Al-Kharaj: Journal of Islamic Economic and Business
P-ISSN: 2686-262X; E-ISSN: 2685-9300

Efficiency of Zakat Collection and Distribution by the National Zakat Agency (Baznas) in Regencies/Cities in Indonesia

Isti Khoirul Rochmah[1], Muhammad Sholahuddin[2*], Imronudin Imronudin[3]

Master of Management Program, Faculty of Economics and Business

Universitas Muhammadiyah Surakarta, Indoneisa

*Email: ms24@ums.ac.id

Keywords:
Technical Efficiency, Zakat Management, BAZNAS, Data Envelopment Analysis (DEA), Free Disposal Hull (FDH)

Abstract

This study aims to analyze the efficiency of zakat collection and distribution by the National Zakat Agency (Baznas) in districts/cities in Indonesia. This study uses a descriptive quantitative approach. The population in this study is all companies listed on the Indonesia Stock Exchange in 2019-2021. The sampling technique used in this study is non-probability sampling, specifically purposive sampling. The data sources for this study are audited financial reports issued by each National Zakat Management Agency (BAZNAS) in districts/cities on the Digital Zakat Information System or the official Digital Service Interface of BAZNAS RI. The data collection method used in this study was documentary research (literature review). The data analysis method used in this study was Data Envelopment Analysis (DEA), a non-parametric technique used to assess the technical efficiency of decision-making units (DMUs). The results of this study indicate that technical efficiency in zakat management does not solely depend on the size of input allocation but is more determined by managerial effectiveness in managing inputs to produce optimal outputs. The combined approach of DEA and FDH has proven capable of providing a more comprehensive understanding of the institutional performance of BAZNAS. Therefore, this study supports the importance of developing a data-based evaluation system and structured institutional development strategies focused on long-term efficiency, particularly in zakat management as a public trust and an instrument of social justice at the local level

INTRODUCTION

Zakat is an obligation borne by Muslims as part of the third pillar of Islam. The primary purpose of zakat is to improve the welfare of society and promote economic equality in a fair and sustainable manner. The function of zakat is not only to alleviate the economic burden of mustahik (zakat recipients), but also as a tool to balance the economy at the national level. In the long term, zakat aims to transform recipients into donors who achieve financial independence (Subardi et al., 2020).

Zakat plays a very important role in strengthening the economy of the community, as seen from the increasing public trust in zakat institutions thanks to good management (Abdullah & Rauf, 2022). If the shahada is the main foundation of Islam and prayer reflects vertical piety, then zakat serves as a means of maintaining horizontal piety. Zakat also acts as a highly effective tool for the redistribution of wealth (Abdurrahman & Herianingrum, 2020). As the only pillar of Islam that has a direct impact on improving the economy of the people, zakat has proven to be important, as explained in the zakat management study by BAZNAS (Achmad, 2022). If zakat management is not carried out optimally, this can worsen the economic condition of the community, because poor management can reduce the trust of muzakki (zakat payers) ('Amah et al., 2023). More broadly, zakat also serves as a source of income for Islamic countries in addition

to taxes, and helps reduce poverty through management tailored to the needs of the community (Adhiatma & Fachrunnisa, 2021).

The Indonesian government provides support for the management of zakat, infak, and sedekah through various strict laws and regulations. Law No. 38 of 1999 concerning Zakat Management became the first legal basis, although it was later replaced by Law No. 23 of 2011. Law No. 23 of 2011 establishes the National Zakat Management Agency (BAZNAS) as the institution responsible for managing zakat at the national level, and provides the legal framework for the establishment of Zakat Management Institutions (LAZ) at the provincial and district/city levels. Additionally, BAZNAS Regulation No. 5 of 2018 governs the financial management of zakat to ensure transparency and accountability in the administration of zakat funds.

Efficiency is a measure that indicates the extent to which resources are used optimally to produce maximum results with the available inputs (Jahja et al., 2023). In the case of zakat institutions, efficiency includes the ability of the institution to manage zakat funds effectively so that they can provide significant benefits to mustahik (Alam, 2018). Efficiency also focuses on efforts to reduce operational costs without compromising the quality or scope of distribution programs, which in turn makes zakat management more transparent and accountable (Abdullah & Rauf, 2022). With high efficiency, zakat institutions can increase public trust and achieve the goal of sustainable economic empowerment for the community (Agung et al., 2022).

Indonesia, the fourth most populous country in the world, is estimated to have a population of approximately 279.59 million by 2024 (Databooks, 2024). Of this number, around 229.62 million are Muslims, indicating a huge potential for zakat. However, poverty remains a major challenge in Indonesia, with 9.03% of the total population, or approximately 25 million people, classified as poor in the same year (BPS, 2024). This poverty not only reflects existing economic disparities but also a lack of access to basic needs such as education, healthcare, and decent employment.

One strategic solution offered by Islam to address poverty is to implement zakat as a tool for wealth redistribution. In this regard, the National Zakat Agency (BAZNAS) plays a crucial role in managing the collection and distribution of zakat. Data indicates a significant increase in zakat collection and distribution in Indonesia, with total zakat receipts reaching Rp32.32 trillion in 2023, and distribution amounting to Rp31.19 trillion. However, this figure is still far below the estimated national zakat potential of Rp233.8 trillion per year (Adhiatma & Fachrunnisa, 2021). The following table shows the realization of zakat collection and distribution for the five years from 2019 to 2023:

Table 1. Total ZIS-DSKL Collection and Distribution

(In Rupiah)

Year	Admission	Distribution	Muzakki (Person)
2019	10.119.560.096.450	8.580.974.739.448	6.500.182
2020	12.510.956.821.116	11.964.143.524.220	7.923.920
2021	14.118.192.892.281	14.043.737.614.114	10.804.710
2022	22.475.655.478.672	21.635.709.041.188	21.646.732
2023	32.321.191.779.419	31.199.428.031.786	34.944.091
Number of Indonesian Muslims			229,62 Juta

Source: baznas.go.id (2024)

Despite the increase, many muzakki prefer to distribute zakat directly to mustahik, reducing the role of institutions such as BAZNAS. This is influenced by the public's perception of the low efficiency and transparency of zakat institutions, which ultimately affects the level of muzakki participation (Afandi et al., 2022). In addition, research also shows significant differences in efficiency between BAZNAS in various districts/cities. Some regions experience limitations, both in terms of technological infrastructure and human resources, for optimal zakat management (Akbar et al., 2022).

Efficiency in zakat management is crucial to maximize its social and economic impact, given that zakat plays a strategic role in poverty reduction and improving community welfare (Alinda & Nasrulloh, 2023). Several measures, such as the implementation of zakat information technology through the BAZNAS Management Information System (SIMBA), have proven to significantly improve efficiency in the collection and distribution of zakat (Asrida et al., 2021). However, the implementation of this technology has not been evenly distributed across all regions, resulting in disparities in performance and outcomes in zakat management between districts/cities (Aristyanto & Edi, 2023).

To address these challenges, an evaluative approach based on technical efficiency analysis is needed. Two non-parametric methods often used to measure the technical efficiency of zakat institutions are Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH) (Ryandono, Qulub, Cahyono, Widiastuti, Aisyah, et al., 2021). The DEA method makes it possible to identify efficient and inefficient institutions by comparing input-output ratios between similar institutions (Kuryanto, 2023). Meanwhile, FDH is more conservative because it does not assume convexity on the efficiency frontier (M. S. Bahri et al., 2023). Both methods provide deeper insights into the operational performance of zakat institutions and can be used as a basis for formulating more systematic strategies to improve the effectiveness of zakat fund distribution and collection (Rejab et al., 2022).

Previous studies using DEA and FDH methods have revealed inefficiencies in several zakat institutions in Indonesia. Firmansyah dkk.(2020) reported a decline in efficiency at BAZNAS West Java due to a mismatch between inputs and outputs. Sari et al. (2023) found a decline in efficiency at BAZNAS Brebes in 2021, caused by a gap between zakat distribution targets and actual disbursements. Ryandono dkk.(2021) noted that while Rumah Zakat Indonesia is generally efficient, some years have shown levels of inefficiency. Abdullahi (2021) research also revealed significant variations in efficiency between institutions and across years. These findings underscore the importance of conducting in-depth evaluations at BAZNAS at the district/city level to identify the causes of inefficiency and formulate effective strategies to improve performance, with the aim of optimizing zakat distribution and enhancing the welfare of the community.

Therefore, further research is needed to evaluate the efficiency of zakat collection and distribution by BAZNAS at the district/city level, as well as to provide strategic solutions to address existing challenges. With a more systematic and integrated approach, zakat can become a key instrument in addressing poverty and promoting sustainable economic development.

LITERATURE REVIEW

Theory and Measurement of Efficiency

Efficiency is a very important concept in economics and performance management, which measures the extent to which an entity can optimally utilize resources to achieve desired results.

In non-profit organizations such as the National Zakat Management Agency (BAZNAS), efficiency serves as a key indicator, as it reflects how effectively the institution can fulfill its social and religious functions despite limited resources, such as human resources, budget, and supporting facilities (Ningsih & Rosyadi, 2023). In general, efficiency is divided into three forms: technical efficiency, allocative efficiency, and economic efficiency. In zakat management, technical efficiency is the most important because it is directly related to the productivity of institutions in collecting and distributing zakat funds using a combination of available inputs.

Technical efficiency measures how effectively an institution produces maximum results with available resources or, conversely, how an institution can minimize resources to achieve targeted results (Akbar et al., 2022). In the context of zakat institutions, the output referred to can be the total amount of zakat collected, funds that have been distributed, the level of zakat distribution, and increases in zakat funds. Meanwhile, the inputs that are usually analyzed include fixed assets, employee expenses, operating costs, budgets for publications, and the number of

service units or offices available. This efficiency also reflects the institution's level of accountability to the public, given that the funds managed are entrusted by the community and must be distributed with transparency and full trust (Yusuf & Masruchin, 2021).

One method often used to measure efficiency in village fund management is Data Envelopment Analysis (DEA). This method measures relative efficiency between units called Decision Making Units (DMUs). DEA allows for efficiency comparisons between units with similar characteristics without having to make assumptions about the form of production functions or data distribution (Putra & Sholahuddin, 2021). This method is particularly suitable for the social, non-commercial zakat sector because DEA allows for the simultaneous evaluation of various inputs and outputs without requiring price data (Rustyani & Rosyidi, 2020). In a comparative study of efficiency among Islamic banks, DEA provided results that were in line with financial performance indicators, which are also relevant for zakat institutions, given that both are non-profit and based on public trust (Hayati & Putri, 2020).

Technical Efficiency in Zakat Management

Effective zakat management is a key measure of the performance of zakat organizations in fulfilling their social and economic roles. In this context, technical efficiency refers to the capacity of zakat institutions to convert inputs, such as operational finances, human resources, and assets, into tangible outputs, particularly the collection and distribution of zakat funds (Atiya et al., 2020). Efficiency is assessed not only in terms of the quantity of inputs used, but also in terms of the effectiveness in utilizing resources to provide optimal value and impact for mustahik. Zakat institutions often face problems related to the gap between budget allocation and production achievement, which is a major contributor to technical inefficiency (Assalafiyah & Rusydiana, 2020).

Previous research shows that successful zakat institutions typically have a methodical, transparent, and data-driven governance structure. Organizations such as BAZNAS that implement management information systems and adhere to strict reporting protocols typically demonstrate higher efficiency metrics (Ryandono, Qulub, Cahyono, Widiastuti, Aisyah, et al., 2021). Conversely, institutions with disproportionate organizational frameworks or misaligned budget allocations often experience wasteful use of resources. Therefore, technical efficiency evaluations are critical not only for performance assessment but also as a basis for the sustainable development of zakat institutions (Purnamasari, 2024).

Transparency, Accountability, and Zakat Governance

Two key pillars that are essential for improving the efficiency of zakat management are transparency and accountability. Transparency is manifested through clear financial records, oversight of zakat funds, and open communication between zakat institutions and muzakki, thereby increasing public involvement (E. S. Bahri et al., 2023). The use of digital information systems, such as SIMBA, significantly improves the tracking of cash flows, distribution of zakat, and real-time reporting. Accountability is achieved through formal audits that ensure financial management is in accordance with sharia principles and relevant laws and regulations (Hafizah & Muhaimin, 2023). To ensure accountability and efficient governance, financial reporting must be completely transparent. Diverse financial records that comply with legal frameworks such as PSAK No. 45 are essential to improve the credibility and reliability of financial information (Trisnawati et al., 2022).

Transparency and accountability enhance long-term efficiency and increase the social legitimacy of zakat organizations. Effective internal review mechanisms and transparent reporting systems enable zakat organizations to optimize fund management, improve operational efficiency, and foster a positive reputation among the community (Thahir et al., 2021). An effective zakat management concept encompasses equity, accountability, and efficiency in providing services to

mustahik. This will result in a stable and reliable zakat management cycle (Trisnaningtyas et al., 2020).

The Role of Technology and Digitalization in Zakat Efficiency

In contemporary society, digitalization has significantly improved the efficiency of zakat management. The SIMBA application, online payment systems, and e-Zakat applications have accelerated transactions, streamlined administration, and increased public transparency (Asrida et al., 2021). Additionally, zakat organizations can expand their reach to a broader audience by utilizing these tools. This includes the younger generation, who have greater familiarity with digital platforms (Firdaus et al., 2023).

Furthermore, better mapping of beneficiaries can be achieved through the implementation of technologies such as Geographic Information Systems (GIS) (Bahri et al., 2023). Challenges include inadequate infrastructure, low digital literacy among employees, and data security issues. Therefore, the effectiveness of digitalization in zakat management depends heavily on the suitability of the system implemented and the readiness of institutions to improve their internal capabilities in providing superior services (Hakim et al., 2022).

Challenges in Zakat Distribution and Social Efficiency

The distribution of zakat is not only intended to meet the consumptive needs of mustahik, but also to encourage their economic empowerment so that they can escape the cycle of poverty and become muzakki (Busthomi et al., 2022). The concept of productive zakat emphasizes the allocation of resources for skills training, micro-enterprise funding, and economic support, enabling beneficiaries to emerge as autonomous economic actors. This approach is considered more socially successful due to its long-lasting impact and reduced dependency effects (Hayati, 2022).

Zakat helps reduce economic inequality and overcome modern economic challenges that are difficult to address through conventional financial systems. Utilizing zakat funds for economic empowerment enables zakat to meet consumptive needs while transforming mustahik into independent economic agents (Nugroho, 2025).

However, the distribution of zakat for empowerment faces several challenges. These obstacles include selecting the right mustahik, monitoring results, and assessing impact. Zakat institutions must use data-based methodologies, such as Geographic Information Systems (GIS), to map the main needs of mustahik spatially and sociologically (Hidayatulloh et al., 2022). Additionally, productive zakat programs require continuous monitoring to assess the effectiveness of interventions and uphold social efficiency. The distribution of zakat significantly depends on the strategic development, implementation, and evaluation of empowerment-oriented initiatives (Hakim & Setyaningsih, 2022)

Implementation of Good Zakat Governance

Effective zakat governance is characterized by the application of good governance principles in zakat management, which include transparency, accountability, fairness, effectiveness, and responsiveness (Bahri et al., 2023). Effective governance ensures that zakat is managed in accordance with Shariah. This also increases public trust in zakat institutions. In addition, these principles enhance institutional integrity, thereby promoting sustainability and operational efficiency in zakat. Strict enforcement of regulations can reduce the likelihood of violations in the collection and distribution of zakat (Riani et al., 2024)

Information technology, represented by SIMBA, significantly improves the effectiveness of zakat governance. SIMBA enables digital and integrated zakat distribution through transaction reporting and documentation (Asrida et al., 2021). Conversely, building a contemporary and reliable zakat governance system requires regular audits and the dissemination of performance reports based on social indicators and technological efficiency (Bahri et al., 2023). Zakat institutions are expected to achieve greater technical efficiency through the implementation of effective governance. This will enhance the credibility and accountability of institutions in the eyes of the public and stakeholders (Hafizah & Muhaimin, 2023).

METHODS

This study uses a descriptive quantitative approach. The descriptive quantitative approach is a method based on positivism philosophy. Quantitative methods are scientific methods that meet scientific principles, such as concrete or empirical, objective, measurable, rational, and systematic (Sugiyono, 2019)The population in this study was all companies listed on the Indonesia Stock Exchange in 2019-2021. The sample was a part of the population in terms of number and characteristics. The sampling technique used in this study was non-probability sampling, namely purposive sampling. Non-probability sampling is a sampling technique that does not give equal opportunity to every element or member of the population selected as a sample (Sugiyono, 2012). Purposive sampling is a technique that uses specific criteria in sampling (Sugiyono, 2019).
This study used a sample with several criteria, namely:

1) National Zakat Agency (BAZNAS) at the regency/city level registered with the National Zakat Agency of the Republic of Indonesia (BAZNAS RI).
2) National Zakat Agency (BAZNAS) at the district/city level that uses the Digital Zakat Information System or the official Digital Service Interface of BAZNAS RI.
3) National Zakat Agency (BAZNAS) at the district/city level that has issued audited financial statements consecutively for the years 2021-2023.
4) The National Zakat Management Agency (BAZNAS) at the district/city level has issued complete audited financial statements, including both the financial statements and notes to the financial statements, or meets the research variable requirements.

Table 2. Sample Selection Based on Criteria

No.	Criteria	Total
1.	National Zakat Management Agency (BAZNAS) at the district/city level registered with the National Zakat Management Agency of the Republic of Indonesia (BAZNAS RI)	514
2.	National Zakat Management Agency (BAZNAS) at the district/city level that does not use the Digital Zakat Information System or the official Digital Service Interface of BAZNAS RI.	(321)
3.	National Zakat Agency (BAZNAS) at the district/city level that did not issue audited financial statements consecutively during the years 2021-2023	(175)
4	National Zakat Agency (BAZNAS) at the district/city level that did not issue complete audited financial statements, including financial statements and notes to the financial statements, or did not meet the research variable requirements	(8)
	Number of company samples	10
	Observation year	3
	Total Number of Observations During the Research Period	**30**

(Data processed, 2023)

Research variables are all forms selected by researchers to be studied until information about them is available and conclusions can be drawn (Sugiyono, 2012). There are two research variables, namely:

1. Input variables: fixed assets, personnel expenses, total collection operating costs, publication resources, and number of service units/offices.
2. Output variables: total zakat collected, distribution of zakat funds, percentage of zakat fund distribution, percentage increase in zakat funds, and efficiency of zakat collection.

This study uses indirect information called secondary data. Audited financial statements are included in the research data. The research data sources are audited financial statements issued by each National Zakat Agency (BAZNAS) of the regency/city on the Digital Zakat Information System page or the official Digital Service Interface of BAZNAS RI.

The data collection method in this study uses a literature review. The literature review was conducted by utilizing secondary data, which are data or documents obtained from writings or analyses by other parties/institutions, namely the Digital Zakat Information System or the official Digital Service Interface of BAZNAS owned by BAZNAS RI by the National Zakat Management Agency (BAZNAS) at the district/city level.

The data analysis method used in this study is Data Envelopment Analysis (DEA), a non-parametric technique used to assess the technical efficiency of decision-making units (Decision Making Units - DMU). This technique allows for the comparison of the efficiency of various units that transform inputs into outputs, without requiring assumptions about the form of the production function or data distribution. In the context of zakat institutions, DEA is very useful for evaluating how efficiently zakat institutions manage zakat funds and distribute them to mustahik, considering input factors such as funds received and available human resources. In this study, the Data Envelopment Analysis (DEA) method was used to measure technical efficiency in zakat management. This method allows for the comparison of efficiency among zakat institutions using relevant input-output variables, ensuring efficiency in the use of zakat funds (Karsono et al., 2017). DEA is very useful in evaluating the efficiency of institutions, such as zakat institutions, in managing resources (such as funds and human resources) to achieve optimal results (Prasethea et al., 2020).

In this study, we use the output-oriented Constant Return to Scale (CRS) approach, which assumes that changes in the scale of inputs result in proportional changes in outputs. In other words, if the amount of inputs is doubled, outputs will increase in the same proportion. This approach is highly suitable for zakat institutions operating at a similar scale, where zakat institutions manage resources (such as funds and labor) to produce optimal output without significant changes in their production scale. The CRS approach is often chosen to measure the efficiency of zakat institutions assumed to be operating at a similar production scale (Atiya et al., 2020).

The output-oriented DEA formula with CRS assumption can be expressed as follows:

$$\max\ \phi = \frac{\sum_{r=1}^{s} \lambda_r y_{rj}}{\sum_{i=1}^{m} x_{ij}} \quad \text{subject to} \quad \sum_{j=1}^{n} \lambda_j x_{ij} \leq x_{i0} \text{ for } i = 1, 2, \ldots, m$$

Where:

- φ is the technical efficiency score.
- yrj is the output produced by DMU j in the rrth output.
- Xij is the input used by DMU j in the ith input.
- λj is the decision variable indicating the relative weight of DMU j in the efficiency calculation.
- m is the number of inputs.
- s is the number of outputs.

Interpretation of Efficiency Scores:

- If φ=1, then the DMU is technically efficient, which means that the zakat institution uses inputs optimally to produce maximum output.
- If φ>1, then the DMU is inefficient. In this case, the zakat institution needs to increase output through more optimal use of inputs, reduce waste, or increase productivity.
- By using DEA, zakat institutions can assess whether they are using resources efficiently and make improvements if necessary to enhance the quality of zakat collection and distribution. For example, if a zakat institution has an efficiency score greater than 1, this indicates potential for improvement, both in terms of fund management and distribution processes (Purnamasari, 2024; Yunita, 2021).

RESULTS AND DISCUSSION

Results

This study aims to measure and analyze efficiency scores. First, there are five input variables used, namely fixed assets, personnel expenses, total collection operating costs, publication resources, and the number of service units/offices.

Next, there are five output variables, namely the amount of zakat funds collected, the distribution of zakat funds, the percentage of zakat fund distribution, the percentage increase in zakat funds, and the efficiency of zakat collection.

Descriptive Statistics

As a result, the table below summarizes the descriptive statistics:

Table 3. Descriptive Statistics of Input and Output Variables of BAZNAS Regencies/Cities in Indonesia, Research Period 2021–2023 (In Indonesian Rupiah)

	Indicator	*Mean*	*Max*	*Min*
Input	**Fixed Assets**	343.411.319,31	2.645.505.583,75	12.813.021,00
	Employee Expenses	682.803.607,31	1.400.591.042,00	78.000.000,00
	Total Operational Costs of Collection	1.509.966.433,10	2.659.688.169,47	705.834.042,00
	Publication Resources	43.001.610,50	228.599.900,00	650.000,00
	Number of Service Units/Offices	1,1	2	1
Output	**Total Zakat Collected**	7.292.428.271,62	16.480.245.215,00	1.075.539.446,16
	Distribution of Zakat Funds	7.186.742.237,57	15.976.089.924,00	891.225.000,00
	Percentage of Zakat Funds Distributed	99,17%	139,97%	71,01%
	Percentage Increase in Zakat Funds	7,61%	94,80%	-83,98%
	Efficiency of Zakat Collection	26,50%	192,81%	10,67%

Source: Output from RStudio software compiled by the author (2025)

Table 3 shows significant variations in zakat management by BAZNAS in Indonesia between 2021 and 2023, both in terms of input and output variables.

In the input variable, BAZNAS's fixed assets vary greatly, ranging from Rp 12.8 million to Rp 2.6 trillion, reflecting differences in zakat infrastructure investment in the regions (Afifah & Yarham, 2023). Employee spending also showed significant differences, with an average of Rp 682 million, reflecting differences in the number and quality of human resources in each region (Dani, 2022). The total operational costs of zakat collection average around Rp 1.5 billion, varying depending on promotional efforts and zakat awareness Bahri et al., 2023). Publication resources show significant differences, ranging from low to more than Rp 228 million, affecting the effectiveness of zakat campaigns in each region (Afifah & Yarham, 2023). Finally, most regions have one service unit, although some regions have two, reflecting diversity in service coverage (Fahrudin, 2020).

In terms of output, the amount of zakat collected ranges from Rp 1.07 billion to Rp 16.4 billion, indicating significant differences in the ability of regions to collect zakat, influenced by public awareness and regional economic strength (Abdullahi, 2021). The distribution of zakat funds also varies greatly, with an average of around Rp 7.1 billion, indicating an imbalance in the effectiveness of distribution (Afifah & Yarham, 2023). The percentage of zakat fund distribution shows that most regions have almost reached 100% distribution, although some have exceeded 100%, possibly due to the use of additional funds other than zakat (M. S. Bahri et al., 2023). The percentage increase in zakat funds shows significant variations in increases and decreases, related to economic conditions or regional policies. The efficiency of zakat collection varies greatly, with an average efficiency of around 26.5%, reflecting disparities in zakat management in these regions (Fahrudin, 2020).

Overall, Table 5 illustrates significant variations in zakat management by BAZNAS in Indonesia, with regions that are more efficient in zakat management typically having higher income and better zakat awareness. These disparities indicate the need for improved zakat management, human resource development, and the use of technology to increase the overall efficiency and transparency of zakat management (Afifah & Yarham, 2023).

Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH) Efficiency Levels

Table 4. Efficiency Measurement, Average, and Ranking of Zakat Institutions in Indonesia Using the DEA and FDH Approaches, Research Period 2021–2023

Ranking	BAZNAS Kab/Kota	Year						Average	
		2021		2022		2023			
		DEA	FDH	DEA	FDH	DEA	FDH	DEA	FDH
1	Kota Batam	1	1	1	1	1	1	1	1
2	Kabupaten Lumajang	1	1	1	1	1	1	1	1
3	Kabupaten Barru	1	1	1	1	1	1	1	1
4	Kota Yogya	1,021	1	1	1	1	1	1,01	1
5	Kota Tangerang	1	1	1,040	1	1	1	1,01	1
6	Kabupaten Pesawaran	1	1	1,127	1	1	1	1,04	1
7	Kabupaten Enrekang	1,089	1	1,097	1	1	1	1,06	1
8	Kota Banjar	1,073	1	1,123	1	1	1	1,07	1
9	Kabupaten Gresik	1,217	1	1,045	1	1	1	1,09	1
10	Kabupaten Tuban	1,263	1	1,227	1	1,10	1	1,20	1

Source: Output from RStudio software compiled by the author (2025)

The table shows the efficiency measurements, averages, and rankings of zakat institutions in Indonesia during the 2021-2023 study period using the Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH) approaches. Based on this data, Batam City, Lumajang Regency, and Barru Regency demonstrated the highest efficiency from 2021 to 2023, ranking first in both

approaches, DEA and FDH. This reflects that the three regions have highly efficient and optimal zakat management, both in terms of collection and distribution of zakat (Afifah & Yarham, 2023).

Meanwhile, areas such as Yogyakarta and Tangerang also performed well, despite ranking below the top three regions. Both regions remained stable in their efficiency rankings during the period, according to both the DEA and FDH approaches. This shows that despite variations in rankings, both cities were able to maintain fairly efficient zakat management (Dani, 2022).

Conversely, areas such as Tuban Regency show differences in rankings between the DEA and FDH approaches, reflecting minor differences in how zakat is managed in the area. In DEA, Tuban has a slightly lower ranking, while in FDH, its ranking is higher, indicating that although zakat management is already quite good, there may be some aspects that need improvement, such as resource management or more transparent zakat distribution (M. S. Bahri et al., 2023).

Overall, this table indicates that most regions in Indonesia, including Batam City and Lumajang Regency, show excellent performance in zakat management. Disparities in rankings between regions, such as in Tuban Regency, indicate that although overall efficiency in zakat management is quite good, there are minor differences in management that may reflect different policies, resources, and managerial practices between regions (Fahrudin, 2020).

Correlation Between Input and Output Variables

Table 5. Correlation Between Input and Output Variables

Input	Total Zakat Collected	Distribution of Zakat Funds
	Correlation	Correlation
	0.33564 (moderately positive)	0.37158 (moderately positive)
Fixed assets	0.58877 (strongly positive)	0.56078 (moderately strong positive)
Employee expenses	0.58681 (strongly positive)	0.580716 (strong positive)
Total collection operating expenses	0.603245 (strongly positive)	0.629261 (strong positive)
Publication resources	-0.08559 (very weakly negative)	-0.07923 (very weak negative)

Source: Output from RStudio software compiled by the author (2025)

Table 5 shows the correlation between input variables such as fixed assets, personnel expenditure, operating costs, publication resources, and number of service units with zakat output, which includes the amount of zakat collected and the distribution of zakat funds. A strong positive correlation was found between publication resources and the amount of zakat collected (0.60325) as well as zakat fund distribution (0.62926), indicating that allocating more resources to publication and social campaigns directly increases zakat collection and distribution (Afifah & Yarham, 2023). Employee spending also has a strong positive correlation with the amount of zakat collected (0.58877) and the distribution of zakat funds (0.56078), indicating that an increase in spending on employees can increase the collection and distribution of zakat (Dani, 2022).

Total operational costs of collection have a strong positive correlation with the amount of zakat collected (0.58681) and the distribution of zakat funds (0.58072), indicating that more investment in collection operations contributes to an increase in the amount of zakat collected and distributed. Meanwhile, fixed assets have a moderate positive correlation with the amount of zakat collected (0.33564) and zakat fund distribution (0.37158), indicating that although they contribute, their influence is not as strong as other variables. The number of service units shows a very weak negative correlation with the amount of zakat collected (-0.08559) and zakat fund distribution (-0.07923), indicating that the number of offices or service units does not significantly influence zakat output (Afifah & Yarham, 2023).

Overall, this table shows that operational costs and publication resources contribute significantly to the amount of zakat collected and distributed, while the number of service units has a very limited influence on these results.

Discussion

Technical Efficiency Analysis of Zakat Collection and Distribution by BAZNAS at the Regency/City Level in 2021–2023

Technical efficiency analysis in this study was conducted on ten BAZNAS district/city institutions in Indonesia using two non-parametric approaches, namely Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH), during the period 2021–2023 (Ryandono et al., 2023). The primary objective of this analysis is to assess whether each zakat institution has optimally managed its resources, such as fixed assets, employee expenses, total operational costs for collection, publication resources, and the number of service units/offices, in carrying out its functions of zakat collection and distribution (Hasan & Muhammad, 2023).

This evaluation is highly relevant in the context of non-profit organizations such as BAZNAS, where technical efficiency is a key indicator of institutional success in using limited inputs to achieve maximum results (Ashfahany & Ishlahudin, 2023). In technical efficiency theory, as explained by Akbar et al. (2022), technical efficiency refers to the ability of a unit to achieve maximum output with available inputs, or to use minimum inputs to achieve a certain output.

Meanwhile, in a socio-religious context, technical efficiency is also a form of moral accountability for zakat funds as a trust from the community that must be distributed carefully and responsibly (Yusuf & Masruchin, 2021). Based on the measurement results shown in Table 6, there are significant variations in technical efficiency scores between units.

Three BAZNAS units, namely Batam City, Lumajang Regency, and Barru Regency, consistently achieved perfect efficiency scores (score = 1) over three consecutive years based on both the DEA and FDH approaches. This means that these three units have managed inputs optimally to produce maximum outputs without showing any waste of resources (Ryandono et al., 2023).

Conversely, some units showed technical efficiency scores greater than one, indicating inefficiency. Tuban Regency is the most notable example, with a DEA score of 1.263 in 2021; 1.227 in 2022; and 1.110 in 2023, resulting in an average DEA score of 1.20. Meanwhile, the FDH score remained high, averaging 1.11. Other district/city BAZNAS units, such as Gresik District and Banjar City, also showed DEA and FDH scores above 1 in 2021–2023. A score above 1 indicates that these units require more input than efficient units to produce equivalent output, or in other words, they experience technical inefficiency (Sidang & Feriyanto, 2021).

This finding supports the first hypothesis that there are district/city BAZNAS units that have not achieved technical efficiency in zakat collection and distribution based on DEA and FDH scores during the 2021–2023 period. Furthermore, this is also in line with the findings of Firmansyah et al. (2020), who stated that regional zakat management institutions often face technical inefficiency due to weak integration between collection and distribution systems, as well as limitations in resource management. This imbalance prevents available inputs from being optimized to produce maximum output performance. Ghufran et al. (2023) also emphasize that low input productivity, such as operational costs and human resources, is the main cause of inefficiency in many zakat units.

In this context, DEA and FDH scores exceeding 1 indicate room for improvement in input management, including human resource efficiency, the effectiveness of zakat collection programs, and the formulation of targeted zakat distribution strategies (Gulnoria & Anik, 2024). This inefficiency can be caused by various factors, such as an overly large but unproductive organizational structure, high operating costs without commensurate results, low innovation in zakat education, and suboptimal utilization of zakat service units spread across various regions (Ashfahany & Ishlahudin, 2023).

From a theoretical perspective, these findings reinforce that technical efficiency in nonprofit organizations is relative and depends on how a unit manages its input-output combination compared to more optimal units. In this context, DEA provides a relative efficiency-based evaluation approach that is highly useful for benchmarking among BAZNAS units (Ryandono et al., 2023). Meanwhile, the more flexible FDH remains capable of identifying significant deviations from truly efficient units while maintaining sensitivity to different institutional structures (Sidang & Feriyanto, 2021).

The practical implications of these findings are crucial for improving BAZNAS performance at both the regional and national levels. The central BAZNAS can use these efficiency measurement results as a basis for setting policies on capacity building, resource allocation, and the development of performance-based incentive systems (Gulnoria & Anik, 2024). On the other hand, district/city BAZNAS classified as inefficient can use these findings as a basis for internal evaluation, budget restructuring, service quality improvement, and the adoption of technological innovations in the zakat collection and distribution process. The establishment of minimum efficiency standards based on DEA and FDH data can also be used as an instrument for institutional monitoring and accountability in the future (Ashfahany & Ishlahudin, 2023).

Thus, this technical efficiency analysis not only serves as an evaluative tool but also as an institutional reflection on the extent to which BAZNAS is able to carry out its mandate effectively and responsibly (Hasan & Muhammad, 2023). Technical efficiency scores are important indicators of the social value of zakat institutions, as well as the extent to which these institutions are able to convert resources into tangible welfare for the mustahik (Gulnoria & Anik, 2024).

Comparison of DEA and FDH Efficiency Scores

A comparative analysis of technical efficiency scores in this study was conducted to determine the extent of differences in performance evaluation results between district/city BAZNAS units measured using two different approaches, namely Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH), during the 2021–2023 period. DEA and FDH are non-parametric frontier-based approaches commonly used to measure relative efficiency among decision-making units (DMUs) (Ryandono et al., 2023). This evaluation is important in the context of efficiency theory because each approach has different implications for the interpretation of organizational technical performance, particularly for social institutions like BAZNAS, which are not profit-oriented but aim to achieve social benefits through efficient management of zakat funds (Ashfahany & Ishlahudin, 2023).

The methodological framework differences between the two approaches form the primary backdrop for testing the second hypothesis, which states that there is a significant difference in average efficiency scores between the DEA and FDH methods in measuring the efficiency of zakat collection and distribution by district/city BAZNAS during the 2021–2023 period.

The efficiency measurement results in Table 6 show a pattern of score differences between the two methods in almost all analyzed units. Although units such as Batam City, Lumajang District, and Barru District consistently showed the same DEA and FDH scores (1.00) over the three years, most other units exhibited significant score differences. For example, Tuban District has an average DEA score of 1.20, while its FDH score is only 1.11. Gresik District has an average DEA score of 1.12, but its FDH score is only 1.04. Similarly, Banjar City recorded a DEA score of 1.10, while its FDH score is only 1.02.

These score differences indicate that FDH is more lenient in assessing technical efficiency compared to DEA. This is due to the structural assumptions underlying the two methods: DEA assumes a linear and convex efficiency frontier, so units that deviate slightly from the ideal frontier are immediately categorized as inefficient (Ryandono et al., 2023). In contrast, FDH does not require a convex frontier and only requires absolute dominance in the input-output relationship between units, making it more tolerant of minor deviations from the efficiency frontier (Sidang & Feriyanto, 2021).

The difference in scores reinforces the second hypothesis, as empirical data show consistent and systematic disparities in values between the two methods. This finding is also consistent with previous literature, such as the studies by Firmansyah et al. (2020) and Akbar et al. (2022), which indicate that FDH more frequently produces perfect efficiency scores compared to DEA, particularly in the context of non-profit organizations with institutional heterogeneity. These differences are not only methodological but also philosophical (Ryandono et al., 2023). DEA assesses relative efficiency among units, leading to incentive systems and competitive benchmarking, while FDH assesses efficiency descriptively and is more often used as an initial diagnostic tool for basic performance classification (Sidang & Feriyanto, 2021).

Thus, the second hypothesis, which states that there is a significant difference in average efficiency scores between the DEA and FDH methods in measuring the efficiency of zakat collection and distribution by district/city BAZNAS during the 2021–2023 period, is accepted. This finding confirms that the choice of efficiency evaluation method has real implications for the interpretation of institutional performance, particularly in the context of zakat management by non-profit institutions such as BAZNAS (Ashfahany & Ishlahudin, 2023).

The factors contributing to these differences in scores can be further explained by the characteristics of each BAZNAS unit. Units such as Tuban and Gresik Regencies have large input allocations, but the output generated in terms of zakat collection and distribution does not increase proportionally. In the DEA approach, this would immediately be reflected as technical inefficiency because the frontier is formed by the most productive units. However, in FDH, such deviations do not directly result in penalties if they remain within the bounds of absolute dominance.

This shows that FDH is more accommodating of structural variations and operational scales between units, making it suitable for use in the early stages of institutional mapping or for general monitoring purposes (Gulnoria & Anik, 2024). From a theoretical perspective, these results broaden our understanding of the importance of selecting the appropriate method for evaluating technical efficiency, depending on the purpose of the analysis and institutional conditions.

DEA is more suitable for incentive-based evaluation systems and performance comparisons between relatively homogeneous units. Conversely, FDH is suitable for use in the initial diagnostic stage, especially if the institutions being evaluated have highly varied input-output capacities and structures. A combination of the two will result in a more objective and responsive layered evaluation system for each BAZNAS unit (Ryandono et al., 2023).

The practical implications of these findings are quite significant. For the purposes of coaching and performance-based reward systems, the DEA approach provides a more appropriate framework because it can encourage competitive efficiency. However, for initial efficiency mapping, administrative assessments, or general monitoring of all BAZNAS units, the FDH approach can serve as a more flexible and representative measurement tool. Therefore, the central BAZNAS is recommended to use both approaches complementarily in its institutional evaluation system to produce fair and strategic assessments (Sidang & Feriyanto, 2021).

Thus, the comparative analysis of technical efficiency between DEA and FDH not only provides quantitative information about the performance of each unit but also reflects the strategic orientation of zakat institutions in managing public trust efficiently, adaptively, and responsibly. The efficiency scores obtained are not merely numbers, but indicators of operational integrity and public trust that must be maintained and improved in every process of zakat collection and distribution (Gulnoria & Anik, 2024).

The Relationship between Input and Output Variables on the Efficiency of Zakat Collection and Distribution

The analysis of the relationship between input and output variables in this study aims to examine the extent to which the input variables used by district/city BAZNAS influence output performance, particularly in terms of zakat collection, zakat fund distribution, and the efficiency of the zakat collection process itself. This evaluation is not only important for understanding the productivity structure of zakat institutions but also for formulating data-driven managerial strategies to enable institutions to achieve optimal efficiency in fulfilling their social-religious functions (Hasan & Muhammad, 2023).

This evaluation is important in the context of efficiency theory because the input-output relationship reflects how well non-profit organizations like BAZNAS can use resources optimally to achieve social benefits. In this case, efficiency does not only mean increasing output but also rationalizing input use to avoid waste in zakat management (Gulnoria & Anik, 2024).

This analysis also aims to test the third hypothesis, which states that there is a significant relationship between input variables and output variables on the efficiency of zakat collection and distribution by BAZNAS districts/cities in Indonesia. The correlation results in Table 7 indicate that most input variables have a positive and significant relationship with the two main output components, namely the amount of zakat collected and the amount of zakat funds distributed. Personnel expenditure shows a strong correlation with the amount of zakat collected ($r = 0.58877$) and zakat distribution ($r = 0.56078$), indicating that an increase in the human resource budget significantly contributes to the optimization of institutional performance. This finding reinforces the results of Meilani et al. (2024), who noted that increasing capacity and human resource management through personnel expenditure budgets has a direct impact on increasing zakat fund collection at the regional level. Similarly, total operational costs show a strong correlation with both outputs ($r = 0.58681$ and $r = 0.580716$), reinforcing the findings of Piliyanti & Meilani (2020), who used the DEA approach to demonstrate that fundraising efficiency is highly dependent on rational and measurable operational cost management. Publication resources also recorded the highest correlation among all inputs ($r = 0.603245$ for collection and $r = 0.629261$ for distribution), indicating that targeted publications, especially digital-based ones, are highly effective in reaching muzakki and expanding the transparent distribution of zakat. These findings reinforce the results of Mauludin & Herianingrum (2022), which highlight that digital publication resources are proven

to be significant in increasing muzakki participation and expanding zakat distribution more efficiently and accountably.

Meanwhile, the fixed asset variable showed a moderate positive correlation with the amount of zakat collected (r = 0.33564) and zakat distribution (r = 0.37158). Although not as strong as other inputs, these results indicate that the existence of physical assets such as offices, vehicles, and supporting facilities still plays a role in supporting the smooth operation of institutions. This aligns with the findings of Pertiwi & Wahyuni (2022), who emphasize that efficient management of fixed assets can enhance transparency and accountability in financial reporting, which in turn impacts the effectiveness of zakat distribution programs.

However, the variable number of service units or offices showed a very weak negative correlation with both outputs: the amount of zakat collected (r = -0.08559) and zakat distribution (r = -0.07923). This finding appears to contradict the initial assumption that more service units would increase output achievement. However, as stated by Munandar (2022), the addition of service units will only have a positive impact if done strategically and supported by an adaptive and integrated management system. Without strengthening governance, expanding the service network risks increasing costs without producing commensurate efficiency or output improvements.

Overall, the correlation results reinforce the position that technical efficiency in zakat management is highly dependent on the careful use and allocation of inputs. The variables of employee expenditure, operational costs, publications, and fixed assets show a relationship that supports output optimization, while the variable of the number of service units needs to be evaluated more critically from the perspective of effectiveness and efficiency. These findings emphasize that efficiency is not merely the result of adding resources, but rather the consequence of rational, data-driven, and measurable managerial processes (Ashfahany & Ishlahudin, 2023).

Therefore, the third hypothesis can be accepted, as the analysis results indicate a significant relationship between input and output variables and the efficiency of zakat collection and distribution by BAZNAS at the district/city level. The practical implication of this finding is that zakat institutions need to be more selective in designing input strengthening strategies, focus on factors proven to support output improvement, and avoid allocating resources that do not contribute to efficiency. The central BAZNAS can use this correlation pattern as a basis for formulating budget allocation policies, human resource development, and a national digitalization system for zakat management (Gulnoria & Anik, 2024). These findings emphasize that efficiency in the context of zakat institutions is not merely about reducing costs but about managing resources intelligently, appropriately, and in line with the mission of serving the community.

Patterns of Technical Inefficiency Consistency in Zakat Management by BAZNAS at the District/Municipal Level

The analysis of technical inefficiency consistency patterns in this study aims to examine the extent to which district/city BAZNAS units experience repeated inefficiency over three consecutive years, namely during the 2021–2023 period, based on the Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH) approaches. This analysis also aims to test the fourth hypothesis that there are district/city BAZNAS units that have consistently experienced technical inefficiency over three consecutive years in the collection and distribution of zakat based on DEA and FDH scores for the 2021–2023 period.

Evaluating these patterns of technical inefficiency is important in the context of efficiency theory as it reflects the extent to which social institutions like BAZNAS can manage resources optimally to achieve social benefits. As a nonprofit organization, BAZNAS is not measured by profit but by its institutional capacity to collect and distribute zakat efficiently and sustainably. Therefore, the identification of units that consistently fall below the efficiency frontier for three consecutive years indicates a failure in optimizing input-output, which should be improved through appropriate managerial and structural interventions (Ashfahany & Ishlahudin, 2023).

Evaluating the consistency of this inefficiency is also important to distinguish whether the inefficiency is temporary or indicative of systemic institutional problems. Repeated inefficiency may indicate structural failure in managerial adaptation, weak integration between zakat collection and distribution, or the absence of significant operational reforms (Gulnoria & Anik, 2024). These findings are in line with the study by Firmansyah et al. (2020), which states that recurring inefficiencies in regional zakat institutions are generally caused by weak synergy between the core functions of the institution, and supported by the findings of Ghufran et al. (2023) that units that did not make structural improvements for two to three consecutive years tended to remain technically inefficient.

Based on the data in Table 6, it is evident that several BAZNAS units exhibit consistent patterns of technical inefficiency over three consecutive years. The most notable is Tuban Regency, which has DEA scores of 1.263 (2021), 1.227 (2022), and 1.110 (2023), with the highest average DEA score of 1.20. Its FDH scores are also not significantly different, showing high values over three consecutive years with an average of 1.11. Similarly, Gresik Regency recorded consecutive DEA scores of 1.217, 1.045, and 1.045, indicating recurring technical inefficiency. Although there was a slight decline in scores from year to year, this unit never achieved full efficiency (DEA = 1). Additionally, Banjar City demonstrated relatively consistent inefficiency with DEA scores ranging from 1.073 to 1.123 over the same period.

These findings support H4, as there are BAZNAS units that not only experience inefficiency but do so repeatedly over three consecutive years, both based on the DEA and FDH approaches. This pattern indicates that the inefficiency observed is not the result of short-term fluctuations but stems from underlying institutional issues that remain unresolved. Potential causes may include organizational structural mismatches, weak internal monitoring systems, lack of innovation in zakat collection, and inability to adapt distribution strategies to local conditions (Sidang & Feriyanto, 2021).

From a theoretical perspective, recurring technical inefficiencies over several years reinforce the concept that efficiency is a dynamic process that requires continuous evaluation and improvement. When units fail to adapt to external environmental changes or internal needs, efficiency not only declines but can stagnate in the long term. This highlights the importance of strengthening data-driven organizational capacity, implementing reward and penalty systems, and conducting regular evaluations of input and output performance as efforts to break the cycle of chronic inefficiency (Ryandono et al., 2023).

Practically speaking, the implications of these findings are highly significant for both central and regional BAZNAS units. For units such as Tuban and Gresik districts, comprehensive structural interventions are required, including operational efficiency audits, service structure redesign, and more adaptive managerial training.

Additionally, DEA and FDH-based evaluation systems can be integrated into annual monitoring mechanisms to detect recurring patterns of inefficiency earlier and prevent them from

becoming permanent (Gulnoria & Anik, 2024). Thus, based on empirical evidence from DEA and FDH efficiency scores over three consecutive years, it can be concluded that H4 is accepted.

There are district/city BAZNAS units that consistently experience technical inefficiency, indicating unresolved structural and managerial challenges in zakat management. Addressing these issues requires systematic and sustainable efforts to ensure that BAZNAS's social-religious functions are carried out efficiently, accountably, and sustainably (Hasan & Muhammad, 2023).

CONCLUSION

This study aims to evaluate the technical efficiency of zakat management by ten BAZNAS units in districts/cities in Indonesia during the period 2021–2023 using two non-parametric approaches, namely Data Envelopment Analysis (DEA) and Free Disposal Hull (FDH). The measurement results indicate that most units have not achieved optimal technical efficiency, as evidenced by DEA and FDH scores above 1. This finding supports the first hypothesis, that there are BAZNAS units that are not yet efficient in performing their zakat collection and distribution functions. Three units, namely Batam City, Lumajang Regency, and Barru Regency, managed to maintain perfect efficiency scores for three consecutive years. Conversely, units such as Tuban Regency recorded an average DEA score of 1.20 and an FDH score of 1.11, indicating systematic and repetitive input waste.

A comparative analysis of efficiency scores revealed significant differences between the DEA and FDH approaches. Most units had lower FDH scores compared to DEA scores, as seen in Gresik Regency (DEA = 1.12; FDH = 1.04) and Banjar City (DEA = 1.10; FDH = 1.02). These differences reinforce the second hypothesis that evaluation methods influence the results and interpretation of technical efficiency. DEA, which is based on a linear frontier, tends to penalize inefficient units more than FDH, which is more flexible to variations in input-output.

In testing the third hypothesis, correlation analysis shows that inputs such as employee expenditure, operational costs, and publication resources have a positive and significant relationship with zakat output, both in terms of collection and distribution ($r = 0.58–0.63$; $p < 0.05$). However, the correlation with efficiency scores tends to be weak or even negative, indicating that increases in input are not always accompanied by improvements in efficiency. This finding emphasizes the importance of rational and data-based input planning to avoid waste of resources.

The fourth hypothesis was also proven in this study. Three units (Tuban Regency, Gresik Regency, and Banjar City) consistently experienced technical inefficiency during the 2021–2023 period. The consistency of high scores above 1 for three years indicates the existence of institutional problems that are not temporary but systemic. This recurring inefficiency requires structural intervention and sustainable managerial reform.

Thus, all hypotheses in this study can be accepted. These results indicate that technical efficiency in zakat management does not only depend on the amount of input allocation but is more determined by managerial effectiveness in managing input to produce optimal output. The combined approach of DEA and FDH has proven capable of providing a more comprehensive insight into assessing the institutional performance of BAZNAS. Therefore, this study supports the importance of developing a data-based evaluation system and structured institutional development strategies oriented toward long-term efficiency, particularly in zakat management as a public trust and instrument of social justice at the local level.

REFERENCE

Abdullah, A., & Rauf, D. I. (2022). Value Chain Model In Zakat Management At Makassar City National Amil Zakat Agency. *Economics and Business Journal (ECBIS)*, *1*(1), 17–26. https://doi.org/10.47353/ecbis.v1i1.3

Abdullahi, J. A. (2021). Zakat And Waqf: A Panacea For Eradicating Poverty And Hunger In Our Societies/ Communities. *AZKA International Journal of Zakat & Social Finance*, 41–51. https://doi.org/10.51377/azjaf.vol2no2.59

Abdurrahman, A. F., & Herianingrum, S. (2020). Implementasi Pengelolaan Dana Zakat, Infak, Sedekah (ZIS) Pada Rumah Singgah Pasien (RSP) Lembaga Amil Zakat (LAZ) Inisiatif Zakat Indonesia (IZI). *Jurnal Ekonomi Syariah Teori Dan Terapan*, *6*(9), 1909. https://doi.org/10.20473/vol6iss20199pp1909-1923

Achmad, N. (2022). Peradaban Pengelolaan Zakat di Dunia dan Sejarah Zakat di Indonesia. *Iqtisad: Reconstruction of Justice and Welfare for Indonesia*, *9*(2), 119. https://doi.org/10.31942/iq.v9i2.7271

Adhiatma, A., & Fachrunnisa, O. (2021). The Relationship among Zakat Maal, Altruism and Work Life Quality. *International Journal of Zakat*, *6*(1), 71–94. https://doi.org/10.37706/ijaz.v6i1.255

Afandi, A., Fadhillah, A., & Hidayat, N. W. (2022). Pengaruh Pengetahuan, Religiusitas, Transparansi dan Reputasi Lembaga Terhadap Keputusan Muzaki Dalam Membayar Zakat di Badan Amil Zakat Nasional Kota Yogyakarta. *Journal of Islamic Social Finance Management*, *3*(1), 38–52. https://doi.org/10.24952/jisfim.v3i1.5598

Afifah, A., & Yarham, M. (2023). Peran Zakat Dalam Mengetas Kemiskinan. *Filantropi : Jurnal Manajemen Zakat Dan Wakaf*, *4*(1), 42–59. https://doi.org/10.22515/finalmazawa.v4i1.7625

Agung, A., Hilmi, Y., & Fitri, A. A. (2022). The Influence Of Earning Zakat Distribution Level On Zakat Mustahik Business Profit. *Syari'ah Economics*, *5*(2), 67. https://doi.org/10.36667/se.v5i2.212

Akbar, N., Ikhwan, I., & Nurpahla, N. (2022). Efficiency Determinants of Zakat Institutions in Indonesia. *Share: Jurnal Ekonomi Dan Keuangan Islam*, *11*(1), 78. https://doi.org/10.22373/share.v11i1.10341

Alam, A. (2018). Analisis Efisiensi Pengelolaan Dana Zakat Infak Sedekah (Zis) Di Baznas Kabupaten/Kota Se-Karesidenan Surakarta Dengan Menggunakan Metode Data Envelopment Analysis DEA. *Iqtishoduna: Jurnal Ekonomi Islam*, *7*(2), 262–290.

Alinda, H. N., & Nasrulloh, N. (2023). Management of Zakat, Infaq and Sadaqah Funds in Improving the Quality of Life of Mustahik. *Management of Zakat and Waqf Journal (MAZAWA)*, *5*(1), 20–44. https://doi.org/10.15642/mzw.2023.5.1.20-44

'Amah, F. M., Setyawan, S., & Nilasari, T. P. (2023). Pengaruh Pendapatan, Kesadaran Dan Pengetahuan Zakat Terhadap Kepercayaan Muzakki Membayar Zakat Profesi Melalui BAZNAS Dengan Faktor Umur Sebagai Variabel Moderasi. *Akuntansiku*, *2*(4), 193–202. https://doi.org/10.54957/akuntansiku.v2i4.611

Aristyanto, E., & Edi, A. S. (2023). Optimization Of Zakat Receiving Through The Digital Platform At The Zakat Management Foundation In Surabaya. *Jurnal Ilmiah Satyagraha*, *6*(2), 11–39. https://doi.org/10.47532/jis.v6i2.790

Ashfahany, A. El, & Ishlahudin, M. I. N. (2023). Efficiency Analysis of Zakat Management Institutions in Banyumas Regency: Case Study of LAZISMU, LAZISNU and BAZNAS. *Iqtisad: Reconstruction of Justice and Welfare for Indonesia*, *10*(1), 51. https://doi.org/10.31942/iq.v10i1.8261

Asrida, A., Amor, A., & Candra, R. (2021). Penerapan Sistem Manajemen Informasi BAZNAS (SIMBA) Pada Badan Amil Zakat Nasional Kabupaten Tanah Datar. *ZAWA: Management of Zakat and Waqf Journal*, *1*(2), 25. https://doi.org/10.31958/zawa.v1i2.5108

Assalafiyah, A., & Rusydiana, A. S. (2020). What is The Priority of Audit Problems at Zakat Institutions in Indonesia. *International Conference of Zakat*, 193–202. https://doi.org/10.37706/iconz.2020.216

Atiya, N., Widiastuti, T., Cahyono, E. F., Zulaikha, S., & Mawardi, I. (2020). A Techno-Efficiency Analysis of Zakat Institutions in Indonesia. *International Journal of Zakat*, *5*(3), 30–43. https://doi.org/10.37706/ijaz.v5i3.249

Bahri, E. S., Aslam, M. M. M., & Mubarok, A. (2023). The Effectiveness of Zakat Disbursement at the National Board of Zakat (Baznas) Kendal Regency. *Journal Of Multi-Disciplines Science (ICECOMB)*, *1*(2), 65–72. https://doi.org/https://doi.org/10.59921/icecomb.v2i1.18

Bahri, M. S., Herindar, E., & Rusydiana, A. S. (2023). Covid-19 and Efficiency in Zakat Institutions: Evidence from Indonesia. *AKSES: Jurnal Ekonomi Dan Bisnis*, *18*(1). https://doi.org/10.31942/akses.v18i1.8757

Busthomi, A. O., Jaelani, A., & Astuti, L. D. (2022). Pengelolaan Dana Zakat Produktif dan Produktivitas Mustahik di Badan Amil Zakat Nasional Kabupaten Brebes. *Hawalah: Kajian Ilmu Ekonomi Syariah*, *1*(2), 41–49. https://doi.org/10.57096/hawalah.v1i2.6

Dani, N. R. (2022). Strategi Pendistribusian Zakat Melalui Program Tanah Datar Sehat di BAZNAS Kabupaten Tanah Datar. *ZAWA: Management of Zakat and Waqf Journal*, *2*(2). https://doi.org/10.31958/zawa.v2i2.8406

Fahrudin, W. (2020). Pemberdayaan Muallaf Perspektif Fikih Zakat; Studi Pemberdayaan Badan Amil Zakat Nasional. *Iqtisad: Reconstruction of Justice and Welfare for Indonesia*, *7*(2), 181. https://doi.org/10.31942/iq.v7i2.3714

Firdaus, F. A., Zaki, I., & Herianingrum, S. (2023). The Role Of Generation Z Through Online Platform in Optimizing of Zakat Literacy and Fundraising. *AZKA International Journal of Zakat & Social Finance*, 13–22. https://doi.org/10.51377/azjaf.vol4no1.118

Firmansyah, F., Nurasyiah, A., & Rosida, R. (2020). Determinant Efficiency Analysis of The National Zakat Board (BAZNAS) Regency/City in West Java. *Review of Islamic Economics and Finance*, *3*(1), 38–49. https://doi.org/10.17509/rief.v3i1.25979

Ghufran, T. M., Zaenal, M. H., & Endri, E. (2023). Efficiency of zakat institutions: Evidence from an emerging economy. *Corporate Governance and Organizational Behavior Review*, *7*(2), 338–349. https://doi.org/10.22495/cgobrv7i2sip12

Gulnoria, R. A., & Anik, S. (2024). Akuntabilitas Islam Dan Transparansi Terhadap Penerapan Good Zakat Governance Pada Badan Amil Zakat Nasional Provinsi Jawa Tengah. *Journal of Economic, Bussines and Accounting (COSTING)*, *7*(5), 3487–3496. https://doi.org/10.31539/costing.v7i5.10560

Hafizah, H., & Muhaimin, M. (2023). Dampak Digitalisasi Pembayaran Zakat Terhadap Peningkatan Penerimaan Zakat pada Baznas Kota Banjarmasin. *Al Qalam: Jurnal Ilmiah Keagamaan Dan Kemasyarakatan*, *17*(5), 3549. https://doi.org/10.35931/aq.v17i5.2661

Hakim, Kholidah, N., & Arifiyanto, M. (2022). Factors Affecting Muzakki's Decision In Choosing to Pay Zakat At Amil Zakat Institution. *Robust: Research of Business and Economics Studies*, *1*(2), 57. https://doi.org/10.31332/robust.v1i2.3610

Hakim, L., & Setyaningsih, A. I. (2022). Effectiveness of Online Zakat during the Covid-19 Pandemic by Amil Zakat Institutions in Boyolali, Indonesia. *Journal of Islamic Economics Lariba*, *8*(2), 241–254. https://doi.org/10.20885/jielariba.vol8.iss2.art6

Hasan, N. A., & Muhammad, R. (2023). Analisis Efisiensi pada Lembaga Amil Zakat Nasional dengan Pertumbuhan Penghimpunan Zakat Terbaik. *EL MUHASABA: Jurnal Akuntansi (e-Journal)*, *14*(1), 69–79. https://doi.org/10.18860/em.v14i1.17910

Hayati, & Putri, S. A. M. (2020). The Efficiency of Zakat Management Organizations in Indonesia: Data Envelopment Analysis Approach. *Muqtasid: Jurnal Ekonomi Dan Perbankan Syariah*, *10*(2), 95–106. https://doi.org/10.18326/muqtasid.v10i2.95-106

Hayati, R. (2022). Mekanisme Penetapan Mustahik Zakat Produktif Dalam Rangka Peningkatan Ekonomi Masyarakat di BAZNAS Kota Solok. *ZAWA: Management of Zakat and Waqf Journal*, *2*(2). https://doi.org/10.31958/zawa.v2i2.8399

Hidayatulloh, M. L., Rohim, A. N., & Hasbi, S. (2022). The Efficiency and Effectiveness of The Distribution of Zakat Funds in Yogyakarta 's Baznas. *ISLAMICONOMIC: Jurnal Ekonomi Islam*, *12*(2). https://doi.org/10.32678/ijei.v12i2.294

Jahja, T. I., Yusuf, N., & Badu, R. S. (2023). Analisis Efisiensi Dan Efektivitas Pengelolaan Keuangan Badan Amil Zakat. *Jambura Accounting Review*, *4*(2), 273–281. https://doi.org/10.37905/jar.v4i2.94

Karsono, D. P., Lorena, & Imronudin, S. E. M. (2017). *Analisis Perbandingan Efisiensi Perbankan Syariah Dan Perbankan Konvensional Dengan Metode Data Envelopment Analysis (DEA).*

Kuryanto, A. D. (2023). Efficiency Analysis Of National Zakat Management Organization With Data Envelopment Analysis (Study on Rumah Zakat, Pos Keadilan Peduli Umat, and Baitul Maal Hidayatullah). *International Journal of Economic Research and Financial Accounting (IJERFA)*, *1*(3). https://doi.org/10.55227/ijerfa.v1i3.35

Mauludin, M. R., & Herianingrum, S. (2022). Pengaruh Digital Zakat Terhadap Penghimpunan Zakat Dan Kinerja Lembaga Amil Zakat. *Jurnal Ekonomi Syariah Teori Dan Terapan*, *9*(1), 47. https://doi.org/10.20473/vol9iss20221pp47-58

Meilani, R., Army, W. L., & Lesmana, Y. (2024). Efektivitas Penerapan Manajemen Sumber Daya Manusia Pada Badan Amil Zakat Nasional (BAZNAS) Kabupaten Karawang Untuk Meningkatkan Pendapatan Zakat. *Jurnal Minfo Polgan*, *13*(1), 1164. https://doi.org/10.33395/jmp.v13i1.14001

Munandar, E. (2022). Efektivitas Unit Pengumpul Zakat (UPZ) Dalam Meningkatkan Jumlah Zakat, Infaq, Dan Sedekah Terhadap Peningkatan Kesejahteraan Ekonomi Mustahik Desa Margaharja. *Journal Ekonomi, Keuangan, Perbankan Dan Akuntansi Syariah*, *1*(1), 11–20. https://doi.org/10.54801/ekspektasy.v1i01.103

Ningsih, N. W., & Rosyadi, R. (2023). Efisiensi Kerja Badan Amil Zakat Nasional (Baznas) Kota Pontianak dalam Mengelola Dana Zakat, Infaq dan Sedekah (ZIS) dengan Metode Data Envelopment Analysis. *Jurnal Muamalat Indonesia - JMI*, *3*(1). https://doi.org/10.26418/jmi.v3i1.58123

Nugroho, A. P. (2025). Understanding Income Taxpayer Behaviour and Professional Zakat Compliance Through a Transcendental Phenomenological Lens. *Riset Akuntansi Dan Keuangan Indonesia*, *10*, 1–9.

Pertiwi, R. E. N., & Wahyuni, E. S. (2022). Analisis Laporan Keuangan dalam Mengukur Kinerja Keuangan Organisasi Pengelola Zakat pada Badan Amil Zakat Nasional Kabupaten Bengkalis. *Jurnal IAKP: Jurnal Inovasi Akuntansi Keuangan & Perpajakan*, *2*(2), 127. https://doi.org/10.35314/iakp.v2i2.2036

Piliyanti, I., & Meilani, S. E. R. (2020). Benchmarking Lembaga Zakat Kampus: Kajian Atas Efisiensi Fundrising Zakat Menggunakan Data Envelopment Analysis (DEA). *Jurnal Perspektif Ekonomi Darussalam*, *6*(1), 15–35. https://doi.org/10.24815/jped.v6i1.14460

Prasethea, K. F., Suyanto, & Sundari, M. S. (2020). Determinants of Technical Efficiency in Indonesian Manufacturing : The Case of Motor-Vehicle Firms Determinants of Technical Efficiency in Indonesian Manufacturing : The Case of Motor-Vehicle Firms. *Jurnal Ekonomi Pembangunan*, *21 (2)*(July 2020), 81–90. https://doi.org/10.23917/jep.v21i2.

Purnamasari, F. W. (2024). Good Zakat Governance: Adaptasi Prinsip Good Corporate Governance dalam Pengelolaan Lembaga Zakat. *ZISWAF ASFA JOURNAL*, *2*(2), 181–195. https://doi.org/10.69948/ziswaf.29

Putra, D. T., & Sholahuddin, M. (2021). *Analisis Efisiensi Dana Desa Kecamatan Pacitan Kabupaten Pacitan Tahun 2019 Dengan Metode Data Envelopment Analysis (DEA)*.

Rejab, S. N. M., Wahid, H., & Yaacob, S. E. (2022). Tadbir Urus Pengagihan Zakat Berdasarkan Maqasid Syariah: Kajian di Lembaga Zakat Selangor. *Sains Insani*, 90–97. https://doi.org/10.33102/sainsinsani.volno.451

Riani, D., Meutia, M., Taqi, M., Ismawati, I., Ryandono, M. N. H., Widiastuti, T., Cahyono, E. F., Filianti, D., Qulub, A. S., Al Mustofa, M. U., Djaghballou, C. E., Djaghballou, M., Larbani, M., Mohamad, A., Ryandono, M. N. H., Qulub, A. S., Cahyono, E. F., Widiastuti, T., Aisyah, B. N., & Robani, A. (2024). Efficiency and Stability of Zakat Institutions in Malaysia and Indonesia: DEA Window Analysis. *TEM Journal*, *25*(8), 303–314. https://doi.org/10.18421/tem131-32

Rustyani, S., & Rosyidi, S. (2020). Measurement of Efficiency and Productivity of Amil Zakat Institutions in Indonesia by using Data Envelopement Analysis Methods and Malmquist Productivity Index. *Jurnal Ekonomi Syariah Teori Dan Terapan*, *6*(2), 270. https://doi.org/10.20473/vol6iss20192pp270-287

Ryandono, M. N. H., Qulub, A. S., Cahyono, E. F., Widiastuti, T., Aisyah, B. N., & Robani, A. (2021). Efficiency Analysis Of Zakat Institutions In Indonesia: Data Envelopment Analysis (Dea) And Free Disposal Hull (Fdh) Approaches. *Academy of Accounting and Financial Studies Journal*, *25*(6), 1–12.

Ryandono, M. N. H., Qulub, Cahyono, Widiastuti, Hanesti, Ardiani, & Insani. (2021). Analysis of Efficiency for Zakat Management Organization in Indonesia: A Comparison Study of Super Efficiency and Free Disposal Hull. *Hayula: Indonesian Journal of Multidisciplinary Islamic Studies*, *5*(2), 147–166. https://doi.org/10.21009/005.02.01

Ryandono, M. N. H., Widiastuti, T., Cahyono, E. F., Filianti, D., Qulub, A. S., Mustofa, M. U. Al, & Al Mustofa, M. U. (2023). Efficiency of zakat institutions in Indonesia: data envelopment analysis (DEA) vs free disposal hull (FDH) vs super-efficiency DEA. *Journal of Islamic Accounting and Business Research*, *14*(8), 1344–1363. https://doi.org/10.1108/jiabr-05-2021-0144

Sidang, N. K., & Feriyanto, N. (2021). Analisis Efisiensi Kinerja Keuangan Lembaga Amil Zakat (LAZ) Rumah Zakat Indonesia dengan Metode Data Envelopment Analysis (DEA). *Jurnal BAABU AL-ILMI: Ekonomi Dan Perbankan Syariah*, *6*(1), 48. https://doi.org/10.29300/ba.v6i1.4409

Subardi, H. M. P., Sukmadilaga, C., & Yuliafitri, I. (2020). Analisis Tingkat Efisiensi Badan Pengelola Zakat Di Tiga Negara Asean (Indonesia, Malaysia Dan Singapura). *ISLAMICONOMIC: Jurnal Ekonomi Islam*, *11*(1), 55–76. https://doi.org/10.32678/ijei.v11i1.139

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. CV Alfabeta.

Sugiyono, Prof. Dr. (2012). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. ALFABETA, CV.

Thahir, A. H., Tohari, I., & Rahman, Z. Abd. (2021). Implementasi Akuntabilitas dan Transparansi Zakat: Pengembangan Sumber Daya Manusia di Lembaga Amil Zakat Rumah Peduli Nurul Fikri. *Management of Zakat and Waqf Journal (MAZAWA)*, *3*(1), 77–93. https://doi.org/10.15642/mzw.2021.3.1.77-93

Trisnaningtyas, Y. M., Rapini, T., & Farida, U. (2020). Analisis Pengendalian Internal,Transparansi, Akuntabiitas Pengelolaan Zakat Dan Kualitas Lembaga Amil Zakat. *ISOQUANT : Jurnal Ekonomi, Manajemen Dan Akuntansi*, *4*(1), 82. https://doi.org/10.24269/iso.v4i1.417

Trisnawati, R., Adityarini, H. A., Kusumawati, E., Nurharjanti, N. N., Putri, E., & Dewi, I. P. (2022). P2AD PCA Kartasura: Pendampingan dan Implementasi Keseragaman Pencatatan dan Pengelolaan Keuangan yang Transparan dan Akuntabel bagi PAUD/TK Aba Kartasura. *Jurnal Abdi Psikonomi*, *3*(1), 22–30.

Yunita, P. (2021). Developing A Modern Zakat Management Model Digital Technology 4.0 Version. *AZKA International Journal of Zakat & Social Finance*, 139–156. https://doi.org/10.51377/azjaf.vol2no1.47

Yusuf, A., & Masruchin, M. (2021). Analisis Optimalisasi, Transparansi dan Efisiensi Pengelolaan Dana Zakat Pada Badan Amil Zakat Nasional (Baznas) Sidoarjo. *Perisai : Islamic Banking and Finance Journal*, *5*(2), 146–157. https://doi.org/10.21070/perisai.v5i2.1539