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Efficiency analysis of productive *Waqf* management at Jogokariyan Mosque Yogyakarta

Alwaqiatul Jamagis[*], Faculty of Islamic Finance, Institut Teknologi dan Bisnis Ahmad Dahlan, South Tangerang, Banten, Indonesia
Mukhaer Pakkanna, Faculty of Islamic Finance, Institut Teknologi dan Bisnis Ahmad Dahlan, South Tangerang, Banten, Indonesia
Saiful Anwar, Faculty of Islamic Finance, Institut Teknologi dan Bisnis Ahmad Dahlan, South Tangerang, Banten, Indonesia

[*]Email for Correspondence: jamagis1897@gmail.com

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ABSTRACT

Waqf plays an important role in promoting the welfare of society, especially in overcoming poverty and social inequality in Indonesia, a Muslim-majority country. This study aims to analyze the production efficiency of productive *Waqf* management by Nazir in Jogokariyan Mosque Yogyakarta and identify problems in the management. The research method uses a quantitative approach with Data Envelopment Analysis (DEA) and Banxia Frontier Analyst software. Primary data comes from the Jogokariyan Mosque's finances managed by Nazhir *Waqf*. The results showed that DMU (Decision Making Unit) 1 (lodging) achieved 100% efficiency in 2017, 2018, and 2019. DMU 2 (rice fields) achieved 100% efficiency from 2017 to 2023. Efforts to improve the efficiency of DMU 1 involve successively reducing the input variables of employee salaries (10.42%, 14.30%) in 2020-2021, and employee salary costs and operating costs in 2022 (14.19%, 4.35%). However, revenue and profit outputs need to be improved (27.94%, 32.45%) in 2020, (26.27%, 30.70%) in 2021, and (25.71%, 30.45%) in 2022. DMU 2 does not require efficiency improvement as it reached 100% from 2017 to 2022.

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INTRODUCTION

Community welfare and social inequality are crucial issues in many countries, including Indonesia, which has a majority Muslim population (Aziz & Mohamad, 2016; Cholil, 2017; Shalihin et al., 2020). Focusing on more inclusive solutions, *Waqf* is emerging as a potential tool to address these challenges. In Indonesia, the growth in the number of people below the poverty line as the economy weakened after 1997, suggests the need for innovative approaches (Nugroho et al., 2021; Andersson et al., 2021; Hill, 2021). *Waqf*, inspired by Islamic teachings, has the potential to contribute to addressing the problems of poverty and social inequality (Owais & Ali, 2023; Saiti et al., 2021; Siska, 2019).

Waqf is one of the instruments to build community welfare. *Waqf* activities are expected to play an active role in donating assets for good purposes by transferring assets and benefits from one person to another (Arab et al., 2023; Rahim, 2023; Yousri, 2021). This describes a system that as a whole provides the basis for the happiness of mankind (Syaifullah & Idrus, 2019). *Waqf* management in Indonesia has gone through three periods: Traditional, semi-professional, and professional (Pertiwi et al., 2019; Qurrata et al., 2019; Sholihah & Zaenurrosyid, 2021). To date, the amount of *Waqf* land in Indonesia is very large. This is the data reinforced by the Directorate of *Waqf* of the Ministry of Religious Affairs of the Republic of Indonesia that the number of *Waqf* land locations as of March 2021 is 397,736 locations divided and spread across all provinces in Indonesia, with an area of 53,180.27 Ha (siwak.kemenag.go.id, 2021). Productive *Waqf* is widely used as a substitute for static endowment funds by investors (*wakif*). In this case, productive *Waqf* can play an important role in economic and social interests as a source of financing for schools, research and studies, hospitals, and other useful services (Shulthoni & Saad, 2018). The era of productive *Waqf* offers great potential for effective and efficient asset management. Through various productive economic programs, such as the utilization of lodging as a *Waqf* asset, Jogokariyan Mosque of Yogyakarta has successfully played a broader role in the welfare of the community.

Jogokariyan mosque has a uniqueness that makes this mosque different from other mosques in Indonesia, one of which is the mission of the mosque which is determined to prosper the congregation more important than prospering the physical building. Jogokariyan Mosque Yogyakarta is also considered successful in productive *Waqf* management, based on various productive economic programs that have been carried out by it. In terms of financing operational expenses, the Jogokariyan Yogyakarta mosque does not rely on infaq or donations from the jam`ah, but rather maximizes *Waqf* assets and land productively such as making part of the mosque building a three-star hotel class lodging. the board with high enthusiasm and determination makes this mosque not only a means of worship, but also contributes to the economic welfare of the community. The business run by the Jogokariyan Yogyakarta mosque management is able to finance the mosque's operational costs and is able to serve the community optimally. This makes researchers interested in digging deeper into the productive *Waqf* management of the Jogokariyan Yogyakarta mosque because it is considered interesting and inspiring asset empowerment in other mosques.

Productive *Waqf* management by the *Waqf* nazir is not free from problems, one of which is the problem of *Waqf* production, *Waqf* can only be called productive if it has a production process that produces output either services or goods where the results can be utilized for the benefit of the people (Wahyuningsih & Widyastuti, 2018). The measurement of production efficiency in productive *Waqf* is quite important to determine the *Waqf* management strategy (Senjiati & Yadiati, 2021). Effective and efficient management greatly affects the positive image of *Waqf* management institutions in the eyes of the community.

In previous research conducted by Senjiati & Yadiati (2021), the level of efficiency of *Waqf* management institutions was measured using the Data Envelopment Analysis (DEA) approach with the input variables included being operational costs and asset depreciation costs. For output variables included are *Waqf* fund income and utilization of *Waqf* assets. The object of research consists of six national *Waqf* management institutions consisting of the Global Wakaf/Aksi Cepat Tanggap Foundation, Dompet Dhuafa Republika Foundation, Yayasan Pos Keadilan Peduli Umat (PKPU), Yayasan Kesejahteraan Madani, Yayasan Mandiri Amal Insani and Darul Qur'an Foundation. The results showed the level of efficiency of *Waqf* management institutions in 2014-2017 Dompet Dhuafa Foundation consistently reached the level of efficiency and in the same period PKPU Foundation did not reach the level of efficiency. In other research conducted by Hasan et al. (2020) on measuring the efficiency of *Waqf* management in Penang, Kelantan and Pahang using Data Envelopment Analysis (DEA) approach comparison of constant return to scale (CSR) and variable return to scale (VRS), in this study using two input variables, namely the total *Waqf* collection and the number of Human Resources (HR) of *Waqf* managers, for the output variable used is the total utilization of *Waqf* assets. The results of measuring the level of efficiency found that Penang is the most efficient area in productive *Waqf* management and Klantan is the least efficient area in productive *Waqf* management.

The purpose of this study is to analyze the level of efficiency in the management of productive *Waqf* carried out by the Nazir at Jogokariyan Mosque Yogyakarta. In addition, this study also aims to identify the problems faced in the management of productive *Waqf* in the mosque. Quantitative method is applied by using Data Envelopment Analysis (DEA) approach with the support of Banxia Frontier Analyst software. The main data was collected from financial reports obtained from the Jogokariyan Mosque board of Yogyakarta, which also acts as the Nazir managing the *Waqf* assets. This research focuses on two Commodity Decision Making Units (DMUs), namely lodging (DMU 1) and rice fields (DMU 2).

Despite the considerable potential of productive *Waqf*, challenges in asset management and empowerment remain. Therefore, efforts to improve efficiency and effectiveness in *Waqf* management are essential. This study aims to fill the knowledge gap in measuring the production efficiency of productive *Waqf* management and identifying steps towards more productive and sustainable *Waqf* management. Thus, this study hopes to contribute to understanding and encouraging productive *Waqf* management that can improve the overall welfare of society.

METHOD

The method used is quantitative research with a nonparametric Data Envelopment Analysis (DEA) approach and using Banxia frontier analyst software. The primary data source of this research is financial data obtained from the Jogokariyan Yogyakarta mosque board, which is a *Waqf* Nazir that manages mosque assets. In this study, the DMU (Decision Making Unit) consists of Lodging (Hotel) and *Waqf* rice fields managed by the Jogokariyan Yogyakarta mosque. The DMUs used in this study were obtained through preliminary surveys and literature reviews. The research data covers a 6-year period, ranging from 2017 to 2022, with a total of 12 cases analyzed.

Tabel 1. DMU Classification

Commodity	DMU
Lodging (Hotel)	DMU 1

Rice Fields	DMU 2

Source: Data processed by researchers (2023)

Input variables in DMU 1 (Lodging) are Total Employee Salary Costs and Total Lodging Operating Costs, for the output variables are total lodging revenue and total lodging profit, while for DMU 2 (rice fields) input variables are Total Revenue Sharing for rice field management and total operational costs for rice field management, for the output variables are total rice harvest revenue, and total rice harvest utilization.

RESULTS AND DISCUSSION

Result

The results of the analysis of data processing efficiency for DMU 1, which is Lodging (hotel) with the application of the VRS model of maximize outputs orientation, can be found in table 2. The use of the VRS model in this analysis indicates that variations in the results of lodging management from 2017 to 2022 have significant fluctuations. While the results of the analysis of the efficiency level of data management for DMU 2 (rice fields) by applying the same model and orientation to DMU 1 (lodging) from 2017 to 2022 have a constant maximum result.

Table 2. Displaying the Efficiency Value of DMU 1 (Lodging/Hotel)

Year	Score(%)	Condition	Efficiency
2017	100	Green	Efficient
2018	100	Green	Efficient
2019	100	Green	Efficient
2020	78	Red	Inefficient
2021	79	Red	Inefficient
2022	79	Red	Inefficient

Source: Output Banxia Frontier Analyst (2023)

Table 3. Displaying the Efficiency Value of DMU 2 (Rice Field)

Tahun	Score(%)	Condition	Efficiency
2017	100	Green	Efficient
2018	100	Green	Efficient
2019	100	Green	Efficient
2020	100	Green	Efficient
2021	100	Green	Efficient
2022	100	Green	Efficient

Source: Output Banxia Frontier Analyst (2023)

In this research, improvement strategies are evaluated through the potential improvements made in the years of inefficiency. Potential improvement has two signs, negative (-) and positive. A negative sign (-) indicates that the variable needs to be reduced, while a positive sign indicates that the variable needs to be increased. Based on the VRS model analysis on DMU 1 (Lodging), there are three inefficient years, namely 2020, 2021 and 2022. Potential improvements in each inefficient year can be found in table 4. The results of data processing using Banxia Frontier Analyst 4 Software for potential improvements in 2020, 2021 and 2022 that experience inefficiency are shown in Table 4. In Table 4 which illustrates the potential improvements in 2020 to achieve 100% maximum efficiency (green conditions) in the production of lodging management, there are several adjustments that need to be made to the input variables. The adjustment is that the input variable for employee salary costs is reduced by 10.42% because the total employee salary costs exceed the target. This decrease aims to optimize spending efficiency. Nonetheless, adjustments to the input variables had a significant impact on the output variables of revenue and profit. This may be because the results are inconsistent despite changes to the inputs.

According to (Ramanathan & R, 2014), if the actual value of a variable is equal to its target value, then efficiency for that input or output has been achieved. Conversely, if there is a difference between the actual value and the target value, then efficiency has not been achieved. The graph of potential improvements for input variables and output variables is presented in the form of a pie chart based on Banxia Frontier Analyst 4 software for DMU 1 (lodging), which can be found in Figure 1 Total Potential Improvements. This diagram illustrates the overall efficiency of a DMU 1 (inn) from 2017 to 2022 in 100% condition (green condition), with an adjustment of -17.95% for the input variable of employee salary costs, -2.01% for the input variable of

operational costs. On the output side, it can be seen that the revenue variable shows an increase of 36.87%, while the profit variable shows an increase of 43.18%.

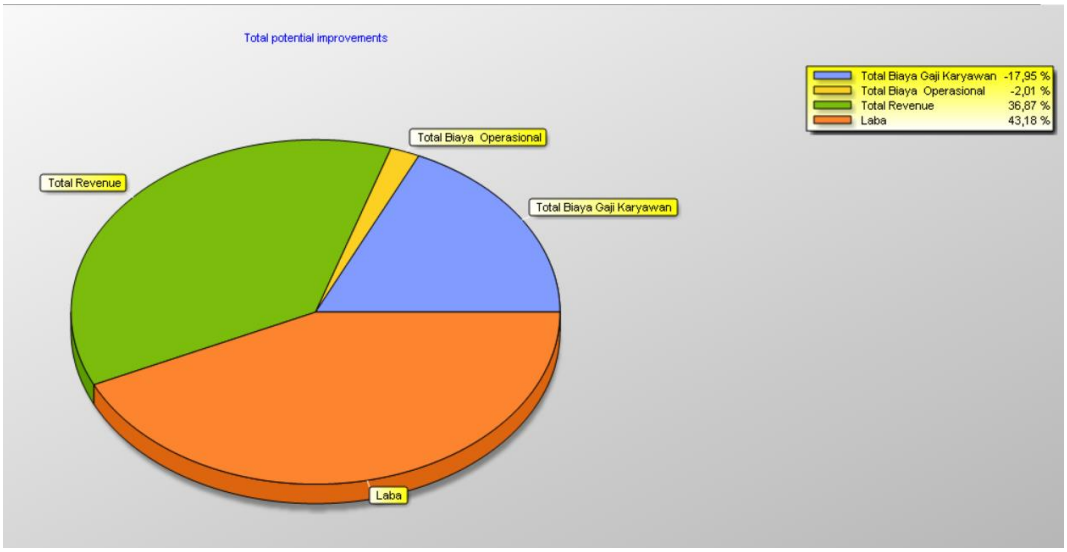

Figure 1. Total Potential Improvements
Source: Improvements summary Banxia Frontier Analyst (2023)

In DMU 2 (rice fields) has a very good level of efficiency in 100% conditions from 2017 to 2022, with the actual value being equal to the target value, so no improvement is needed either in terms of input or output variables.

Table 4. Potential Improvements DMU 1 (Lodging/Hotel)

Year	Variable	Factors Affecting	Unit	Actual	Target	%
2020	Input	Total cost of employee salaries	Rupiah	10.020.000	8.975.504	-10%
		Total operating costs		58.014.000	58.014.000	0%
	Output	Total revenue		512.750.000	656.037.931	27,94%
		Total profit		444.716.000	589.048.426	32,45%
2021	Input	Total cost of employee salaries		10.347.650	8.867.465	14,30%
		Total operating costs		55.044.000	55.044.000	0,00%
	Output	Total revenue		486.500.000	614.296.551	26,27%
		Total profit		421.108.350	550.385.086	30,70%
2022	Input	Total cost of employee salaries		10.769.850	9.242.000	-4,35%
		Total operating costs		68.310.000	65.340.000	-14,19%
	Output	Total revenue		603.750.000	759.000.000	25,71%
		Total profit		524.670.150	684.418.000	30,45%

Source: Primary Data Processed From Banxia Frontier Analyst 4 Output (2023)

From 2017 to 2022, productive *Waqf* management activities at Jogokariyan Mosque Yogyakarta have not run optimally. This is stated by the level of efficiency obtained in each Decision Making Unit (DMU) as a whole, which amounted to 94.17% with an "amber" classification. This efficiency score is generated through the calculation of the average efficiency of each year in each DMU, which is 88.69% for the production process of DMU 1 (lodging) and 100% for the production process of DMU 2 (rice fields). Therefore, even though the efficiency score in DMU 2 gets a perfect score, improvement steps for productive *Waqf* management at the inn need to be taken by the Nazhir *Waqf* of the Jogokariyan mosque in Yogyakarta to increase the overall efficiency level.

Referring to the results of the analysis using the DEA-VRS method with maximize outputs orientation, the improvement strategy is implemented through a decrease in the actual value of the input variables and an increase in the target of the output variables. However, keep in mind that the implementation of this improvement strategy will require improvements to distribution management within the company. Based on this consideration, there are several improvement proposals that can be applied to DMU 1 (lodging), namely:

1) Employee Salary Costs: In the input variables related to employee salary costs in DMU 1, a consecutive decrease of 10.42% is required in 2020, 14.30% in 2021 and 14.19% in 2022 in order to achieve efficiency conditions. Actions to improve the efficiency of the production process of DMU 1 (lodging) on the input variable of employee salary costs can consider the following:
   A) Making employee payroll with a daily worker system, namely employee payroll by calculating the number of days entered, the daily worker calculation can take the maximum nominal salary divided by the number of days during the month.
   B) Determining and leveling the nominal employee salary by considering the income that will be obtained by the inn as a form of internal control (Saraswati, 2014)
2) Operational Costs: In the operational cost input variable for DMU 1, only the year 2022 needs to be decreased by 4.35% to reach an efficient condition. Improving the efficiency of the DMU 1 (lodging) production process on the operational cost input variable, namely:
   a) Creating a good inventory system in order to minimize the occurrence of goods that are wasted due to the amenities of each room that expire so that they cannot be used.
   b) Making effective operational budgeting by considering existing financial conditions (Saraswati, 2014).

Some managerial implications that can be applied to improve output variables in the management of lodging at the Jogokariyan Mosque Yogyakarta are as follows:

1) Management Planning, designing lodging management planning every certain period can help optimize management performance more efficiently. This plan will ensure good control and increase the output produced.
2) Resource Optimization, increasing output variables related to lodging services by re-evaluating the use of resources. Efforts to minimize waste or increase efficiency in resource management can have a positive impact on service quality and the resulting output.
3) Guest Satisfaction, focus on output variables related to revenue by providing maximum service to lodging guests. Friendly service, comfortable facilities, and quick responses to guest needs can increase revenue from lodging management.
4) Cooperation with Related Parties, increasing output variables related to income can also be achieved by establishing cooperation with related parties, such as local tourism or educational institutions. This cooperation can open up promotional opportunities and increase the number of inn guests.
5) Detailed Service Contracts, developing clear service contracts with lodging guests can increase revenue. The contract can include facilities provided, rates, payments, cancellation policies, and guarantees of comfort during the stay.
6) Quality Management, ensuring that lodging management meets high quality standards can improve reputation and guest satisfaction. Consistent service quality will have a positive impact on revenue-related output variables.

By implementing these measures, lodging management at Jogokariyan Mosque Yogyakarta can effectively improve output variables and support long-term goals.

CONCLUSION

DMU 1 (lodging) reached 100% efficiency level in 2017, 2018, and 2019. Meanwhile, DMU 2 (rice fields) reached an efficiency level of 100% in all years in the data studied from 2017 to 2023. The input variables that affect the efficiency value of DMU 1 (lodging) are the total cost of employee salaries and total operational costs while for DMU 2 (rice fields) are the total profit sharing of rice field managers and the total operational costs of rice field management. On the other hand, the output variables that have an impact on the efficiency value of DMU 1 (lodging) are, respectively, total revenue and total profit while for DMU 2 (rice fields) are total rice harvest revenue and total rice harvest utilization.

Efforts to improve the efficiency of inefficient DMU 1 (lodging) in 2020 and 2021 only involve a decrease in the value of input variables, namely employee salaries successively by (10.42%, 14.30%), while in 2022 it involves a decrease in the value of input variables which include employee salary costs and operational costs successively, this decrease is (14.19%, 4.35%). However, the output variables of revenue and profit need to increase by (27.94%, 32.45%) in 2020, (26.27, 30.70%) in 202, and (25.71%, 30.45%) in 2022, respectively. Meanwhile, the efficiency improvement process for DMU 2 (rice fields) for 2017 to 2022 is not needed either in terms of input variables or outputs variables because it gets an efficiency level with a value of 100% every year.

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