

ANALYSIS OF BREAK EVEN POINT AND NET PRESENT VALUE BASED ON INPUT RATE APPLICABLE IN HEALTH CLINICS AL - JADID SURABAYA

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ABSTRACT

Yayasan Nur Fadila operating in several regions in Indonesia such as Surabaya, Malang, Kediri and Semarang has been focused on the development of the boarding school with learning science based on the Islamic religion and general knowledge. But for now Hidayatullah develop community health clinics around the boarding school. As one of the new buildings operate in an environment hut, then the clinic needs to do a re-analysis of the rates in effect at this time. The method used to solve the problem is the method of Break Even Point and Net Present Value at the rate of 12%. In the settlement with the BEP method will put the current rate. From this analysis was obtained on condition BEP tariff of Rp 36 919. By trial and error in the cash flow through Net Present Value approach is to add a class fares on condition Point Break even assuming the increase x% of the normal rates on BEP conditions in order to obtain the Net Present Value is greater than zero. Thus obtained results which sought class fare on the condition NPV is Rp 92 298,-.

Keywords: Break events point, net present value, input rate applicable

INTRODUCTION

Health clinics are an integral part of the overall healthcare system proclaimed by the government. The large number of health clinics will certainly lead to intense competition and poses enormous challenges for the managers and owners of the clinic to keep their activities lancer [5]. House management activities of a hospital are also complex with disciplines such as medical science, nursing, engineering, economics, law and public relations. A good health clinic should be able to manage the human resources, financial resources and technical resources available.

In conducting a profit oriented business, it is necessary to analyze how much income will be received and the costs to be incurred. The main source of income for a health kinik comes from the number of treatment patients where the more patients are treated the more income the more [2]. With many health clinics operating, clinicians need to analyze the tariffs to be set in accordance with existing facilities so that they can compete with other health clinics and can ultimately provide decent benefits [13].

Problem Formulation

1. How to do Break Even Point analysis at Al Jadid Health Clinic Surabaya based on applicable tariff input?
2. How to perform Net Present Value analysis at Al Jadid Health Clinic Surabaya based on applicable tariff input?

Research Objectives and Benefits

Research Objectives

To analyze current rates so as to provide reasonable benefits in accordance with the facilities provided so that they can be used to develop and support the life of the clinic.

Research Benefits

1. Can improve the ability in terms of idea creation, improvement, development of concepts and methods of business development
2. Can provide input in determining the feasible benefits

LITERATURE REVIEW

Cost

Understanding Costs, the relationship of costs with factors - factors in the business can be divided into several parts [4]:

- a. Cost by relationship with product. Factory costs (production costs) in the form of fees for: direct materials, direct labor and direct overhead costs. Commercial cost is the sum of marketing costs and administrative costs [6].
- b. Costs according to their relation to production volume. The variable cost is the cost of which the amount changes in proportion to the change in volume or number of units of production. Fixed costs are the costs of which the amount is always fixed for a certain period and does not depend on the volume of activity or the number of units produced. This fixed cost will decrease per unit of product when the volume of production increases. The semi-variable cost is a cost that includes a partially fixed amount in a relevant output and the other part varies in proportion to the input change [2].
- c. Costs associated with the fabrication department. Production department costs are the costs used for manual operations or machines carried out directly on the product or cost. The cost of the service department is the cost incurred by the service department to provide services useful to other departments [7]. Common costs are costs arising from the use of facilities or services by two or more operations. The joint cost is the cost incurred when there is the production of an interdependent kind of goods.
- d. Costs associated with a single accounting period. Costs for capital expenditures are costs incurred for the purpose of obtaining benefits in the future period and recorded as property. The cost of capital expenditure is the cost incurred for the purpose of obtaining benefits in the future period and recorded as a price. The cost for income expenditure is the cost incurred to benefit the present [5] [9].

BEP and Depreciation

Break Even Point Analysis (BEP) is a balance point between total cost and total sales or activity point (production volume) and sales where no profit or loss is obtained because total revenue equals total expenditure. This analysis is to analyze the costs and sales volume as well as the amount of profit gained [8] [11].

$$\text{BE sales} = 1 - \frac{\text{Total Fixed Expences}}{\text{Total Variable Expences}} \dots\dots\dots (1)$$

(volume in Rp) Total Sales Value (Rp)

$$\text{BE sales} = \frac{\text{Total Fixed Expences}}{\text{Contribution Margin per Unit}} \dots\dots\dots (2)$$

(volume in unit)

$$\text{BEP} = \frac{\text{Fixed Cost}}{\text{Price - Variable Cost}} \dots\dots\dots (3)$$

$$\text{Sales Level} = \frac{\text{Fixed Cost} + \text{Profit Desired}}{100\% - \text{Variable Cost as \% Sales}} \dots\dots\dots (4)$$

$$\text{Contribution Margin (CR)} = \frac{(\text{Total Biaya} - \text{Total Variabel Cost})}{\text{Total Sales}} \dots\dots\dots (5)$$

The analysis with BEP is established on the basis of the following assumptions and constraints [9]: (a) established costs can be grouped over fixed costs and variable const costs, (b) fixed costs constant over a given period of time , (c) the cost of change has a linear relationship to the proceeds of sale or the change of units produced, (d) the rate of fixed inflation.

Depreciation can be defined as a decrease in market value or market value of fixed assets [2] [10]. While the definition of lan of depreciation is as a decrease in the value of fixed assets due to usage and accretion time [5] [13]. Methods for calculating the magnitude of depreciation include: (a) Straight Line; (b) Sum of Year Digits; (c) Declining Balance; (d) Sinking Fund. This research used straight line method with formula [1] [8]:

$$DT = \frac{p - f}{n} \dots\dots\dots (6)$$

p = price or value of the current asset
 f = residual value, ie the value or price of the asset at the end of usage
 n = age or duration of use

Capital in health clinics is intended to determine how the costs are actually borne by the company from a source of funds. Sources of funds can vary in biases from governments, individuals, groups, financial institutions or bank loans. In this study the amount of loans borne by Al - Jadid Clinic is assistance from Nur Fadila Foundation amounting to Rp 285.000.000, - with interest (profit sharing) 12% per year within 5 years. But the building and some clinic facilities have been prepared by the foundation. In the next development Nur Fadila clinic is given its own authority in managing its business so as to accelerate the flow of procurement or payment of clinic business.

$$NPV = \sum_{t=1}^n \frac{R_t}{(1 + K)^t} - C \dots\dots\dots (7)$$

Rt = net cash flow when t K = capital cost
 C = amount of initial investment t = time period

RESEARCH METHODS

Time Series Data Search

The data to be processed is time series data or data periodically, because it is data collected from year to year. The data collected and processed is from 2013 to 2015. Furthermore, this data is used to: (a) determine the tariff of pavilion class based on current tariffs; (b) Break Even Point (BEP) analysis based on existing data; (c) NPV analysis of 12%; (d) analysis of the clinical performance of Al-Jadid clinic so as to obtain benefits in accordance with the plan.

Troubleshooting Techniques

- a. Determination of Bed Occupancy Rate. In analyzing bed-usage levels, it is necessary to analyze some of the variables that affect them. Among others: number of available beds, number of hospitalized patients, number of days during treatment.
- b. Setting Paviliyun Class Rates. By knowing the existing tariffs then BEP can be known. The tariff applicable for class I = Rp 125.000, -; class II = Rp 65.000, -; class III = Rp 45.000, -
- c. BEP Analysis. Grouped elements of fixed costs covering employee salaries, depreciation of investment (equipment and room fittings), building maintenance, maintenance costs and borrowing costs. While the cost change (variable cost) include: electricity cost, telephone cost, cost of equipment / materials doctors, the cost of equipment / materials room, drug costs, water costs, other costs.
- d. Net Present Value Analysis. After obtaining the applicable class rate then calculated BEP value. Furthermore, it can be determined the benefits obtained with NPV of 12% of the investments that have been invested.
- e. Financial Performance Analysis. In this case the receipt obtained must be greater than the expenditure so that the clinic can achieve the expected profit.

Data Collection and Data Analysis

Data Number of Patients

The number of inpatients (JP) in 2014 is 612 people with average hospitalization (L) = 1.2 days. So the number of days of treatment (JHP) = JP x L = 734.4 days. Al-Jadid Clinic for class I has 4 beds, class II with 8 beds and class III with 12 beds.

General Investment Data

Table 1. General Investment Data

| No. | Investment Kinds | Value |
|-------|---|---------------|
| 1. | Land | 150.000.000 |
| 2. | Building | 850.000.000 |
| 3. | Room Equipment (table, chair, pillow, bolster, ets) | 52.000.000 |
| 4. | Refridgerator | 20.200.000 |
| 5. | Aluminum Wardrobe | 34.800.000 |
| 6. | Color television | 42.600.000 |
| 7. | Air Conditioning | 32.400.000 |
| 8. | Electronic Clock | 2.600.000 |
| 9. | Wooden Bench | 960.000 |
| 10. | TV rack | 2.300.000 |
| 11. | Dining table | 6.860.000 |
| 12. | Towel rack | 880.000 |
| 13. | Sink | 12.800.000 |
| 14. | Sitting Closet | 4.600.000 |
| Total | | 1.211.161.840 |

Tabel 2. Equipment Investment Data

| No. | Investment Kinds | Value |
|-------|--|------------|
| 1. | Office Equipment | 6.600.000 |
| 2. | Head Office Equipment | 9.540.000 |
| 3. | Meeting Room Equipment | 5.225.000 |
| 4. | Accounting Verification Room Equipment | 7.350.000 |
| 5. | Counter Payment Equipment | 8.960.000 |
| 6. | Library Room Equipment | 5.120.000 |
| 7. | Waiting Room Equipment | 3.900.000 |
| 8. | Kitchen Equipment | 9.110.000 |
| 9. | Dressing Room Equipment | 3.200.000 |
| 10. | Nurse Room Equipment | 9.300.000 |
| 11. | Other Equipments | 3.200.000 |
| Total | | 71.505.000 |

Fixed Cost Data

- a. Employee salary. Total expenses for clinical staff salaries are Rp 38.550.000, - / month or Rp 462.600.000, - / year.
- b. Depreciation. By using the straight line method obtained the results for the building current value of Rp 1.850.000.000, - assuming the age of 20 years and residual value = 0 so that deresiasinya = 92.500.000 / tahun While depreciation of completeness and completeness with the current value = 475.585.000, age 5 years assumption with residual value = 0, then depresiasinya Rp 95.117.000 / tahun. So the total depreciation for building and clinic equipment is Rp 187,617,000, -

- c. Maintenance cost. In this case, the maintenance cost is the burden cost used by the clinic as a whole, including the maintenance of the building, medical equipment, tools and technical office so that it reaches Rp 10.000.000, -
- d. Loan interest

Table 3. Loan and Interest Payment Plan

| End of Years | Interest to be paid | Installment (Rp) | Total Payment of Loan (Rp) | Loan Salvage (Rp) |
|--------------|---------------------|------------------|----------------------------|-------------------|
| 0 | - | - | - | 285.000.000 |
| 1 | 34.200.000 | 57.000.000 | 91.200.000 | 228.000.000 |
| 2 | 27.360.000 | 57.000.000 | 84.300.000 | 171.000.000 |
| 3 | 20.520.000 | 57.000.000 | 77.520.000 | 114.000.000 |
| 4 | 11.400.000 | 57.000.000 | 68.400.000 | 57.000.000 |
| 5 | 6.840.000 | 57.000.000 | 63.840.000 | - |

Total Fixed Cost =
Employee Salary (460,260,000) +
Depreciation (187,617,000 +
Maintenance (10,000,000) +
Interest Loans (34,200,000)
= 692,077,000

Table 4. Total Cost Changed (Variable Cost)

| No. | Cost Item | Value | No. | Cost Item | Value |
|-----|--|-------------------|-----|----------------|-------------------|
| 1. | The cost of a doctor's tool or material | 4% from Revenue | 5. | Water Cost | 1,3% from Revenue |
| 2. | The cost of equipment or materials of the room | 2,3% from Revenue | 6. | Telephone Cost | 1% from Revenue |
| 3. | Medicine Cost | 3% from Revenue | 7. | Income Tax | 10% from Revenue |
| 4. | Energy Cost | 1,5% from Revenue | 8. | Other Costs | 2,5% from Revenue |

The number of beds available at the Al-Jadid Health Clinic can be calculated as follows:

JTS = 365 x JTT = 365 x 48 = 17,520 beds. This means the maximum use of a bed for a year of 17,520, but because the use of Clinical beds is only 49% then the number of beds occupied for one year is 8585 beds.

$$BEP = \frac{FC}{P - Vc} = \frac{692.077.000}{45.000 (49\%) - (25,6\%) (56.711)} = Rp 92.928,-$$

Class tariffs earned on the BEP are class tariffs where no profit or loss is earned. To analyze what the appropriate class rate is, then the minimum class rate is determined. From trial and error to obtain the class rate at the capital interest rate by raising the class tariff on the BEP by X%, so it can give a reasonable result according to NPV method at 12% cost capital level.

Table 5 Class Tariff at x = 250% Rp 92.928

| No | Revenue | Variabel Cost | Fixed Cost | Salvage Revenue | Depreciation | Salvage Revenue after Tax | p/f 12% | NPV |
|----|---------------|---------------|-------------|-----------------|--------------|---------------------------|---------|-------------|
| | - | - | - | - | - | - | - | - |
| 1. | 1.242.033.804 | 317.960.654 | 278.077.000 | 645.996.150 | 187.617.000 | 458.379.150 | 0,8929 | 409.286.743 |
| 2. | 1.242.033.804 | 317.960.654 | 271.237.000 | 652.836.150 | 187.617.000 | 465.219.150 | 0,7972 | 370.872.707 |
| 3. | 1.242.033.804 | 317.960.654 | 264.397.000 | 659.678.150 | 187.617.000 | 472.059.150 | 0,7118 | 336.011.703 |

| | | | | | | | | |
|----|---------------------------------|-----------------|-----------------|-------------------|-----------------|-----------------|------------|-------------|
| 4. | 1.242.033.8 04 | 317.960.6 54 | 257.557.0 00 | 666.516.150 | 187.617.00 0 | 478.899.1 50 | 0,635 5 | 304.340.410 |
| 5. | 1.242.033.8 04 | 317.960.6 54 | 250.717.0 00 | 673.356.150 | 187.617.00 0 | 485.739.1 50 | 0,567 4 | 275.608.394 |
| 6. | Salvage Value on Building | | | 1.573.500.0 00 | | 138.875.0 00 | | 785.139.750 |
| | | | | | | | Total | 5.674.707 |

Financial Performance Analysis

Al-Jadid Clinic has 3 classes: (1) Class I consists of 8 rooms with 8 beds (1 room 1 patient); (2) Class II consists of 8 rooms with 16 bedrooms (1 room 2 patients); (3) Class III consists of 8 rooms with 24 beds (1 room 3 patients). The current tariff is: (a) Class I: Rp 125000, -; (b) Class II: Rp 65,000, -; (c) Class III: Rp 45,000, -. By knowing the fixed and changing costs and the prevailing tariff, BEP is known to be Rp 36,919, - then by trial and error on a cash flow with NPV method greater than zero the amount is Rp 92.928. The NPV tariff is higher than the Class III rate (the lowest rate) due to a 5-year payback. Special Class I clinics provide cross-subsidies for class III. The amount of subsidy issued is Rp 10,000, the details are as follows: BEP tariff = Rp 36,919, - + subsidy = Rp 36,919, - + Rp 10,000, - = Rp 46,919, -. From the above BEP tariff is almost the same as the prevailing class III tariff that is Rp 45.000, -

Conclusions and Suggestions

Conclusions

1. With a bed rate of 49%, then the number of beds used for a year is 8585 beds
2. Class rates on the BEP by entering the applicable tariff, fix cost and variable cost is Rp 36,919
3. Class rates determined by NPV method with interest rate of 12% is Rp 92.298

Suggestions

1. A significant factor in improving bed usage levels is good service from Al-Jadid Kinik Kesehatan. This needs to be considered in order to compete with existing health clinics
2. We recommend that the health clinic Al-Jadid can cooperate (make referrals) with companies so as to increase the level of bed use
3. Clinical use of the Clinic at 49% means the clinic does not need to increase the number of beds or develop a health clinic, which indicates a lack of utilization of community-based clinical care facilities

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