AN ANALYSIS OF THE EFFICIENCY AND PRODUCTIVITY OF WAQF FUND MANAGEMENT IN INDONESIA AND MALAYSIA IN SUPPORTING ISLAMIC SOCIAL FINANCE TO ADDRESS GLOBAL HUMANITARIAN CHALLENGES: A DEA AND MPI APPROACH

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Abstract

This study aims to evaluate the efficiency and productivity of waqf fund management in Indonesia and Malaysia, with a view to understanding the differences in the level of efficiency and productivity in supporting optimal social contribution in both countries. The study was conducted using the annual reports of waqf management institutions over the period 2018-2022. The Data Envelopment Analysis (DEA) and Malmquist Productivity Index (MPI) approaches were employed, with the results processed using DEAP 2.1 software. The findings indicate that the efficiency and productivity of waqf fund management in both countries exhibited fluctuations throughout the analysis period. During this period, the Total Factor Productivity Change (TFPCH) score increased, primarily driven by the technological aspect (TECHCH) as the primary factor of productivity, while technical efficiency (EFFCH) made a relatively minor contribution. Overall, MAIS, a Malaysian institution, is the most efficient and productive waqf manager.

Keyword: *Islamic Social Finance; Waqf*

A. INTRODUCTION

In recent years, global humanitarian challenges have intensified due to factors such as armed conflicts, environmental disasters, disease outbreaks, poverty, and violations of human rights (Hamed, 2020). The emergence of the COVID-19 pandemic has significantly compounded these issues, resulting in over 776 million confirmed cases and nearly 7 million fatalities worldwide (World Health Organization, 2024a)(World Health Organization, 2024b). Initially a public health emergency, the pandemic escalated into an economic crisis, exacerbating unemployment and poverty levels (Salaudeen, 2024). While governments implemented stimulus packages to mitigate its effects, more enduring and efficient solutions are still required. Instruments of Islamic social finance—namely zakat, waqf, and sadaqah—possess distinctive features that can support economic redistribution, lessen inequality, and directly assist those in need, offering a more sustainable response to global crises (Hamed, 2020).

Waqf stands out as a crucial component of Islamic social finance due to its considerable role in fostering economic progress and equitable wealth distribution (Rahman, 2009)(Rofiq et al., 2022). Over centuries, waqf has facilitated the development of education, healthcare, and welfare initiatives, originating during the era of Prophet Muhammad (PBUH) (Justine & Abd Jalil, 2022). Despite this, it has often been narrowly viewed as a charitable and nonprofit mechanism, with interest in its potential for commercial applications emerging only recently (Saad et al., 2017).

Indonesia and Malaysia, as nations with large Muslim populations (231 million and 20.1 million, respectively (World Population Review, 2024), exhibit significant potential in optimizing waqf practices. In Indonesia, over 440,500 waqf land sites cover 57.3 hectares, and the potential for cash waqf is projected at IDR 180 trillion annually (Kementerian Agama, 2022)(BWI, 2022). Meanwhile, Malaysia's cash waqf collection reached RM 8.2 million in 2022, with estimated waqf assets exceeding RM 1.3 trillion by 2023(Yayasan Waqaf Malaysia, 2022).

Nevertheless, the potential of waqf in these countries remains underexploited due to ineffective governance and inadequate resource management (Aziz & Ali, 2018). Indonesian waqf institutions face critical barriers, such as insufficient reach and a lack of certified nazhir; only 303 out of 400,000 nazhir have formal recognition by the Indonesian Waqf Board (BWI)(Ningsih et al., 2022)(BWI, 2023a). This indicates that waqf is predominantly managed by traditional nazhir. Research highlights organizational inefficiencies and declining productivity in Indonesia's waqf sector, especially since the COVID-19 pandemic (Herindar & Rusydiana, 2022)(Uula, 2022). Similarly, most waqf institutions across Malaysia have yet to achieve desirable efficiency and performance levels (Pyeman et al., 2016)(Hasan et al., 2020)(Ibrahim & Ibrahim, 2020).

Measuring institutional performance has become a key priority for nonprofit and public organizations worldwide (Macpherson, 2001). Metrics such as efficiency and productivity are often employed to evaluate resource management and operational success. Effective waqf management minimizes waste (tabdzir) and ensures resources are allocated optimally to maximize social benefits (Djunaidi & Al-Asyhar, 2006). Efficiency measures the ability to produce outputs with the least input (Belanès et al., 2015), while productivity assesses how effectively resources are utilized to generate outputs (Kopelman, 1986). These assessments help institutions enhance operations, reduce costs, and strengthen their social contributions (Mongid & Tahir, 2010).

Several prior studies have examined the efficiency of waqf institutions. For example, (Hasan & Ahmad, 2014) investigated Malaysia's State Islamic Religious Councils (SIRC), while (Pyeman et al., 2016)(Hasan et al., 2020)(Ibrahim & Ibrahim, 2020) explored efficiency in specific Malaysian states. In Indonesia, (Herindar & Rusydiana, 2022) evaluated waqf performance from 2013 to 2020. However, a comprehensive understanding of waqf efficiency and productivity in both countries is still lacking. To address this gap, this study analyzes the management of waqf institutions in Indonesia and Malaysia over 2018–2023 using Data Envelopment Analysis and the Malmquist Productivity Index.

The study aims to compare the performance of waqf institutions in the two countries, highlight areas for development, and establish benchmarks for improvement. Insights derived from this research are expected to guide policymaking and advance the management of waqf resources. By enhancing the understanding of productivity within waqf institutions, strategic and sustainable development efforts can be implemented to strengthen the sector.

B. RESEARCH METHODOLOGY

This research applies a non-parametric quantitative framework combining Data Envelopment Analysis (DEA) and the Malmquist Productivity Index (MPI) to evaluate the performance of waqf institutions in Indonesia and Malaysia during 2018–2022. DEA is used to assess the efficiency of decision-making units (DMUs), while MPI investigates shifts in technology and efficiency contributing to productivity changes. By focusing on an output-oriented perspective, the study emphasizes maximizing outputs without altering input levels, reflecting the underutilized potential of current waqf funds.

The study utilizes secondary data sourced from annual reports of officially licensed waqf institutions in Indonesia and Malaysia's State Islamic Religious Councils (MAIN). A purposive sampling method was employed, selecting institutions based on specific criteria: licensing status, availability of financial reports, and the presence of key input and output variables. Inputs analyzed include operational expenses and fixed assets, while outputs cover waqf receipts and fund distribution.

DEA employs two models: the CCR (Constant Return to Scale) model, which evaluates technical efficiency under proportional input-output scaling, and the BCC (Variable Return to Scale) model, which assesses pure technical efficiency without assuming optimal scale conditions. Efficiency is achieved when a DMU's score equals 1, while values below this indicate inefficiency.

The MPI framework examines productivity by analyzing the evolution of efficiency and technology over time. It decomposes productivity into technical efficiency, pure efficiency, scale efficiency, and technological change. Scores greater than 1 denote productivity improvements, while scores below 1 reflect declines. The analysis was conducted using DEAP 2.1 software, leveraging MPI's flexibility in handling varied production environments.

C. RESULT AND DISCUSSION

Table 1. Summary of Waqf Management Efficiency Values

	2018	2019	2020	2021	2022	Mean	Rank
Indonesia							
DD	0.085	0.052	0.070	0.029	0.037	**0.055**	5
LM	1.000	0.000	0.001	0.003	1.000	**0.401**	3
YM	0.006	0.006	0.005	0.004	0.003	**0.005**	6
Malaysia							
MAIPk	1.000	0.038	1.000	0.065	0.087	**0.438**	2
MAIM	0.166	0.170	0.193	0.014	0.013	**0.111**	4
MAIS	1.000	0.333	0.203	1.000	1.000	**0.707**	1

Table 1 shows fluctuations in waqf management efficiency across six institutions from Indonesia and Malaysia. MAIS leads with an average efficiency score of 0.707, while YM from Indonesia ranks lowest at 0.005. The efficiency trend from 2018 to 2022 remained low, indicating challenges in maximizing output from available inputs. However, waqf management units were close to optimal scale, with inefficiency mainly attributed to managerial weaknesses rather than institutional size, in line with previous studies (Ibrahim & Ibrahim, 2020) (Misbahrudin, 2019).

Table 2. Malmquist Index Summary of Annual Means

MPI Indicator	2018-2019	2019-2020	2020-2021	2021-2022	Mean
EFFCH	0.006	240.738	1.558	0.622	**1.087**
TECHCH	26.33	0.008	1.22	7.317	**1.186**
PECH	0.069	11.914	1.268	0.816	**0.96**
SECH	0.087	20.206	1.229	0.762	**1.132**
TFPCH	0.158	2.029	1.901	4.551	**1.289**

Waqf fund management has shown increased productivity, with an average TFPCH of 1.289, driven mainly by technological change (TECHCH) and supported by efficiency (EFFCH) and scale efficiency (SECH). The highest productivity occurred between 2021 and 2022, with a TFPCH of 4.551, largely due to TECHCH reaching 7.317. While technology was the key factor, technical efficiency contributed minimally. This highlights the need for comprehensive digital technology implementation in waqf operations, from fundraising to distribution (Fanani et al., 2021) (Salsabila et al., 2023). Prior research (Maulida & Laila, 2024) (Abidin & Utami, 2020) (Salleh & Chowdhury, 2020) shows that technology boosts public engagement and waqf management efficiency, although digitalization and data integration remain challenges in Indonesia (BWI, 2023b). Technological innovations in waqf improve resource allocation and aid delivery, aligning with Islamic social finance's goals of equity and unity.

Table 3. Malmquist Index Summary Based on Waqf Institutions

Waqf Institutions	TFPCH
DD	0.437
LM	0.776
YM	0.844
MAIPk	1.079
MAIM	2.417
MAIS	6.157
Mean	**1.289**

MAIS achieves the highest productivity (TFPCH: 6.157), driven by significant improvements in efficiency and technology. Conversely, DD has the lowest productivity, with room for improvement in efficiency and technology adoption.

Table 4. Waqf Management Quadrant Category

	DD	LM	YM	MAIPk	MAIM	MAIS
MPI	0.437	0.776	0.844	1.079	2.417	6.157
DEA	0.055	0.401	0.005	0.438	0.111	0.707
Quadrant	IV	IV	IV	II	II	II

Quadrant analysis categorizes performance into four groups. Indonesian institutions (DD, LM, YM) fall into Quadrant IV, indicating low productivity and efficiency. Malaysian institutions (MAIPk, MAIM, MAIS) are in Quadrant II, showcasing high productivity but low efficiency. No institutions achieved Quadrant I (optimal performance).

D. CONCLUSION

This study examines the efficiency and productivity of waqf institutions in Indonesia and Malaysia amid the growing global humanitarian crisis. The goal is to assess how these institutions contribute socially and economically, comparing their performance in resource utilization and asset management. The findings reveal fluctuating efficiency levels in waqf management, with some institutions achieving peak efficiency in different years. Overall, waqf productivity has improved, with the average productivity change score (TFPCH) showing significant gains. Despite a dip in 2018-2019 (TFPCH of 0.158), productivity surged in 2021-2022 (TFPCH of 4.551), reflecting better efficiency and technological use. MAIS, a Malaysian institution, emerged as the most efficient and productive.

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