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Amil Zakat Institution Efficiency During the COVID-19 Pandemic Using Data Envelopment Analysis and the Malmquist Productivity Index

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Abstract

This study aims to analyze the efficiency and productivity of zakat institutions in Indonesia during the COVID-19 pandemic. The potential for zakat in Indonesia is large, but in terms of its distribution, it is still not optimal. zakat management has resulted in the improper collection and distribution of zakat. Whether or not the zakat institution is optimal in carrying out its operational activities can be seen from the efficiency and productivity of the zakat institution. One method that can be used to analyze performance efficiency is by using non-parametric Data Envelopment Analysis (DEA) and the Malmquist Productivity Index (MPI) methods. Zakat Management Organizations that conducted an object study show that there is fluctuating mark efficiency in each research period. During the COVID-19 pandemic, LAZ Al Azhar, LazisNu, and Rumah Zakat reached high efficiency. From the perspective of productivity, the period when the pandemic took place had more value than before the pandemic. When the COVID-19 Pandemic took place, LazisMu's showing of development greatly improved productivity.

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Introduction

The COVID pandemic has had a negative impact on the Indonesian economy. Based on a report from the Badan Pusat Statistik (BPS) at the beginning of the first quarter of 2020, Indonesia's GDP was recorded to have fallen to 2.97%, then grew by minus 5.32% in the second quarter, minus 3.4% in the third quarter, and minus 2.91% in the IV quarter. The government has issued economic recovery policies, such as assistance to the community, employee salary subsidies, and electricity fee waivers for users with 450 VA power, to deal with the impact of the pandemic, which has increased the poverty rate in Indonesia.

Trends Declining cases of COVID-19 have had a positive impact on economic growth in Indonesia. The Indonesian economy grew positively in the second quarter of 2021 by 7.07% due to an increase in household consumption and government consumption. This was also followed by an increase in economic activity in the MSME sector.

Economic assistance provided by the government to restore the economy had a positive impact on reducing the poverty rate to 9.54% in March 2022, which decreased by 0.6% compared to March 2021 (BPS, 2022).

Zakat, Infaq, Shadaqh, and Waqf (ZISWAF) played a special role during the economic recovery period when the COVID-19 pandemic occurred in Indonesia. Puskas BAZNAS identified an extreme increase in the collection of ZISWAF funds during the 1998 monetary crisis, the 2004 Aceh Tsunami disaster crisis, and the COVID-19 crisis in the 2022 Outlook for Indonesian Zakat. This phenomenon proves that when a crisis occurs, it can increase zakat behavior provided that the community knows the crisis information properly so that it influences the psychology to donate (Sari et al. 2020). ZISWAF is a social safety net that can help people who are vulnerable to the impact of the COVID-19 pandemic. In the end, good collection of ZISWAF must be accompanied by good performance in distributing zakat, especially during the COVID-19 period, so that the impact of the COVID-19 Pandemic can be minimized.

Based on the Initiation of the International Working Group on Zakat Core Principles, the potential range and role of ZISWAF management are quite different between one OIC country and another due to the absence of international standardization of zakat management (Beik, 2015). So that there are Muslim countries that have optimally managed ZISWAF funds and some are still lagging. Indonesia, as a country with the largest Muslim population, should have good management of ZISWAF funds. The extent to which the Amil Zakat Institution is be able to collect and distribute the collected ZISWAF requires good governance standards, where one of the indicators is efficiency and productivity as a benchmark for the performance of the Amil Zakat Institution.

Based on this background, this study aims to compare the efficiency and productivity of the Amil Zakat Institution during the COVID-19 Pandemic in Indonesia. This research is important because the more efficient and productive the Amil Zakat Institution is, the greater the positive impact on ZISWAF fund management. This study uses the non-parametric Data Envelopment Analysis and Malmquist Productivity Index methods in order to determine operational posts for increasing the efficiency and productivity of the Amil Zakat Institution.

Literature Review

Efficiency

Efficiency is related to inputs and outputs, which measure how productive inputs are converted into outputs. Efficiency is increased if more output is produced without changing inputs. Efficiency is generated when the output can be increased without changing the input. An economic system is more efficient if it can provide more goods and services to society without using more resources (Wahab et al., 2013). Measurement of company performance can be done by using the concept of efficiency. A company is said to be efficient if it can minimize costs in producing output with certain input factors or maximize profits by using a combination of available inputs. In the context of zakat institutions, efficiency refers to how well the institution uses its resources (e.g., staff, expenses, etc.) to fulfill its goals of socio-economic equity (e.g., reducing poverty) (Wahab & Rahim Abdul Rahman, 2011).

Productivity

Besides efficiency, another performance measure is productivity. Productivity is the comparison between the value of goods produced from a production activity and the costs incurred to produce these goods over a certain period of times. There are three important things that must be known when measuring productivity, namely: First, measuring productivity will have an impact on the balance sheet. Second, the measurement of productivity will have an impact on the income statement. The flow of raw materials, which are then processed in the production process, will have an impact on both of the above. Third,

productivity measurement

must be possible to apply and flexible to changes in one of the variables. Productivity measurement should be able to reflect the condition of the company in the future, which cannot be known from the balance sheet and income statement. The profit achieved by the company may be high, and the capital used may be in good condition, but if it is not accompanied by an increase in productivity, the company will not be able to survive in the long term. Productivity
to manages their affairs towards increasing the social welfare of legitimate zakat recipients and demonstrating accountability to zakat payers (Wahab & Rahim Abdul Rahman, 2011). The main objective is to seek the pleasure of Allah while taking into accounts the requirements of the Shari'a.

Amil Zakat Institution

Zakat is one of the pillars of Islam and has a goal for the benefit of the people. In QS At Tawbah verse 60, it is explained that Allah SWT regulates the process of distributing zakat with the aim that the benefits of zakat can be felt as a whole properly and well. The purpose of Zakat is to create social welfare through the transfer of ownership from those who have reached the nisab of Zakat to the asnaf group mentioned in Qs At Taubah, verse 60. On the other hand, the benefits of zakat can simultaneously boost the economy significantly. When the economy is increasingly encouraged, social welfare will soon be created.

One of the recipients of the zakat funds mentioned earlier is one group of zakat recipients, namely zakat administrators. The administrators of zakat referred to in this paragraph are now better known as Amil Zakat Institutions. As stated in Law No. 23 of 2011, Articles 17 and 18, the Amil Zakat Institution is an institution formed by the community and authorized by the government to assist BAZNAS in collecting, distributing, and utilizing existing zakat funds. The basic functions of a zakat organization include, first, collecting muzakki from rich people and redistributing it to mustahiq. Second, foster the muzakki so that they remain muzakki and the poor so that they become muzakki. Third, record all community groups both as muzakki and mustahiq. Then, again mentioned in Law No. 23 of 2011, Article 32 states that Amil Zakat institutions can use Amil rights as operational costs.

Therefore, the zakat funds received by the Amil Zakat Institution can be used to finance all activities related to zakat management. There are two perspectives on measuring the performance of an Amil Zakat institution: the customer perspective and the financial perspective. From the perspective of Amil Zakat Institution, customer satisfaction can be measured by measuring the performance of Amil Zakat Institution through a customer satisfaction survey. Furthermore, from a financial perspective, you can use the income and distribution of zakat funds that occur at Amil Zakat Institutions to measure their performance (Darmawati, 2011).

Optimizing the performance of Amil Zakat Institutions is currently driven by technological advances, which many Amil Zakat Institutions have encountered in raising ZISWAF funds. The National Amil Zakat Agency (BAZNAS) has experienced an increase in fundraising since using Financial Technology as a mean to pay zakat. The average growth in zakat collection through technological advances reached 9.98%, while zakat collection without the use of financial technology only reached 5.58%.

Many studies have been conducted related to the efficiency and productivity of zakat institution management. Good research seeks to compile proposals for measuring the multidimensional performance of zakat organizations, combining various dimensions such as input, process, output, and results. There are several studies that have been conducted to measure the level of efficiency and productivity of zakat institutions in Indonesia (Rustyani & Rosyidi, 2019). Research that applies efficiency and productivity measurements to zakat institutions in Indonesia uses Data Envelopment Analysis (DEA) and the Malmquist Productivity Index (MPI) (Parisi, 2017). Dompet Dhuafa, one of the most efficient Amil

Zakat Institutions in Indonesia in 2011, 2014, and 2015 (Ardiani, 2019), While zakat institutions in Malaysia are studied by Wahab & Rahim Abdul Rahman (2011), There is research analyzing efficiency and productivity by comparing Indonesia and Malaysia (Nurasyiah et al., 2019).

Methodology

This study uses Data Envelopment Analysis (DEA) techniques to measure the efficiency of Amil Zakat Institutions and the Malmquist Productivity Index (MPI) to measure their performance. The DEA method is a nonparametric method that uses a linear programming model to calculate the ratio of output and input ratios for all units being compared. The non-parametric nature of DEA makes it unnecessary to assume production functions, and the DEA approach will generate production functions based on the observed data so that specification errors can be minimized. In addition, the resulting efficiency is a relative efficiency based on observational data (AS Rusydiana & Al-farisi, 2016). In the standard DEA model, it is impossible to differentiate the performance of efficient companies because all efficient units have an efficiency score of 1. Whereas the super-efficiency DEA model allows companies to take a value greater than 1, thereby making it possible to differentiate their performance (ASFFH Rusydiana, 2020).

Malmquist Productivity Index (MPI) is a distance function approach to describe technology in defining input, output, and productivity indices. The Malmquist Productivity Index (MPI) is part of the Data Envelopment Analysis (DEA) method, which specifically looks at the productivity level of each business unit, namely changes in efficiency and technology levels based on inputs and outputs that can be analyzed. The MPI method is one of the most frequently used indices to measure the level of productivity of a business unit (DMU), especially in the banking industry (AS Rusydiana, 2019).

This research was conducted at 7 samples of Amil Zakat Institutions in Indonesia, namely, Baznas, Dompet Dhuafa, LazisMu, Rumah Zakat, IZI, LazisNu, and Laz AL Azhar, with a time span of 2020–2021, for the period when the COVID-19 pandemic took place. The variables used as input variables are operational costs and total assets. As for the output variables used, namely, collected Zakat, Infaq, and Shadaqh funds and distributed Zakat, Infaq, and Shadaqh funds, The analytical tool used in this study is MaxDEA to measure the level of efficiency at Amil Zakat Institutions in Indonesia, while to measure the Malmquist productivity index, DEAP 2.1 software is used. The calculation of the efficiency and productivity of Amil Zakat Institution is carried out using the BCC or VRS approach with output orientation.

Table 1: Operational Definition of Input and Output Variables

Variable	Operational definition
Inputs	
Operating costs	Use of Amil funds for the operation of Amil Zakat Institutions
Total Assets	The total number of assets owned by Amil Zakat Institutions
Output	
ZIS Funds Collected	Total Collection of Zakat, Infaq, and Shadaqah Funds
Distributed Zis Funds	Total distribution of Zakat, Infaq, and Shadaqah Funds

Results and Discussion

Zakat in the economy can be likened to a mechanism for redistributing wealth from muzakki to mustahik. As is well known, mustahik are groups entitled to receive zakat, which includes eight groups: the needy, the poor, amil zakat, converts, riqab (servants), gharim (people in debt), fi sabilillah (activities in the way of Allah), and ibnu sabil (travelers who run out of provisions). The sequence of mustahik above shows that there is a priority for the distribution of zakat from a socio-economic perspective, with the needy and the poor being groups that need to get top priority for the distribution and utilization of zakat. The benefits of distributing zakat, as stated by Yusuf Qardhawi, can be divided into three categories: benefits for muzakki, mustahiq, and society in general. The benefits of zakat for muzakki are that zakat purifies the soul from miserliness, educates to spend and give, has a noble character, is a manifestation of gratitude for God's blessings, heals from worldly love, develops inner wealth, attracts sympathy and love, and can develop wealth.

Al Qardhawi said that the basic purpose of zakat worship is to solve various social problems such as unemployment, poverty, and others. The zakat distribution system itself is a solution to this problem by providing assistances to the poor regardless of race, skin color, ethnicity, or other worldly attributes. The role of zakat in driving the economy and transforming the morals of the people requires synergy between zakat holders.

Based on the data collected from each Zakat Institution Financial Report, it is processed using MaxDea and DEAP to obtain descriptive results using Efficiency and Productivity data. The input variable data is obtained from Operational Costs and Total Assets data, while the Output variable is obtained from data on the collection of Zakat, infaq, and Shadaqh funds and the Distribution of Zakat, infaq, and Shadaqh funds. The input and output variables are used to measure the efficiency value of each Amil Zakat Institution studied.

This study analyzes the level of efficiency and productivity of the Amil Zakat Institution during the COVID-19 Pandemic. The efficiency score of data processing using DEA, which is obtained by each zakat institution, is measures and then compared with other zakat institutions. When the data processing results show the number 1, it explains that the DMU is in an efficient condition. If it shows a number below 1, it means that the DMU is in an inefficient condition. The closer to one, the better the DMU's efficiency value. measuring Productivity Using the Malmquist Productivity Index using DEAP tools There are MPI criteria, namely, if the Malmquist index value is less than 1, then there is a decrease in productivity; if it is more than 1, then there is an increase in productivity. Whereas if it is equal to 1, then there is no change in performance.

The level of awareness of the Indonesian people to lend a hand when the pandemic is increasing can be seen from the many social activities intended to help others, such as fundraising for those affected by the pandemic from an economic or social perspective. Philanthropic institutions such as the Amil Zakat Institution have a role in the process of collecting and distributing these social funds. As seen in Table 2 below, the results of processing the efficiency data of the seven Amil Zakat Institutions when the pandemic took place from 2020 to 2021.

Table 2: DEA Results When COVID-19

Amil Zakat	**When Covid-19**			
Institution	2020	rank	2021	rank
Al Azhar	1	1	1	1
BAZNAS	0.50025	4	0.67828	3
Dhuafa Wallet	0.37486	6	0.41096	6

IZI	0.42164	5	0.27719	7
LazisMU	0.23225	7	0.425	5
LazisNu	1	2	0.56211	4
Zakat House	1	3	0.77978	2

Source: Compiled by the Author (2023)

In 2020–2021, LAZ Al Azhar will be the only zakat institution with perfect efficiency values. LazisNu and Rumah Zakat have efficient values in 2020, but in the following year, the two Amil Zakat Institutions become inefficient. Baznas, LAZ Dompet Dhuafa, IZI, and LazisMu during the pandemic were still not efficient. Baznas, Dompet Dhuafa, and LazisMu in the following year can increase their efficiency values to be better, although they are still not efficient. IZI, LazisNu, and Rumah Zakat in 2019 have lower efficiency values than the following year, but the efficiency values of Rumah Zakat are still better than the efficiency values of other Zakat Institutions.

Significant changes in efficiency values can be seen in LAZISMU; in 2020, it has an efficiency value of 0.23225; in 2021, it increases to 0.425. Even though it is still not efficient, LazisMu can optimize the Distribution and Collection of funds by adjusting Operational Costs and Total Assets owned. This is supported by the results of LAZISMU Total Potential Improvement, where in 2021 they can optimize their efficiency by reducing their collection and distribution of funds. It can be interpreted that Lazismu uses their Operational Costs and Total Assets to be able to collect and distribute Zakat, Infaq, and Shadaqh funds properly. The results of calculating *the Total Potential Improvement* can be seen in Table 3 below.

Table 3: ***Total Potential Improvement*** **of Zakat Institutions in Indonesia During COVID-19**

Amil Zakat Institution	***Total Potential Improvement 2020***				***Total Potential Improvement 2021***			
	Operating costs	Total Assets	ZIS Fund	ZIS distribution	Operating costs	Total Assets	ZIS Fund	ZIS distribution
Al Azhar	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BAZNAS	0.81	0.24	-1.01	-1.00	0.87	0.41	-0.48	-0.47
Dhuafa Wallet	0.74	0.78	-1.67	-1.93	0.75	0.59	-1.54	-1.43
IZI	0.00	0.00	-1.37	-1.56	0.00	0.00	-2.61	-3.41
LazisMU	0.32	0.00	-3.72	-3.31	0.64	0.49	-1.35	-1.70
LazisNu	0.00	0.00	0.00	0.00	0.81	0.18	-0.85	-0.78
Zakat House	0.00	0.00	0.00	0.00	0.18	0.00	-0.28	-0.36

Source: Compiled by the Author (2023)

Decreasing the efficiency value owned by LazisNu and Rumah Zakat in 2021 can be streamlined again by increasing 0.81% operational costs, 0.18 Total Assets, reducing fundraising by 0.85%, and reducing ZIS distribution by 0.78 for LazisNU. As for Rumah Zakat, they can increase operational costs by 0.18%, reduce the collection of zakat funds by 0.28, and reduce the distribution of funds by 0.36%. It is happened because in 2021, IZI collected and channeled too much ZIS funds without making any changes to their operational costs or total assets. This can happen due to the not optimal use of IZI Operational Costs and Total Assets in the process of collecting zakat, infaq, and Shadaqh funds.

The majorities of the root causes of the inefficiency of the Amil Zakat Institution during the pandemic were due to the not optimal use of the operational costs and total assets of each Amil Zakat Institution in the process of collecting and distributing ZIS funds. The results of the

Total Potential Improvement data show that each zakat institution must reduce the collection and distribution of zakat funds in order to work efficiently and must increase their operational costs and total assets to be efficient.

Table 4. Malmquist Productivity Index Summary of Annual Means During COVID-19

Year	Effch	Techch	Pech	sec	tfpch
2020–2021	0.656	1961	0.703	0.933	1,287

Source: Compiled by the Author (2023)

Even though 4 of the 7 Amil Zakat Institutions studied were not efficient, the productivity of Amil Zakat Institutions during the pandemic was of good value. The results of the Malmquist Productivity Index in Table 8 above show a value of 1,287, which is better than before the pandemic. An MPI value above 1 indicates that productivity performance is already good.

LAZISMU's productivity during the pandemic was the best among other Amil Zakat Institutions. As seen in Table 9, LAZISMU has a productivity value of 6,887. LazisMu, LazisNu, Baznas, and Domet Dhuafa have a productivity value above 1. LAZ Al Azhar, IZI, and Rumah Zakat need to increase their productivity values.

The existence of Efficiency and Technological Innovation is needed by every Amil Zakat Institution over time. Technological innovation can facilitate the operations of the Amil Zakat Institution and reduce costs for the zakat organization. The services provided are also more effective, so the productivity of the Amil Zakat Institution is getting better. In general, the existing Amil Zakat Institutions have innovated with certain parties to facilitate the distribution and collection of Zakat funds.

Table 5. Malmquist Productivity Index Summary of Annual Means During COVID-19

Year	Effch	Techch	Pech	sec	tfpch
Al Azhar	0.507	1,574	0.901	0.563	0.799
BAZNAS	1,000	1904	1,000	1,000	1904
Dhuafa Wallet	0.782	1,438	0.603	1,297	1,124
IZI	0.155	1862	0.159	0.970	0.288
LazisMU	1,000	6,887	1,000	1,000	6,887
LazisNu	1,600	1530	1,000	1,600	2,448
Zakat House	0.533	1,319	0.980	0.544	0.730

Conclusion

When the COVID-19 pandemic took place. 7 Amil Zakat institutions, which were used as the object of this research, showed that there were fluctuations in the value of efficiency in each research period. When the COVID-19 pandemic took place, LAZ Al Azhar, LazisNu, and Rumah Zakat achieved efficiency values. In general, the inefficiencies experienced by Amil Zakat Institutions are not optimal in the use of their total assets and operational costs in collecting and distributing Zakat, Infaq, and Alms funds. On the other hand, the Amil Zakat Institution has been able to produce high output without being matched by good input.

When the COVID-19 Pandemic took place, LazisMu showed greatly improved productivity developments. The results of the study show that its MPI score is 6,887, making LazisMU the first rank in terms of productivity compared to other Amil Zakat Institutions.

Apart from LazisMU, Baznas, Dompet Dhuafa, and LazisNu are institutions with better productivity values compared to other Amil Zakat Institutions. The increase in efficiency and productivity values of Amil Zakat Institution during pandemic shows that Amil Zakat Institution survived well during a pandemic when most businesses or profit institutions experienced a decline. This also indicates that the development of philanthropic institutions in Indonesia is improving.

Author's Contribution

Ninda Ardiani: Creating and designing analyses; Collecting data; Contributing data or analysis tools; perform analysis; Writing paper
Fitri Nur Latifah: Creating and designing analyses; Collecting data; Contributing data or analysis tools;
Satrio Sudarso: Creating and designing analyses; Contributing data or analysis tools; perform analysis;
Nuris Tiswanah: Collecting data; Contributing data or analysis tools; Writing paper
Neva Madinatul: Collecting data; Contributing data or analysis tools; Writing paper

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Declaration of Competing Interest

We declare that we have no conflict of interest.

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