the direct costs having a relationship with certain parts of the product. Special fees have been directed towards certain costs, for example:

- Cost of Raw Materials
- Labor costs
- Machine Costs

General costs are costs that have not been stated in a special fee consisting of various costs, each of which costs are relatively small so that they are combined into general costs, for example:

- Correspondence Fee
- Telephone Charges
- Stationery

2. Costs Based on Relationship with the Goods or Services Produced.

Classification of costs based on the relationship of goods or services produced is called classification of costs according to causal or causal relations. Classification of costs according to a causal relationship can be divided into costs:

- Direct
- Indirect

Direct costs are costs that have occurred since they have a causal relationship with the unity of production. Direct costs occur because there is paid, which is something that will be produced. If there is no production, then there is no direct cost. For example; the direct cost of the Toba Trading Company is the labor cost.

Indirect costs are those which are indirectly charged to production for example: The indirect costs of the Toba Trading Company are electricity, depreciation of factories and machinery.

3. Costs According to Relationship with the Bookkeeping Period

The Consideration of carrying out a classification of costs to be associated with the accounting period because not all costs incurred can be used up charged to a production during the same accounting period.

4. Costs Based on Basic Functions in the Company

The main functions in manufacturing companies are production, administration and general functions as well as marketing functions. In companies there are often parts of the company that are the same as the main function. Therefore according to basic functions, costs can be divided into:

- Production cost
- Administration and general fee
- Marketing costs

Production costs are the cost of raw materials, labor costs, and factory overhead labor costs, and factory overhead costs. The factory overhead costs are indirect costs. Raw material costs and labor costs are also called prime costs. Factory overhead costs are called conversion costs

Administrative and General Costs are costs that cannot be identified with production or marketing activities but, are related to these activities for example:

- Administrative costs
- Administration Section Fee
- Personnel Section

III. RESEARCH METHODOLOGY

To solve a problem, data is needed in accordance with the problem being discussed, both primary data and secondary data. Primary data is data obtained directly from the object of research, while secondary data is data obtained from other parties that are not collected by themselves, such as monthly reports / data on a company or agency in accordance with the disciplines occupied and the title of thesis or report and so forth

In this chapter the authors state or attach the results of direct observations and measurements as well as recording company data from Toba Trading Company related to the problem, then the data obtained was processed for the use in problem solving.

Method of collecting data

The Steps in collecting the data:

- 1) Recording the required data from the company.
- 2) Observing and recording everything related to the object of the research.
- 3) Conducting interviews with parties related to the problem discussed and recording the results of the interview.

Data collected

Data collected and used to solve the problems in this study are:

1. The Direct Production Costs

The Cost of using direct raw materials is the use of all types of raw materials and other parts that can be calculated directly. The raw materials used are "Galong" soil and "Cabuk" soil.

2. The Direct labor wages, namely wages paid at the factory for each type of goods and can be calculated directly into the basic price of each type of goods.

3. The Indirect Production Costs

a. The cost of using indirect raw materials is the cost of materials that participate in the production process but does not form part of the production of direct raw materials consisting of:

- Sand usage fee
- Wood usage fee
- Solar fuel usage costs
- Lubrication oil usage costs

b. Indirect wages are labor costs that do not directly participate in the production processing such as;

- Chairman's wages
- Secretary's wages
- Personnel wages
- Engineering Staff wages
- Processing Employee Wages

c. Other indirect production costs are costs that are not included in raw materials and indirect labor costs. Other indirect production costs are:

- Electricity and water costs for offices and factories
- Insurance fee
- Maintenance and repair costs
- Permit fees, PBB and vehicle tax
- Administrative costs
- Depression costs

d. The Quantity Data on Brick Production

The data of Bricks produced by Toba Trading Company was during January 2018 to December 2018.

IV. FINDING AND DISCUSSION

After processing the data, then the price of each cost element is obtained for each month. These cost elements have variations in prices for each month, so it needs to be controlled to get the prices received, then the determination of production costs to get the cost of production per piece of brick produced, can be completed as follows:

- Direct Production Costs per brick produced:
 - Cost of using raw materials: IDR. 40,51/piece + Direct labor wage: IDR. 63.90, / piece
 - The Total Direct Production Costs: IDR 104.41, /Piece
- The Indirect Production Costs per piece of Bricks produced:
 - Usage Costs for Indirect Materials: IDR. 40,51 / piece + Indirect wages: IDR. 21.19, - / piece + Other Indirect Production Costs: IDR. 19.99, - / piece
 - The Total Indirect Production Costs: IDR. 81.69, - / piece
- Forecasting or Estimation
 - Zero Free Method

From the data of production capacity in table 3.1, it can be drawn a trend line of production capacity and an estimated production capacity in January.

 - Known Equation: $Y' = a + b. x$
 - $\sum y = n. a + b. \sum x$
 - $\sum xy = a . \sum x + b . \sum x^2$
 - Trend equation: $Y' = a + b. x$

- $\sum y = n. a + b. \sum x \dots\dots\dots 7.660.000 = 12.a - 6.b$
- $\sum xy = a . \sum x + b . \sum x^2 \dots\dots\dots 3.805 = - 6.a + 146.b$
 - From Equations I and II:
 $7.660.000 = 12.a - 6.b \quad :1 :7.660.000 = 12.a - 6.b$
 $- 3.805.000 = -6.a + 146.b :2 \quad - \underline{7.610.000 = - 12.a + 292.b +}$
 $50.000 = 286.b$
 $b = 174,825$
 - From equation I
 $7,660,000 = 12.a - 6.b$
 $= 12.a - 6 (174,825)$
 $= 12.a - 1048,951$
 $a = 87,412$
 So $Y' = 87,412 + 1048,951. x$
 For $x = 6$
 then:
 $Y' = 87,412 + 1,048,951. 6$
 $= 87,412 + 6,293,706$
 $= 6,381$
 - Calculation of Trend prices with the Zero Free Method are:
 Calculation of Trend prices with the Zero Free Method are:
 - January: $Y' = 638,333,333 + 87,412 (-6) = 639,295$
 - February: $Y' = 638,333,333 + 87,412 (-5) = 637,547$
 - March: $Y' = 638,333,333 + 87,412 (-4) = 638,945$
 - April: $Y' = 638,333,333 + 87,412 (-3) = 638,770$
 - May: $Y' = 638,333,333 + 87,412 (-2) = 638,596$
 - June: $Y' = 638,333,333 + 87,412 (-1) = 638,246$
 - July: $Y' = 638,333,333 + 87,412 (0) = 638,421$
 - August: $Y' = 638,333,333 + 87,412 (1) = 638,596$
 - September: $Y' = 638,333,333 + 87,412 (2) = 638,770$
 - October: $Y' = 638,333,333 + 87,412 (3) = 638,945$
 - November: $Y' = 638,333,333 + 87,412 (4) = 639,120$
 - December: $Y' = 638,333,333 + 87,412 (5) = 639,295$

The Calculation of Brick Capacity Trend With the Zero Free Linear Trend Method January-December 2018 (in piece)

| Month | Producti on Capacity | X | X.Y | X ² |
|----------|----------------------------|----|-----------|----------------|
| January | 590,000 | -6 | - 328.692 | 36 |
| February | 620,000 | -5 | -582.440 | 25 |
| March | 700,000 | -4 | -433.956 | 16 |
| April | 680,000 | -3 | -223.653 | 9 |
| May | 600,000 | -2 | -104.724 | 4 |

| | | | | |
|--------------|------------------|-----------|---------------|------------|
| June | 660,000 | -1 | -73.883 | 1 |
| July | 585,000 | 0 | 0 | 0 |
| August | 625,000 | 1 | 86.596 | 1 |
| September | 700,000 | 2 | 188.034 | 4 |
| October | 670,000 | 3 | 337.503 | 9 |
| November | 650,000 | 4 | 491.160 | 16 |
| December | 580,000 | 5 | 690.470 | 25 |
| Total | 7,660,000 | -6 | 46.415 | 146 |

The Midpoint Method as a Base Month

In the Midpoint Method As this Base Month, the sum of the values on the X scale must be zero so that the values of a and b can be determined by using the following formulation:

$$a = \frac{\sum Y}{n}$$

$$b = \frac{\sum XY}{\sum X^2}$$

n = amount of data.

By continuing to use the data shown in table 3-1, the line equation and capacity for 2008, January, can be calculated as follows:

$$a = \frac{7.660.000}{12}$$

$$a = 638.333,333$$

$$b = \frac{50.000}{572}$$

$$b = 87,412$$

$$Y' = 638.333,333 + 87,412 . x$$

$$x = 13,$$

$$Y' = 638.333,333 + 87,412 (13)$$

$$= 638.333,333 + 1.136,363$$

$$= 639.469$$

So the January 2008 production capacity was 639,469 units

Whereas the calculation of trend prices for all available months is as follows:

- January: Y '= 638,333,333 + 87,412 (-11) = 639,295
- February: Y '= 638,333,333 + 87,412 (-9) = 637,547
- March: Y '= 638,333,333 + 87,412 (-7) = 638,945
- April: Y '= 638,333,333 + 87,412 (-5) = 638,770
- May: Y '= 638,333,333 + 87,412 (-3) = 638,596
- June: Y '= 638,333,333 + 87,412 (-1) = 638,246
- July: Y '= 638,333,333 + 87,412 (1) = 638,421
- August: Y '= 638,333,333 + 87,412 (3) = 638,596
- September: Y '= 638,333,333 + 87,412 (5) = 638,770

- October: Y '= 638,333,333 + 87,412 (7) = 638,945
- November: Y '= 638,333,333 + 87,412 (9) = 639,120
- December: Y '= 638,333,333 + 87,412 (11) = 639,295

| Month | Production Capacity (y) | X | X.Y | X ² |
|-----------|-------------------------|-----|------------|----------------|
| January | 54.782 | -11 | -602.602 | 121 |
| Febrauary | 116.489 | -9 | -1.048.401 | 81 |
| March | 108.489 | -7 | -759.423 | 49 |
| April | 74.551 | -5 | -372.755 | 25 |
| May | 52.362 | -3 | -157.086 | 9 |
| June | 58.569 | -1 | -58.569 | 1 |
| July | 73.883 | 1 | -73.883 | 1 |
| August | 86.597 | 3 | -259.791 | 9 |
| September | 94.017 | 5 | -470.085 | 25 |
| October | 112.501 | 7 | -787.507 | 49 |
| November | 122.790 | 9 | -1.105.110 | 81 |
| December | 138.094 | 11 | -1.519.034 | 121 |
| Total | 1.093.124 | 0 | 1.216.574 | 572 |

Trend Calculation With The Midpoint Method as A Base Month During January – December (In piece)

V. CONCLUSION

Many problems in the company can only be solved by problems if we have enough knowledge about the costs associated with them. Therefore the calculation of cost of goods is an important instrument for corporate control. We immediately felt when the company was about to be founded. When we set up we will provide benefits in terms of the costs that must be made and the sales results that will be obtained, if it is profitable, what products are calculated to provide the most profit.

The main objectives of calculating cost of goods:

- To obtain data and information needed to make optimal short-term planning in the area of sales and production.
- To obtain data and information to control the production process, especially with a view to obtaining savings within the company.

By paying attention to the constraints in setting the cost of goods in a company, a very big obstacle is the ups and downs of production capacity. The production capacity is not normal month by month and it is seen that the cost of goods also fluctuates with the ups and downs of the company's production capacity. Because according to the formula:

$$\text{Cost of goods per unit} = \frac{\text{total production costs}}{\text{Production capacity}}$$

It is clear how dependence of cost of goods on production capacity. With changes in production capacity, the cost of goods will change directly.

The value of money from the means of production sacrificed in the production process is called cost of goods with three purposes for calculating cost of goods, three basic calculation functions are found:

- a) The basis for determining or assessing the selling price
- b) The Efficiency control tools
- c) The foundation of the balance sheet and goods in progress and finished goods.

REFERENCES

- [1] Biegel John "Production Control Quantitatif Approach", Prentice Hall Asian Edition. Prentice Hall Inc. Engglewood. N-7. 1983
- [2] Edition, Jhon wiley & Sons Inc. New York 1983 Pasaribu, Amudi, DR . Msc. PHD. " Pengantar Ekonomi "
- [3] Edisi Pertama, Penerbit Ghalia Indonesia, Jakarta 1981 Sudjana, Ir MA, MSC. " Methode Statistik " Edisi Ketiga Penerbit Tarsito Bandung 1982
- [4] Ikatan Akuntansi Indonesia," Prinsip Akuntansi Indonesia " 1975
- [5] Lbn. Raja SE, " Akuntansi Manajemen " Edisi Perkuliahan
- [6] Muliadi Drs. M.Sc. "Akuntansi Biaya" Edisi Ketiga Penerbit PT. BPEE Yogyakarta, 1986.
- [7] Prof.. Matz-Prof Usry "Akuntansi Dan Biaya " Edisi Kedelapan, Penerbit Erlangga.
- [8] Rahman Prawira Ami Jaya, Prof.Ir.SE " Azas-Azas Harga Pokok Dan Ilmu Neraca" Penerbit Alumni Bandung 1972.
- [9] Sinuraya, S. Drs " Akuntansi Perusahaan Industri ". ASCO Medan
- [10] Winardi, DR.SE " Kamus Ekonomi " Penerbit Alumni Bandung 1977