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Has Covid-19 Pandemic had an Impact on the Productivity of Indonesia Zakat Institutions?

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This study aims to measure the productivity of zakat institutions in Indonesia using the Malmquist Productivity Index (MPI) method with the research period 2016-2022. The research objects used are 7 zakat institutions in Indonesia. The data of this study comes from the annual financial statements of each institution from the period 2016-2022. The input variables in this study are employee costs, operational costs and total assets. And for the output variable is the collection and distribution of zakat. The results of this study explain that during the period 2016-2022, the productivity level of zakat institutions in Indonesia has a fluctuating trend from year to year. Based on the average TFPCH score, it is concluded that the productivity of zakat institutions shows a decline and technological change has not contributed optimally to the increase in the productivity of zakat institutions in Indonesia. Furthermore, the productivity of Zakat Institutions during the Covid-19 pandemic has a significant influence on the productivity level of LAZ in Indonesia. Then, there are only two LAZs that have increased productivity, namely BAMUIS BNI and YBM PLN. We also apply quadrant analysis to divide zakat institutions based on efficiency and technological changes value.

Keywords: Productivity; Zakat Institution; Indonesia; Covid-19; Malmquist Index (MPI)

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INTRODUCTION

Zakat is one of the commandments in Islamic teachings that require Muslims to give a portion of their wealth to designated beneficiaries under predetermined conditions. The purpose of zakat in the context of Islamic economics is to achieve socio-economic welfare by addressing the problem of poverty, encouraging a more equitable redistribution of income and wealth, and preventing the accumulation of wealth in the hands of a small group of people. In the macroeconomic perspective, zakat has the potential as an Islamic economic tool that can affect the overall level of consumption, savings, and investment, as well as affect the aggregate supply of labor and capital, which in turn can increase economic growth as an alternative solution to reduce poverty problems (Wahab & Rahman, 2012; Djaghballou et al., 2018; Wahab & Rahman, 2011).

In the research of Djaghballou et al. (2018) revealed that Zakat institutions have a very crucial role in promoting economic activity and ensuring a minimum standard of living for Muslims. To achieve these goals, it is important for zakat managers (amil zakat) to act with professionalism and trustworthiness in managing zakat funds. Maulana & Fanani (2020) also argue that zakat management must be carried out carefully and trustworthily in order to achieve the desired social and economic welfare. In addition, Widiastuti et al. (2021) emphasized that zakat institutions play a very important role in empowering the community and overcoming poverty problems. Sustainable zakat funds can be given to recipients who have economic potential to help them get out of the poverty line.

Despite the enormous potential of zakat in Islam, efforts to optimize it still face a number of significant challenges. One of these challenges is the unsustainability in zakat contributions by muzakki, who are individuals who have the obligation to pay zakat. Other challenges include the lack of transparency and accountability in the management of zakat funds, as well as an overly focused orientation on fund collection without considering the effectiveness of its distribution. In Indonesia, there are several issues that need to be considered, such as the absence of adequate zakat regulations to encourage muzakki obedience in paying zakat, as well as the lack of involvement of related parties in managing zakat. In addition, the inefficient distribution of zakat and the low amount of funds collected are also obstacles that need to be overcome (Fadli, 2016; Ahmad & Ma'in, 2014). Maulana & Fanani (2020) also indicated that there is an imbalance between the potential of zakat collection and the realization of zakat funds managed by official zakat institutions, which is caused by many muzakki who choose to distribute zakat directly to individuals rather than through legal zakat institutions.

Because the potential of zakat in Indonesia is very large, zakat institutions must face a number of problems in managing the zakat funds. One way to overcome this challenge is through the implementation of an optimal governance system. As an entity responsible for the management of zakat, zakat institutions need to ensure that zakat funds are managed efficiently (Adiwijayo & Suprianto, 2020). Therefore, it is important for zakat institutions to measure and maintain their level of efficiency, effectiveness, and productivity (Wahab & Rahman, 2012). Kopelman (1986) explains that productivity is the ratio between the physical output of one or more factors of production to the physical inputs used in the production process. In other words, the overall production level is affected by the amount of capital and labor invested. According to Zacharatos et al. (2005), managers should be able to plan their costs and budgets accurately based on previous data to maintain their company's productivity.

Research related to the productivity of zakat institutions is still very rare. Among the studies that are relevant to this research topic include research conducted by Djaghballou et al (2018); Rustyani & Rosyidi (2018); Al Parisi (2017); Wahab & Rahman (2012); Greece et al (2020); Maulana & Fanani (2020); and Saadati (2016). This research tries to fill the void of research on the productivity of zakat institutions in Indonesia. As is known, in addition to measuring efficiency, measuring productivity is also very important so that several stakeholders such as practitioners and regulators can evaluate and install future strategies in order to optimize zakat funds in Indonesia. This research focuses on zakat institutions in Indonesia that have met the research sample criteria. Furthermore, this study also analyzes the effect of the Covid-19 pandemic on the productivity of zakat institutions in Indonesia.

LITERATURE STUDY

Zakat is an obligation that must be fulfilled by all Muslims who meet certain conditions in terms of their wealth. Every year, they are required to set aside a portion of their wealth for charitable purposes. The institution of zakat plays a key role in the Islamic economic framework with the aim of ensuring an equitable distribution of wealth and establishing a social safety net for needy members of society. The Qur'an

strongly emphasizes the importance of zakat as a key component of social and economic justice. In Indonesia, there are two types of zakat, infaq and sadaqah management institutions, which can be established by the government or by the community. Zakat institutions established by the government include Badan Amil Zakat Nasional (BAZNAS) and Lembaga Amil Zakat (LAZ) established by the community. The main role of zakat institution is as an intermediary between muzakki (people who pay zakat) and mustahik (zakat recipients). The duties of zakat institutions include the collection of zakat funds from the public, transparent management, and distribution of zakat to entitled recipients in an open and accountable manner. In addition, zakat institutions also have an important role in providing education and socialization to the public about the importance of zakat, as well as providing support to zakat recipients to improve their quality of life.

Based on the explanation above, the concept of Zakat in Islam not only aims to strengthen faith, but also to reduce materialistic, miserly, and greedy traits, as well as to improve humanitarian aspects, clean assets, and overcome social and economic problems that exist in society (Iskandar et al., 2020). In Muslim-majority countries, zakat institutions are considered as trustworthy institutions in managing ZISWAF (Wahab & Rahman, 2012). In Indonesia, Law No. 23 of 2011 regulates the management of zakat, infaq, and sadaqah as planning, implementing, and coordinating activities in the collection, distribution, and utilization of zakat, infaq, and sadaqah. The main purpose of managing ZISWAF funds is to improve the efficiency and effectiveness of services and benefits, which is a step towards achieving community welfare and overcoming poverty problems. Therefore, the concept of ZISWAF has strong scientific value and has proven to be effective in overcoming various social and economic problems that exist in society.

Furthermore, in the context of the function and role of zakat institutions, it is very important for zakat institutions to measure their productivity level. Evaluation of an institution's achievements often depends on how efficient and productive they are in achieving their financial goals. To measure efficiency and productivity, a comparison between the inputs used, such as fixed assets, labor, and customer funds, with the outputs produced, such as financing and operations, can be used as an evaluation method (Mongid & Tahir, 2010).

Kopelman (1986) explains that productivity reflects the relationship between one or more physical outputs and the physical inputs used in the production process. The level of productivity can be measured by considering the amount of capital and labor required in production, so that the results obtained are influenced by these input factors. Furthermore, Fare et al. (1994) breaks down the concept of productivity into smaller segments, focusing on the efficiency gained through the adoption of innovative technologies. In this framework, the basic assumption is that output is fixed, while Total Factor Productivity (TFP) is used as an indicator of technological change and performance that can be measured and modified by considering the various inputs used. In simple terms, when productivity increases in a sector, greater output can be achieved with the same inputs.

Research on the productivity of zakat institutions is still a relatively rare field explored by previous researchers. The majority of research focuses more on analyzing the efficiency of zakat institutions. Some related studies involve analyzing the efficiency and productivity of zakat fund performance in various contexts. For example, research by Djaghballou et al. (2018) examined the total factor productivity of zakat funds in Algeria and found that the significant increase in productivity is more due to technical change factors than efficiency factors. This result suggests that zakat funds rely more on technical innovation to achieve higher productivity.

Another study by Rustyani & Rosyidi (2018) measured the efficiency and productivity of zakat institutions in Indonesia using DEA and MPI methods. The results show changes in the efficiency and productivity levels of zakat institutions from year to year, with some institutions experiencing an increase in efficiency and productivity over time. Research by Al Parisi (2017) also examined the efficiency and productivity of zakat institutions in Indonesia. The study identified the main factors of inefficiency of zakat institutions, including suboptimal distribution of funds to ashnaf (zakat recipients) and expansion of expenditure for socialization purposes.

Although research on the productivity of zakat institutions is still limited, there are several other studies that can be a reference for measuring the productivity of zakat institutions, including Wahab & Rahman (2012) explaining the productivity growth of zakat institutions in Malaysia. Greece et al (2020) measured the efficiency of zakat management (OPZ) of Islamic Banks in Indonesia. Maulana & Fanani (2020) explain the efficiency of national zakat institutions from 2015-2016. And research from Saadati (2016) examines the

efficiency of cash waqf productivity in economic empowerment in Indonesia. All these studies have relevance in evaluating the performance of zakat institutions and identifying factors that affect their productivity.

In conclusion, although research on the productivity of zakat institutions is still limited, the existing research shows that technical change and technological innovation factors can play an important role in increasing the productivity of zakat funds. In addition, efficiency in fund disbursement and expenditure of zakat institutions is also a key factor in achieving higher productivity. More research is needed in this area to better understand how zakat institutions can improve their productivity in supporting philanthropic and socio-economic goals in society.

METHODOLOGY

The Malmquist Index is a useful tool in measuring productivity, first introduced by Sten Malmquist in 1953, but later redeveloped by Caves et al. (1982). This index has two measurement dimensions, namely catch-up effect and frontier shift effect. Catch-up effect measures the level of change in relative efficiency from the first period to the second period. Meanwhile, the frontier shift effect measures the level of technological change, the combination of inputs and outputs from the first period to the second period. Frontier shift effect is also known as the innovation effect (Caves et al., 1982; Rani et al., 2017; Rusydiana & Widiastuti, 2018).

The Malmquist Index has several advantages that make it a good choice for measuring productivity. First, it is a non-parametric method, so it does not require the specification of a production function. Second, the Malmquist index does not require assumptions about the behavior of economic production units, such as cost minimization or profit maximization. Third, the calculation of this index does not require price data, which is often unavailable, so it is helpful if the objective is a different or unknown manufacturer. Fourth, the Malmquist productivity index can be divided into two components, namely efficiency change and technological change (Marlina et al., 2018).

To measure Malmquist productivity index, this research uses DEAP 2.1 software as the analysis tool. This research was conducted on 7 zakat institutions in Indonesia during the period 2016 to 2022. All data used are collected from the annual reports of zakat institutions available in the publication reports on each zakat institution's website. In selecting the sample of zakat institutions, all relevant data is required during the five-year time span from 2016 to 2022, resulting in a sample of 15 zakat institutions in Indonesia.

The data used in the productivity analysis includes inputs, namely total assets, operating costs, and employee costs. And outputs are collection and distribution. The calculation of productivity of zakat institution uses BCC or VRS approach with output orientation. Furthermore, the estimation of TFP growth and its components refers to the malmquist index and uses the Cobb-Douglas production function.

Furthermore, in this study, the method used is the Malmquist Productivity Index (MPI), where the measurement index is seen from changes in total factor productivity (TFPCH) which can be divided into technological change (TECHCH) and efficiency change (EC) (EFFCH). The efficiency change index can be further decomposed into a PECH component (pure efficiency change) that is comprehensively calculated against the VRS technology, and a SECH component (scale change) that captures changes in deviations between VRS and CRS technologies.

Factors affecting productivity changes can be seen through the values of the efficiency change index (EFFCH) and technology change index (TECHCH) to explain the reasons for productivity changes. In addition, the pure efficiency change index (PECH) and scale efficiency change index (SECH) are used to determine the causes of changes in the efficiency change index (EFFCH). The total factor productivity (TFP) value shows the change in the index. A value of $M > 1$ indicates an increase in productivity; $M = 1$ indicates no increase in productivity; and $M < 1$ indicates a decrease in productivity.

RESULTS AND ANALYSIS

Productivity of Amil Zakat Institutions in Indonesia during the Observation Period

Productivity change factors can be identified through the Efficiency Change Index (EFFCH) and Technology Change Index (TECHCH) values. Meanwhile, the Pure Efficiency Change Index (PECH) and Scale Efficiency Change Index (ECH) are used to determine the cause of changes in EFFCH. Furthermore, the value of Total Factor Production (TFP) is intended to see any changes in the index. If the value of $M > 1$, then it explains an increase in productivity, and vice versa, where if $M < 1$ indicates a decrease in productivity value. If $M = 1$ then there is no increase in productivity.

The table below explains the results of the analysis using the Malmquist Productivity Index (MPI)

of the Amil Zakat Institution (LAZ) in Indonesia which is the object of observation in this study.

Table 1: Average Malmquist Index Score of Amil Zakat Institutions per Year

Year	effch	techch	pech	sech	tfpch
2016-2017	0,595	1,715	0,633	0,897	1,021
2017-2018	1,419	3,100	1,381	1,028	0,439
2018-2019	0,559	0,930	0,636	0,880	0,520
2019-2020	2,134	0,264	1,678	1,271	0,562
2020-2021	1,083	5,736	1,017	1,065	6,209
2021-2022	0,942	0,886	1,007	0,935	0,834
Mean	**1,004**	**0,933**	**1,000**	**1,004**	**0,937**

The table above explains the changes in total productivity (Tfpch) of Amil Zakat Institutions as well as its influencing factors, namely technological change (Techch) and efficiency change (Effch) during the observation period. From the MPI results on 7 Amil Zakat Institutions in Indonesia, it can be concluded that the productivity trend fluctuates from year to year. The average score results show that the productivity value of Amil Zakat Institutions has decreased (0.937) caused by a decrease in technological change (0.933), although the efficiency change has increased (1.004). This explains that technological change dominantly contributes to the decline in productivity of Amil Zakat Institutions in Indonesia.

In 2016-2017, the average productivity level of the Amil Zakat Institution increased (1.021) with the value of efficiency changes (0.595) decreasing and technological changes (1.715) increasing. It can be concluded that changes in efficiency in this period have not been able to make an optimal contribution to the productivity of the Amil Zakat Institution in Indonesia. Furthermore, the results in the period 2017-22020, the productivity level of the Amil Zakat Institution has decreased. With the tfpch value sequentially (0.439), (0.520) and (0.562). The 2017-2018 period is the period with the lowest productivity level throughout the study period. Then for efficiency changes in the 2017-2018 period increased (1.419), as well as technological changes (3.100). Furthermore, in the 2018-2019 period, changes in efficiency experienced a significant decline and the lowest value throughout the study period, namely with a value of (0.559), on the other hand technological change (0.930) also decreased in this period. In the 2019-2020 period, the change in efficiency increased significantly and became the highest value throughout the observation period, namely with a value of change in efficiency (2.134), but for technological change it decreased significantly and became the lowest value of technological change throughout the period, namely (0.264).

Furthermore, in 2020-2021 the productivity level experienced the highest increase (6.209) which was influenced by an increase in technological change (5.736) which was also the highest value of technological change throughout the study period and efficiency changes which also increased (1.083). Then, for 2021-2022, the productivity level has decreased, namely with a value of (0.834). This was influenced by a decrease in technological change (0.886) and also efficiency change (0.942). It can be concluded that in the 2020-2021 period, efficiency changes and technological changes both contribute to increasing the productivity of the Amil Zakat Institution in Indonesia. Meanwhile, in the 2021-2022 period, efficiency changes and technological changes also equally contributed to the decrease in the productivity of the Amil Zakat Institution.

If analyzed further, the productivity trend of Amil Zakat Institutions in Indonesia can be seen in the figure below.

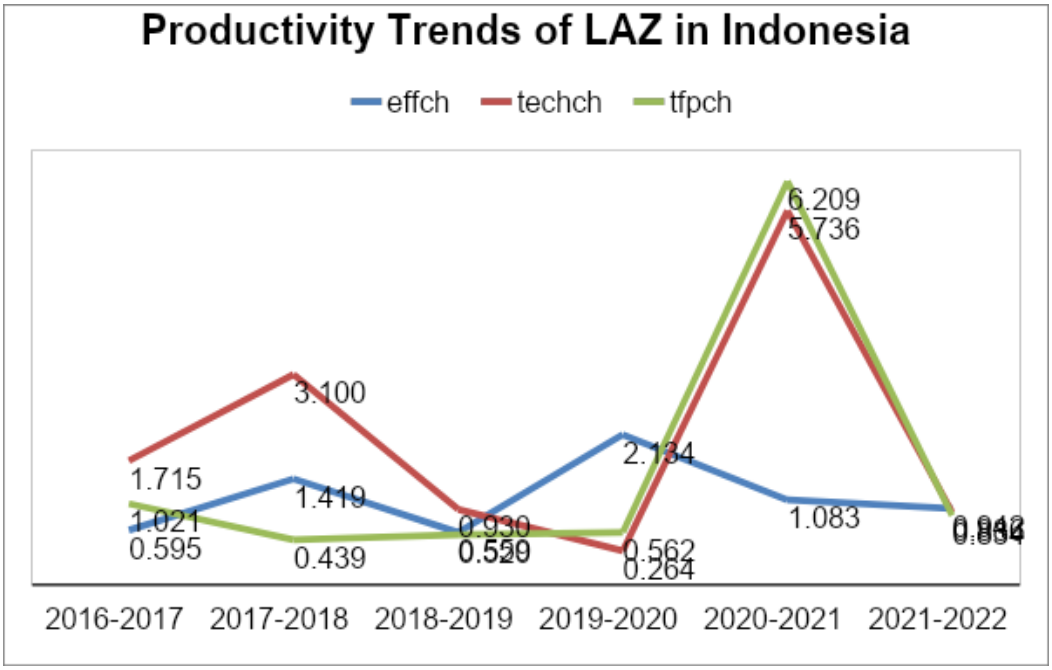

Figure 1: Productivity Trend of Zakat Institutions in Indonesia

Based on the figure above, it can be concluded that the productivity trend of Amil Zakat Institutions in Indonesia fluctuates from year to year. Judging from the trend of tfpch or the level of productivity, in the 2016-2017 period there was an increase in productivity, which then decreased in the 2017-2018 period until the 2019-2020 period. Then, the productivity level showed a significant increase in the 2020-2021 period, which then significantly decreased again in the 2021-2022 period. Almost the same thing also happened to the effch trend or efficiency change which also fluctuated from year to year. Changes in efficiency showed a decrease in the periods 2016-2017, 2018-2019, and 2021-2022. Meanwhile, the increase in efficiency changes occurred in the periods 2017-2018, 2019-2020, and 2020-2021. Furthermore, in technological change or techch, it can be concluded that the increase in techch occurred throughout the 2016-2018 period, and the 2020-2021 period. Meanwhile, the decrease in techch score occurred during the 2018-2020 period and the 2021-2022 period.

Overall, it can be concluded that technological change (techch) plays an important role in the productivity level of Amil Zakat Institutions in Indonesia. Therefore, the Amil Zakat Institution in Indonesia must begin to focus on the use of technology and digitalization in each of its operations. This is so that efficiency can be achieved and productivity levels can increase.

Productivity of Amil Zakat Institutions in Indonesia during the Covid-19 Pandemic

The phenomenon of the Covid-19 pandemic at the end of 2019 until it spreads in Indonesia in early 2020 certainly has a global impact not only on the health sector but also the economic and social sectors of society, especially in the Amil Zakat Institution as a non-profit institution that collects and distributes social funds (ZISWAF). Several studies that discuss covid-19 pandemic impact on Islamic financial institutions, for example, were carried out by Ikhwan (2022), Riani (2022), Rusydiana et al., (2022), Maulida (2022), and Herindar (2021). For this reason, the following analysis explains the productivity level of the Amil Zakat Institution in Indonesia before and during the Covid-19 pandemic.

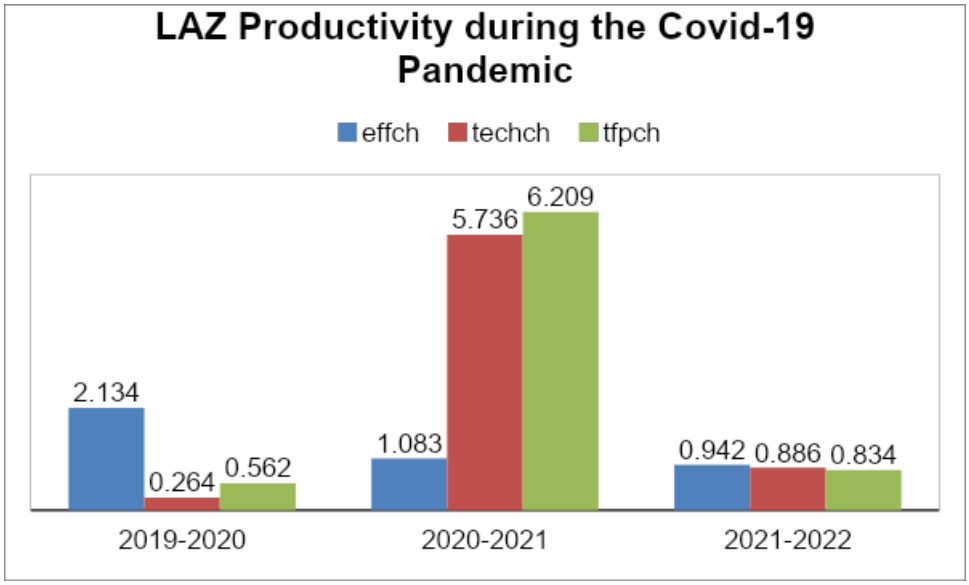

Figure 2: Productivity of Zakat Institutions during the Covid-19 Pandemic

Based on Figure 2 above, it can be concluded that the Covid-19 pandemic has had a significant impact on the productivity level of LAZ in Indonesia. This is evidenced by the 2019-2020 period, where Covid-19 began to spread massively in Indonesia, showing that the productivity level of LAZ in Indonesia experienced a significant decline. The decrease in productivity in this period was caused by the decrease in the level of technology use (techch) to a value of (0.264), although the level of efficiency change increased (2.134). Then, in the 2020-2021 period, the productivity level increased significantly, which was equally caused by the increase in efficiency change and technological change. However, in the 2021-2022 period, LAZ productivity again showed a significant decline, which was equally caused by decreasing efficiency changes and technological changes.

Summary of Average Malmquist Index of Amil Zakat Institutions in Indonesia

Table 2: Average Productivity of Amil Zakat Institutions 2016-2022

DMU	effch	techch	pech	sech	tfpch
BAMUIS BNI	1,000	1,037	1,000	1,000	1,037
BMM	1,000	0,974	1,000	1,000	0,974
LAZ AL-AZHAR	0,993	0,963	1,000	0,993	0,956
LAZ DD	1,014	0,826	1,007	1,007	0,838
LAZ Al Fajr Orphanage	0,968	0,767	0,995	0,973	0,742
LAZ RZ	1,005	0,984	0,994	1,011	0,989
YBM PLN	1,052	1,018	1,003	1,049	1,070
Mean	**1,004**	**0,933**	**1,000**	**1,004**	**0,937**

Based on the table, the average productivity of Amil Zakat Institution during the study period showed a decrease in productivity (0.937). This increase in productivity is influenced by a decrease in the average value of technological change (techch) with a value of (0.933). Meanwhile, the efficiency change (effch) increased by contributing (1.004). Furthermore, the analysis conducted individually on Amil Zakat Institutions, it can be concluded that there are only two Institutions with increased productivity, namely BAMUIS BNI with a value of (1.037) and YBM PLN with a value of (1.070). The high level of productivity in both Amil Zakat Institutions is equally influenced by increased efficiency changes and technological changes

in particular. Then, the Amil Zakat Institution with the lowest productivity value is obtained by LAZ Panti Yatim Al Fajr with a productivity value of (0.742), where the low productivity is influenced by the decline in effch (0.968) and techch (0.767).

Malmquist Index Quadrant

At this stage, Amil Zakat Institutions will be grouped into four quadrants based on the level of efficiency and level of technology, with high and low categories. The value of efficiency and technology is seen from the industry average, if the value of efficiency and technology is higher than the industry average, it shows a high category, and vice versa, if efficiency and technology are below the industry average, it shows a low category.

Quadrant 1 describes the Amil Zakat Institution with high efficiency and technology category, and it can be considered that the Amil Zakat Institution has a high level of technology. Quadrant 2 covers high technology, but on the other hand efficiency is still low. Quadrant 3, covers the group of Amil Zakat Institutions with low technology, and high efficiency. And quadrant 4, describes the group of Amil Zakat Institutions with technology and efficiency both showing a low category.

Table 3: Quadrant Malmquist Index of Amil Zakat Institution

Quadrant 1 (High Technology, High Efficiency)	**Quadrant 2 (High Technology, Low Efficiency)**
BAMUIS BNI YBM PLN	
Quadrant 3 (Low Technology, High Efficiency)	**Quadrant 4 (Low Technology, Low Efficiency)**
BMM LAZ DD LAZ RZ	LAZ AL-AZHAR LAZ Al Fajr Orphanage

Based on the table above, it can be concluded that the Amil Zakat Institution dominates in quadrant 3 with a total of 3 Amil Zakat Institutions. Then quadrants 1 and 4 have 2 institutions each. Based on this, there are still few Amil Zakat Institutions in Indonesia that have a high level of productivity and there are also few institutions that adopt technology. On the other hand, the efficiency level of Amil Zakat Institutions in Indonesia can still be categorized as quite high. This is evidenced in quadrants 1 and 3 which also state that Amil Zakat Institutions in Indonesia have achieved high efficiency.

FINDINGS

Based on the analysis, there are several findings that can be used as a basis for policy making to improve productivity at the Amil Zakat Institution in Indonesia. The first finding, from the *Malmquist Producrivity Index* (MPI) score based on the analysis during the research period at the Amil Zakat Institution, explains that the level of productivity at the Amil Zakat Institution fluctuates from year to year. Based on the average TFPCH score, it is concluded that the productivity of the Amil Zakat Institution shows a decrease, which is caused by a decrease in technological change (techch), although the efficiency change (effch) has increased. That means, technological change has not contributed optimally to the productivity level of Amil Zakat Institutions in Indonesia. This is confirmed by the research results based on each individual LAZ, where it was found that there were only two LAZs that experienced an increase in productivity, namely BAMUIS BNI and YBM PLN, and the rest experienced a decrease in productivity. The results of this study are relevant to research from Nurasyiah et al (2019) which explains that the productivity level of LAZ in Indonesia has decreased. According to Ayuniyyah (2011), the decline in LAZ productivity can be caused by a decrease in the zakat program for productive businesses. Zakat programs for productive businesses for the poor and needy, which can affect the productivity of amil zakat institutions. In addition, the ineffective mechanism of

utilizing zakat for productive purposes can also lead to low productivity of amil zakat institutions (Nazara et al., 2022).

The results of this study also contradict research from Rusydiana & Widiastuti (2018) which states that the productivity level of Amil Zakat Institutions in Indonesia fluctuates and increases at the end of the study period, where the increase in productivity is caused by technological changes, while efficiency changes have not contributed optimally. Almost the same thing was also explained by Wahab & Rahman (2012) that total factor productivity (TFP) increased slightly across LAZ in Malaysia, this was mainly due to technical changes rather than efficiency changes.

The second finding, in the analysis during the Covid-19 pandemic, found that the Covid-19 pandemic had quite an influence on the productivity of Amil Zakat Institutions in Indonesia. At the beginning of the period, the productivity level had decreased, then in the second period of the pandemic, namely 2020-2021, the productivity level experienced a significant increase, but at the end of the period the productivity level decreased again. The results of this study are relevant to research from Ridwan & Fadilah (2022) and Mustofa (2022) that the COVID-19 pandemic also has a significant impact on the collection of institutional zakat funds, which in turn can affect the productivity of Amil Zakat institutions. This can be caused because social funds such as zakat and donations have also increased due to the increasing number of people who want to help others during the pandemic. In addition, according to Baznas data, in 2020 there was an increase in the number of zakat beneficiaries by 20% compared to the previous year.

The high productivity of LAZ in Indonesia during the Covid-19 Pandemic shows that people are increasingly aware of the importance of providing social assistance to those in need in difficult times such as during a pandemic, and LAZ is one of the alternatives for distributing social funds. This explains that Lembaga Amil Zakat has an important role to take care of, manage, collect, distribute, and utilize zakat during the Covid-19 pandemic to empower the community's economy (Ismail et al., 2022). It can be concluded that amidst the economic challenges posed by Covid-19, there is an increase in zakat collection due to increased altruistic behavior among people during times of crisis (Herindar et al., 2021).

In addition, the use of technology also plays an important role in the level of productivity of LAZ in Indonesia. The utilization of digital zakat technology can increase public interest in paying zakat and implement efficiency and effectiveness in the implementation of zakat management operations (Abidin & Utami, 2020). Friantoro & Zaki (2019) also stated that the use of financial technology can help amil zakat institutions to collect zakat more efficiently. Salleh & Chowdhury (2020) also emphasized that technology adoption can help zakat institutions to improve their efficiency and productivity.

The last finding, in the quadrant analysis of Malmquist Index categorized in four quadrants, shows that Amil Zakat Institutions dominate quadrant 3 with low technology and high efficiency categories, which amounted to 3 Amil Zakat Institutions, followed by quadrants 1 and 4 with technology and high efficiency categories, and quadrant 4 with low technology and low efficiency categories, with 2 Amil Zakat Institutions each. This explains that overall the efficiency level of LAZ in Indonesia is quite high, although there are still some LAZs with low efficiency level. According to Al Parisi's research (2017), the low level of efficiency of Amil Zakat Institution can be caused by the lack of optimization of zakat fund distribution. In addition, Atiya et al (2020) also explained that the non-optimal amount of zakat collected and distributed and the high use of socialization costs could be one of the causes of the low efficiency level of Amil Zakat Institution in Indonesia.

On the other hand, the use of technology in LAZ in Indonesia also shows a low level. It is therefore important for LAZs in Indonesia to adopt technology for their operations. Technology plays an important role in almost all operational aspects of an institution's activities. It is explained by Friantoro & Zaki (2019) that the utilization of financial technology can increase the efficiency of zakat collection, making it easier for people to pay zakat. In addition, the application of technology in zakat administration can help improve the accuracy and speed of zakat calculation and payment. Furthermore, social media can also be used to promote Amil Zakat institutions and their activities, thus helping to increase awareness and engagement among stakeholders. This can increase donations and volunteerism, which can help increase the productivity of the institution. Ridwan & Fadilah (2022) revealed that the COVID-19 pandemic has a significant impact on the collection of institutional zakat funds. This is due to the utilization of technology that helps Amil Zakat institutions adapt to the pandemic and continue to collect funds and serve their beneficiaries.

Therefore, Amil Zakat Institution needs to adopt innovation as an important step in an effort to improve and maintain its productivity. Some actions that can be taken by Amil Zakat Institutions to overcome this challenge include improving the management and management of zakat funds through more accurate and structured mustahik data collection, utilizing digital technology in facilitating the process of collecting donations and distributing assistance to mustahik, efforts to improve the quality of human resources (HR) through training and competency development for Amil Zakat Institution staff, and establishing partnerships with related parties such as the government, Islamic banking institutions, or other social institutions to increase the effectiveness of programs implemented by Amil Zakat Institutions (Al Parisi, 2017; Burhanudin & Indrarini, 2020).

CONCLUSION

This study aims to analyze the productivity level of the Zakat Institution in Indonesia during the period 2016-2022 using the Malmquist Index. The results of the Malmquist Producrivity Index (MPI) score based on the analysis of each Zakat Institution explain that the productivity level of the Zakat Institution fluctuates from year to year. Based on the average TFPCH score, it is concluded that the productivity of Amil Zakat Institution shows a decrease, which is caused by a decrease in technological change (techch), although the efficiency change (effch) has increased. That means, technological change has not contributed optimally to the increase in productivity of zakat institutions in Indonesia. Then, there are only two LAZs that experienced an increase in productivity, namely BAMUIS BNI and YBM PLN, and the rest experienced a decrease in productivity.

Furthermore, the analysis during the Covid-19 pandemic found that the Covid-19 pandemic had quite an influence on the productivity of Amil Zakat Institutions in Indonesia. At the beginning of the period, the productivity level had decreased, then in the second period of the pandemic, namely 2020-2021, the productivity level experienced a significant increase, but at the end of the period the productivity level decreased again. Then, the Malmquist Index quadrant analysis categorized into four quadrants shows that the Amil Zakat Institution dominates quadrant 3 with the category of low technology and high efficiency, namely 3 Amil Zakat Institutions, which are then followed by quadrants 1 and 4 with the category of technology and high efficiency, and quadrant 4 with the category of low technology and low efficiency, with the number of Amil Zakat Institutions being 2 institutions each. This explains that overall the efficiency level of LAZ in Indonesia is quite high, although there are still some LAZs with low efficiency level.

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