Analysis of Efficiency Hotels in Yogyakarta

Wilda Ramadhani[1], Rujiman[2]

[1](Faculty of Economics and Business, Department of Economics, Universitas Sumatera Utara, Indonesia)
[2](Faculty of Economics and Business, Department of Economics, Universitas Sumatera Utara, Indonesia)
Corresponding Author: Wilda Ramadhani

Abstract: At present and in the future, the issue of efficiency is very important because of several things, including: (i) fewer and fewer resources; (ii) increasingly fierce competition; (iii) increasing customer satisfaction standards; (iv) improving quality of life. Therefore, efficiency analysis is needed to determine and determine the causes of changes in efficiency levels which can then be used to determine corrective actions for increased efficiency. This study aims to determine the efficiency of hotels in Yogyakarta, to see and know the most efficient hotels in Yogyakarta and to determine the factors that cause inefficiencies in hotels in Yogyakarta. The data used in this study are primary data obtained directly from the hotel manager and secondary data obtained from the Yogyakarta Central Bureau of Statistics (BPS), the Office of Tourism and Culture and the Association of Indonesian Hotels and Restaurants (PHRI). This study used a survey method with hotels in Yogyakarta as the unit of analysis. Data collection techniques used in this study were observation and documentation. Data search was conducted at various sources and related agencies in this study. The analytical tool used in this study is data envelopment analysis (DEA). Based on the table it can be seen that of the 23 samples of hotels in Yogyakarta there are only 6 hotels that have reached a 100% relative efficiency level. The six hotels are Zest Hotel, Pop Sangaji Hotel, Whiz Hotel, Prime In Hotel, Greenhost Boutique Hotel and Arjuna Hotel while others are not yet efficient. Hotels that have achieved a relatively 100% efficiency level can be concluded that they have utilized their input optimally to produce optimal output. In contrast, hotels that have not been efficient means that they have not utilized their input optimal.
Keywords: Data Envelopment Analysis, Efficiency, Optimal

I. Introduction

Geographically, DIY's location benefits from the distance between the location of an affordable and easily accessible tourist attraction. Along with the vigorous improvement of natural tourism carried out, tourist attractions increasingly attract tourists. It is used by the surrounding community and also certain parties to be used as a driver of economic activity which generally relies on four mainstay sectors, namely services, trade, hotels and restaurants, and agriculture. In this case tourism provides a real multiplier effect for the trade sector caused by increasing tourist visits. In addition, employment and contributions to the regional economy are also very significant.

The increasing number of tourists coming to Yogyakarta makes demand for hotels also increase. It cannot be denied that the hotel is an alternative that is chosen by many tourists for resting places while traveling or just to accommodate important meetings and so on. As one of the tourist cities, the growth of hotels in Yogyakarta has also increased rapidly from year to year. Most of the hotels are located in the tourist center area so that visitors get easy access to reach the tourist center. In terms of prices, hotels in Yogyakarta are quite varied, ranging from low-cost hotels to premium-priced hotels.

Yogyakarta is becoming increasingly attractive for investors to invest their funds in hospitality business. We can see in various regions, many new hotels are built in various locations, starting from highways, suburbs, to narrow streets in the middle of the city. New hotels continue to emerge as the number of tourists increases. The growth of hotels in Yogyakarta should be able to increase economic growth, where hotels that are labor intensive industries will certainly absorb a lot of labor and encourage the growth of other businesses such as transportation, crafts, culinary and more. The growth of hotels in Yogyakarta is expected to be able to increase community income and regional income.

Based on data from the Yogyakarta Central Bureau of Statistics, in 2014 there were 57 star hotels and 315 budget hotels. Such rapid growth of hotels will certainly sharpen the level of business competition. Therefore, the manager must take into account the inputs used to achieve maximum output in order to survive. In addition, a hotel must have certain advantages in order to be one step ahead of competitors, especially superior in terms of performance serving hotel visitors.

Formerly the function of the hotel was known only as a place to stay for consumers who were on a business or leisure trip and did not have a relationship at the destination so they needed a place to stay overnight. Over time, the functions of the hotel increased. Today, hotels are often used for weddings, company meetings, launching for new products of a company and not infrequently hotels are used as a means for weekends for the upper middle class.

Today's consumers are very critical and careful in spending their money. They consider many factors to choose a product or service including hospitality services. Therefore, it is very important for hotels to design appropriate and interesting service concepts. Because only companies that have insight into consumers and the right concept of service can survive. Every company that is no exception engaged in the hotel business is required to be able to provide more value, by paying attention and giving what consumers want.

The impact of the development of hospitality services in the economic field is as follows:

1. Increase employment opportunities and business opportunities

Increasing the development of hotels can open employment and business opportunities both directly and indirectly, both before and after the activity takes place.

2. Increasing regional income

The hotel sector has a great opportunity to increase regional income which can support the continued development of the region.

3. Support national development

Some hotel developments are not in the city center but are in the interior and are free of city noise. Thus this is very instrumental in supporting regional development.

At present and in the future, the issue of efficiency is very important because of several things, including: (i) fewer and fewer resources; (ii) increasingly fierce competition; (iii) increasing customer satisfaction standards; (iv) improving quality of life. Therefore, efficiency analysis is needed to determine and determine the causes of changes in efficiency levels which can then be used to determine corrective actions for increased efficiency. Based on this, researchers want to try to find out the efficiency analysis of hotels in DIY using the DEA method (data envelopment analysis).

The level of efficiency in hotels in Yogyakarta can be analyzed using the DEA method (data envelopment analysis). Through the results of observations of data obtained from the hotel manager, the Tourism and Culture Office and the Association of Indonesian Hotels and Restaurants in DIY Regency, it is hoped that the value of indicators that are strong enough to find out is efficient or not. The hotels that are the object of research are two-star, 3-star and four-star hotels in Yogyakarta.

Based on the description above, the title of this research is "Analysis of Efficiency Hotels in Yogyakarta" by using the DEA method (data envelopment analysis).

II.   Materials and Method

The analytical method used in this study is DEA (data envelopment analysis) which consists of input and output variables with the help of DEAP 2.1 software. DEA method is a non-parametric method based on linear programming. DEA measures the relative efficiency ratio of the Economic Activity Unit (UKE) as a weighted output ratio with weighted inputs.

In measuring efficiency, DEA identifies units that are used as references that can help to find causes and ways out of inefficiency, which are the main advantages in managerial applications. In addition, DEA does not require a more complete specification of the form of function that shows the relationship of production and distribution from observation. DEA theory has several value concepts that are used as the basis of managerial processes namely (PAU UGM, 2000):

a. The efficiency ratio value is relative, meaning DEA produces efficiency for each economic unit relative to the sample of other units. This can be used to see economic units that need managerial improvement.

b. DEA shows economic units that have perfect efficiency with 100% value and less efficient with value <100%. Besides that there is a multiplier number that is used as the basis for managerial improvement.

c. The DEA presents a cross efficiency matrix that can show economic efficiency units with different inputs and produce output that is different from other economic units.

In this study, DEA is used in addition to operational policies, it can also be used to recommend improvements for managers individually or in groups that are less efficient to be efficient.

The essence of DEA is to determine the weight or scales for each UKE output and input. This weight has properties:

1. Not negative

2. It is universal, meaning that every UKE in the sample must be able to use the same set of weights to evaluate the ratio (total weight output / total weight input) and the ratio must not exceed 1 (total weighted output / total weighted input $\leq$ 1).

The DEA (Data Envelopment Analysis) for an Economic Activity Unit (UKE) can be formulated as a fractional linear program, whose solution can be obtained if the model is transformed into a linear program with the weight of input and output of the Economic Activity Unit (UKE) as decision variables.

DEA is a calculation of efficiency, relative technique. The hypothesis for the calculation of DEA is:

a. UKE is less efficient if efficiency is <100%

b. UKE is efficient if efficiency = 100%

The DEA method has several advantages, including (Setiawan, 2004):

1. Can handle many inputs and outputs from a group of DMUs.

2. Does not round up the assumption of a functional relationship between input and output.

3. Does not require a single measurement for each DMU to make it easier to compare with other DMUs

Besides having advantages, DEA also has several disadvantages, namely:

1. DEA efficiency measurement results in a relative level of efficiency, meaning the level of efficiency compared to other DMUs and is very vulnerable to measurement errors so that it can produce invalid values.

2. Because DEA is a nonparametric method, it is very difficult to do statistical measurement tests.

Data

The data used in this study are:

Primary Data

Primary data is data collected by individuals / organizations directly from the object under study and for the interests of the study concerned which can be in the form of interviews and observations. Primary data is obtained by direct interview with the hotel manager as the first party giving the data.

The measurement variables used to obtain the level of efficiency in this study are:

1. Input Variables

a. Number of rooms

The number of rooms is the total number of rooms provided by the hotel manager and used as a place to stay for visitors who use the services of a hotel. The measurement scale of this size is the number of rooms provided by the hotel and expressed in units.

b. Number of Employees

The number of employees shows the amount of labor used by the hotel in operations that are directly related to the provision of all the needs and facilities of visitors who come. The measurement scale of this size is the number of employees employed by the hotel and stated in units of people.

c. Number of Function Rooms

Function room is one of the facilities offered by the hotel for various activities or needs in accordance with the needs of the customer / guest such as meetings or as a place to carry out parties and so on. Functional rooms can also be interpreted as a multi-function room that is commonly used to hold meetings, bonuses incentive, convention, exhibition, function, at certain periods and objectives.

2. Output Variables

a. Number of Hotel Visitors

The number of visitors to the hotel is the average number of visitors or guests who come and visit the hotel in one year.

b. Number of Events

The number of events is the average number of events held in the hotel in question. The number of events in question is where hotel visitors who come only to use the facilities provided by the hotel.

In this study, the author took the object of research on the efficiency of hotels in Yogyakarta. The data used uses primary data obtained directly from the hotel management which is the object of research. Data collection techniques used are interviews and questionnaires. There are 23 hotels that are the object of research consisting of, 13 2-star hotels, 7 3-star hotels and 3 4-star hotels.

III. Results and Discussion

The results of data analysis using the DEA model obtained an efficiency level of 23 hotels as in the following table:

Table 1. Level of Efficiency of 23 Hotels

No	Name of Hotels	Classification	Efficiency
1	Zest Hotel Yogyakarta	Bintang 2	100%
2	Top Malioboro	Bintang 2	58,60%
3	Eclipse Hotel	Bintang 2	57,80%
4	Matahari Hotel	Bintang 2	17,70%
5	Cavinton Hotel	Bintang 4	48,60%
6	Fave Hotel	Bintang 2	86%
7	Rosalia Indah Hotel	Bintang 2	49,20%
8	The Grove Express Hotel	Bintang 2	74,30%

9	Tickle Hotel	Bintang 2	49,30%
10	Inna Garuda Hotel	Bintang 4	67,40%
11	Grage Jogja Hotel	Bintang 2	16%
12	Grage Ramayana Hotel	Bintang 2	40,90%
13	Pop Sangaji Hotel	Bintang 2	100%
14	Gowongan Inn Hotel	Bintang 3	45,50%
15	Jentra Hotel	Bintang 2	51,70%
16	Whiz Hotel	Bintang 2	100%
17	Prime In Hotel	Bintang 3	100%
18	Grand Rosela Hotel	Bintang 3	47,90%
19	Greenhost Boutique Hotel	Bintang 3	100%
20	Indah Palace Hotel	Bintang 3	46%
21	Mutiara Kencana Murni,Pt	Bintang 3	84,70%
22	Arjuna Hotel	Bintang 3	100%
23	Jambuluwuk Hotel	Bintang 4	92,60%

Source: Research Result

Based on the table it can be seen that of the 23 samples of hotels in Yogyakarta there are only 6 hotels that have reached a 100% relative efficiency level. The six hotels are Zest Hotel, Pop Sangaji Hotel, Whiz Hotel, Prime In Hotel, Greenhost Boutique Hotel and Arjuna Hotel while others are not yet efficient. Hotels that have achieved a relatively 100% efficiency level can be concluded that they have utilized their input optimally to produce optimal output. In contrast, hotels that have not been efficient means that they have not utilized their input optimally. In other words, in hotels that have not been efficient, there is still waste that the hotel does in using its inputs to produce output.

After DEA shows the level of efficiency for each hotel by giving a number of 1 or 100% for hotels that are efficient and less than 1 or 100% for hotels that are not yet efficient. Because there are still many hotels that are not yet efficient, the hotel needs to make policies to be efficient. For hotels that have not reached efficiency, they can compare / benchmark with hotels that are already efficient.

Based on this unit analysis, it can be seen how many hotels that have not been efficient and to be efficient need to refer to hotels that have achieved relatively 100% efficiency. For Top Malioboro hotels it is recommended to refer to Pop Sangaji and Prime In Hotels with deficiencies of 5.5% and 33.1% respectively. Eclipse Hotel refers to Zest Hotels with a shortage of 11.6% and Arjuna Hotels at 4.6%. Matahari Hotel to be efficient needs to refer to Prime In Hotels with deficiencies of 16.7%. Furthermore, Cavinton Hotel refers to the Zest Hotel of 30.1%, Pop Sangaji 10.2% and Prime In Hotels with a deficiency of 78%. Fave Hotels need to refer to Zest Hotel 36.4%, Pop Sangaji 11%, and Prime In Hotel 13.6%. Rosalia Indah Hotel refers to Zest Hotel 1.1%, Whiz Hotel 9%, Prime In Hotel 12.2% and Greenhost Boutique Hotel 0.1%. The Grove Express Hotel refers to Zest Hotel 18%, Pop Sangaji Hotel 1.8%, Whiz Hotel 5.8% and Prime In Hotel 3%. Tickle Hotel refers to Zest Hotel 12.5%, Pop Sangaji Hotel 1.2%, and Prime In Hotel 9.5%. Inna Garuda Hotel refers to Arjuna Hotel 207.8%. Grage Jogja Hotel refers to Zest Hotels with a shortfall of 10.8%, Prime In Hotel 2.8% and Arjuna Hotel 0.7%. Grage Ramayana Hotel refers to Prime In Hotel 41.7%. Gowongan In Hotel refers to Zest Hotel 2.7% and Arjuna Hotel 30.1%. Jentra Hotel refers to Pop Sangaji Hotel 10.5% and Prime In Hotel 24.7%. Grand Rosela Hotel refers to Zest Hotel 21.5% and Arjuna Hotel 6.2%. Indah Palace Hotel so that it can efficiently refer to Prime In Hotel 16.7%. Mutiara Kencana Murni Hotel, Pt refers to Zest Hotel 42.6%, Prime In Hotel 54% and Arjuna Hotel 26.8%. Jambuluwuk Hotel to be efficient according to processed results DEA refers to Zest Hotel 21.2% and Arjuna Hotel 154%.

IV. Conclusion

Based on the results of the analysis carried out in the hotel efficiency research in Yogyakarta, the following conclusions can be drawn:

1. Level of Efficiency of Hotels in Yogyakarta

The results of calculations using DEA show that of the 23 star hotels in Yogyakarta sampled, there are 6 hotels that are 100% efficient, namely Zest Hotel Yogyarta, Pop Sangaji Hotel, Whiz Hotel, Prime In Hotel, Greenhost Boutique Hotel and Arjuna hotel. 17 other hotels are not yet efficient, Top Malioboro Hotel 58.60%, Eclipse Hotel 57.80%, Matahari Hotel 17.70%, Cavinton Hotel 48.60%, Fave Hotel 86%, Rosalia Indah Hotel 49.20%, The Grove Express Hotel 74.30%, Tickle Hotel 49.30% , Inna Garuda Hotel 67.40%, Grage Jogja Hotel 16%, Grage Ramayana Hotel 40.90%, Gowongan Inn Hotel 45.50%, Jentra Hotel 51.70%, Grand Rosela Hotel 47.90%, Indah Palace Hotel 46%, Mutiara Kencana Murni, Pt 84.70%, and Jambuluwuk Hotel 92.60%.

2. The Most Efficient Hotels in Yogyakarta

The results of the analysis using Data Envelopment Analysis (DEA) show that not all hotels in Yogyakarta have been efficient. Of the 23 hotels in Yogyakarta there are only 6 hotels that have reached the level of efficiency, namely Zest Hotel, Pop Sangaji Hotel, Whiz Hotel, Prime In Hotel, Greenhost Boutique Hotel and Arjuna Hotel, which are indicated by an efficiency score that reaches 100%. Whereas hotels that have not been efficient in the manufacturing process, which are indicated by efficient scores of less than 100% are as many as 17 hotels in Yogyakarta.

3. Evaluation of Hotels in Yogyakarta and Policies taken

Sources of inefficiencies found in hotels in Yogyakarta that have not been efficient according to the results of analysis of calculations Data Envelopment Analysis (DEA) generally comes from input variables and also output variables. The inefficiencies that occur in hotels in Yogyakarta can be seen from the target value which is smaller than the actual value. Besides that DEA also provides information that the hotel is not efficient which can be seen through achieved values that have not reached 100%. This shows that the input and output productivity of the hotel is not optimal. Based on these conditions, there are several alternatives offered for hotels that are not yet efficient in Yogyakarta in order to be efficient, including the following:

a. Input-oriented

To make hotels that have not been efficient become efficient, one alternative that can be chosen is more oriented towards the inputs used. That is, how much input is improved to achieve efficient output according to observation. This will later result in changes in the composition of the input used.

b. Output oriented

The second alternative that can be done to be efficient and still want to maintain the existing input is an output-oriented improvement. This means how much the level of output is improved by hotels in Yogyakarta using the same resources as observation. Based on this, the input used remains but the output is increased.

c. Benchmarking

Another alternative that can be used for hotels to be efficient is by referring to hotels in Yogyakarta that are already efficient. However, not all efficient hotels can be used as a reference. Therefore, DEA has shown which hotels can be used as references by hotels that are not efficient through their peers or benchmarks that can be emulated by the hotel in question. With this alternative, it allows changes to both the input and output structures.

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