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E-BOOK OF EXTENDED ABSTRACTS

EFFICIENCY ASSESSMENT OF ZAKAT INSTITUTION IN MALAYSIA: EVIDENCE FROM THE DEA-BCC MODEL

Mimiey Afzan Mohd Zamzuri, and Wan Malissa Wan Mohd Aminuddin*

Department of Computational and Theoretical Sciences, Kulliyah of Science,
Universiti Islam Antarabangsa Malaysia, 25200 Kuantan, Pahang, Malaysia.

*wanmalissa@iium.edu.my

ABSTRACT

Zakat institutions in Malaysia play a vital role in promoting economic and social well-being through the systematic collection and distribution of zakat. However, concerns regarding inefficiency, such as the inability to adequately meet recipients' needs and declining public trust, have raised questions regarding their operational effectiveness. This study aims to evaluate the efficiency levels of zakat institutions in Malaysia using Data Envelopment Analysis (DEA): the BCC model. The analysis involves a panel of fourteen State Islamic Religious Councils where each of them is treated as Decision-Making Units (DMU) to the BCC model. The model incorporates three input variables: number of staff, number of zakat payers, number of zakat recipients (*asnaf*) and two output variables: total zakat collected, and total zakat distributed. Result indicates that seven institutions achieved full efficiency scores ($\theta = 1$), indicating optimal performance relative to their peers. This outcome valuable for policymakers and zakat administrators aiming to enhance institutional performance, increase transparency, and restore public confidence. By strengthening redistribution mechanisms and ensuring a visible impact on beneficiaries, efficient zakat management can improve compliance, promote social justice, and contribute to sustainable socio-economic development in Malaysia.

Keywords: Zakat Institution, Data Envelopment Analysis, BCC Model, Efficiency

INTRODUCTION

Zakat institutions are formal entities that are responsible for the collection, management and distribution of zakat, particularly in Muslim-majority countries. Its core responsibility is to ensure zakat is distributed efficiently and effectively to the designated *asnaf* groups (Farah Aida, Rashidah & Normah, 2012). In Malaysia, the administration of zakat falls under the jurisdiction of respective State Islamic Religious Councils (SIRCs), in accordance with the Federal Constitution, which places Islamic affairs under state authority. As Malaysia comprises 13 states and one Federal Territory, there are 14 zakat institutions, where each of them manages zakat affairs within their respective regions. For example, Lembaga Zakat Selangor (LZS) administers zakat in Selangor, Pusat Pungutan Zakat – Majlis Agama Islam Wilayah Persekutuan (PPZ-MAIWP) serves the Federal Territories, and Lembaga Zakat Negeri Kedah is responsible for zakat matters in Kedah.

In recent years, public concern has grown regarding the operational inefficiency of the zakat institution. Several studies report issues such as failure to reach eligible recipients (Muhammad Aiman et al., 2021) inability to meet the needs of *asnaf* and lack of transparency and responsiveness (Punding et al., 2022). The factors that led to the occurrence of this are due to the limited number of zakat payers, inefficient collection process (Nurulhazwani & Noraini, 2016), insufficient staff such as *amil* officers (Wahab & Rahman, 2022), and weak operational and technical infrastructure (Mukhtar et al., 2024).

Data Envelopment Analysis (DEA) is a non-parametric technique and has widely applied in various studies in order to evaluate the efficiency of zakat institutions. Muhammad Aiman et al. (2021) investigates the efficiency of the collection and distribution of zakat at the LZNK. Some studies focused on measuring the impact of privatisation on the performance of zakat institutions (Ahmad et.al., 2005). DEA technique

assesses the relative efficiency of comparable units, known as Decision-Making-Units (DMUs) by comparing their input-output ratio against a best-practice frontier formed by the most efficient units. In this study, each zakat institution in Malaysia is treated as DMU. The selected input variables include the number of staff, number of zakat payers and zakat expenses. Meanwhile, the output variables consist of the total zakat collected and total zakat distributed. Data for each input and output are collected from the website of each zakat institution.

The DEA-BCC model developed by Banker, Charnes, and Cooper (1984) introduces a convexity constraint into the original CCR model to account for variable returns to scale (VRS). This enhancement addresses a major limitation of the CCR model, which assumes constant returns to scale (CRS) and tends to overestimate efficiency, leading to too many DMUs being classified as efficient, thereby reducing the model's discriminatory power. The DEA-BCC model can be represented as follows:

$$\theta_0 = \sum_{r=1}^s u_r y_{r\lambda_0} + u_0 \quad (1)$$

Subject to,

$$\sum_{i=1}^m v_1 x_{ij_0} = 1 \quad (2)$$

$$\sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_1 x_{ij} + u_0 \leq 0 \quad (3)$$

$$v_1 \geq 0, u_r \geq 0, u_0 \geq \varepsilon$$

An efficiency score of $\theta_0 = 1$ indicates that a DMU is efficient, whereas when the efficiency score is in the range of $0 \leq \theta_0 \leq 1$ indicates inefficiency.

Therefore, this study aims to measure the operational efficiency of zakat institutions in Malaysia using the input-oriented DEA-BCC model. The results will help identify performance gaps and provide insights for improving resource allocation, staffing, and service delivery. Besides, this improvement will also ultimately strengthen public trust and enhance the impact of zakat distribution in Malaysia.

RESULTS AND DISCUSSION

Table 1 shows the efficiency scores for each DMU calculated by the BCC model using LINGO software. The result reveals that there seven DMU with perfect efficiency score, $\theta = 1$. These include the zakat institution from Wilayah Persekutuan, Selangor, Johor, Melaka, Perak, Sabah, and Sarawak.

Table 1: Efficiency scores for each DMU

DMU	EFFICIENCY SCORE, θ
Wilayah Persekutuan	1.000000
Selangor	1.000000
Johor	1.000000
Kelantan	0.9217448
Terengganu	0.829876
Kedah	0.8931153
Perlis	0.5684028
Pahang	0.6529029
Pulau Pinang	0.9680396
Melaka	1.000000
Negeri Sembilan	0.9040041
Perak	1.000000
Sabah	1.000000
Sarawak	1.000000

An efficient zakat institution, as identified through the input-oriented DEA-BCC model, indicates that the organisation operates on the efficiency frontier, achieving maximum zakat collection and distribution outcomes with the optimal use of staff, expenses, and payer engagement compared to other inefficient institutions. This level of performance not only reflects effective operational strategy but also provides a benchmark for other institutions aiming to improve their efficiency.

CONCLUSION

Data Envelopment Analysis method was employed in this study in order to assess the efficiency levels of zakat institutions in Malaysia. The findings provide valuable insights for policymakers and zakat administrators seeking to enhance institutional performance, increase transparency, and restore public confidence. By strengthening redistribution mechanisms and ensuring a visible impact on beneficiaries, efficient zakat management can improve compliance, promote social justice, and contribute to sustainable socio-economic development in Malaysia.

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REFERENCES

- Ahmad, S., & Wahid, H. (2005). Penerimaan dan tanggapan masyarakat terhadap sumber harta zakat harta yang diikhtilaf (acceptance towards the consensus zakat sources). *Islamiyyat*, 27(1), 45-65.
- Banker, R., Charnes, A. & Cooper, W. 1984. Some models for estimating technical and scale inefficiencies in data envelopment analysis. *management science*, 30, 1078–1092.
- Farah Aida, A. R., Rashidah, A. R., & Normah, O. (2012). Efficiency of Zakat Institutions in Malaysia: A Stochastic Frontier Approach. *Journal of Economic Cooperation and Development*, 33(3), 95–112.
- Muhammad Aiman, M.A., Wan Laailatul Hanim, M.D., Rosmani, K. & Norazura, A. (2021). Data Envelopment Analysis for Measuring the Efficiency of Zakat Institution in Kedah: A Framework. *Proceedings of the 2nd Kedah International Zakat Conference 2021*, 416–422.
- Mukhtar, N. A., Azman, S. H., & Halim, F. (2024). Data envelopment analysis model for measuring efficiency of zakat collection and distribution. *Academia Journal UiTMT*, 5(2), 210-218.
- Nurulhazwani, M. & Noraini, N. (2016). The effectiveness of zakat collection management in Malaysia: A qualitative inquiry. *Journal of Islamic Philanthropy and Economics*, 4(2), 34–45.

- Punding, A. Y., Sheikh Mohammad, S. H., & Abu Bakar, N. A. (2024). Zakat collections and distributions within Zakat institutions in Malaysia. *Journal of Emerging Economies & Islamic Research*, 12(2).
- Wahab, N. A., & Rahim Abdul Rahman, A. (2012). Productivity growth of zakat institutions in Malaysia: An application of data envelopment analysis. *Studies in Economics and Finance*, 29(3), 197-210