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The Efficiency of Zakat Collection and Distribution: Evidence from Two Stage Analysis

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Since its corporatization, the collection of zakat by Lembaga Zakat Selangor has increased from RM13.8 million in 1991 to RM336.8 million in 2010. However, some quarters have voiced concerns over the efficiency of zakat collection and distribution. Therefore, this study attempts to analyze the efficiency of zakat management of Lembaga Zakat Selangor. The Annual Report data for Lembaga Zakat Selangor between 2001 and 2011 were devised. This paper utilizes the two stage linked Data Envelopment Analysis model, as proposed by Berber et al (2011). The findings show that: first, both collection and distribution have lagging resources that is referred to technical efficiency. Second, the result shows a lower efficiency in distribution than in collection function. Third, from the overall efficiency, allocative and cost efficiency scores show maximum efficiency is achieved almost every year. It reveals that Lembaga Zakat Selangor is utilizing its input proportionately to ensure minimum cost incurred to produce a given output (amount collected and amount distributed) at a given input prices (cost collection and cost distribution).

Introduction

The institution of zakat has seen its share of controversies. Although zakat governing bodies are deemed to be run by people of religious background, who are expected to be righteous and God-fearing, the misappropriations usually surface now and then. The questions were raised on the efficiency of zakat management, especially when the zakat collections continue to increase every year. Zakat institutions in Malaysia collected a total of more than RM1.3 billion in 2010 alone (Pusat Pungutan Zakat Annual Report 2010; page 82). Despite the

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increases in collection, the number of zakat contributors is still relatively low. For example, in 2010, Lembaga Zakat Selangor (LZS), zakat on income was contributed by 142,029 contributors in Selangor (PPZ Annual Report 2010). Lembaga Zakat Selangor has been chosen for this study due to the first Zakat body that was corporatized in 1994.

Considering there are more than half of the 5.4 million population are Muslims (2010 estimates per Department of Statistics), this number is minimal, even if we take into account the number of asnafs who are eligible to receive instead of paying zakat. Such statistics puts doubt in the mind of the public if LZS has done enough to improve on the collections. In addition, the perception that the distribution of zakat is inefficient has been reported in a many empirical studies. It was also found that the issues in both collection and distribution is interrelated in a vicious circle that the perception of zakat is distributed efficiently to be a motivating factor for Muslims to pay zakat.

Being a compulsion in Islam, the efficient management of zakat is crucial not only in ensuring that the funds are properly utilized as entrusted by those who contributed into it, any discrepancies (perceived or actual) in its management will blemish the good name of Islam. Therefore, it is important to provide evidence of efficient utilization of resources by Lembaga Zakat Malaysia in discharging their duties of collecting and distributing zakat. The importance of Zakat in Islam is so much emphasized that it is mentioned more than a hundred times in the Qu'ran, and more often than not in conjunction with the call to establish prayers (Solat).

In addition, the perception that the distribution of zakat is inefficient has been reported in a few empirical studies such as was done by Mohamed Dahan, (1998); Muhammad Syukri, (2006); Anuar Muhammad (2008); and Abdul Halim et al. (2008). It was also found that the issues in both collection and distribution is interrelated in a vicious circle that the perception that zakat is distributed efficiently was found to be a motivating factor for Muslims to pay zakat (Sanep & Hairunnizam, 2004). In view of these problems, this paper aims to analyse the technical, allocative and cost efficiencies of zakat collection and distribution.

Lembaga Zakat Selangor (LZS)

Corporatisation of zakat management in the state of Selangor began when the Selangor Islamic Religious Council (MAIS) established the Pusat Zakat Selangor (PZS) or previously known as Pusat Pungutan Zakat MAIS (MAIS Zakat Collection Centre) on February 15, 1994. PZS is a private limited company registered with the name, Zakat MAIS Sdn Bhd, a wholly owned subsidiary of MAIS with a paid up capital of RM500, 000. PZS was established with the intention to improve the governance of zakat and to inculcate professionalism in the management of zakat at par with the management practices in the corporate world. Henceforth, PZS was given the full mandate for the management of zakat collection in Selangor.

In 1998, MAIS widened the mandate to PZS to also manage the distribution of zakat. This is to ensure that all zakat in the state management function is housed under one institution, freeing MAIS to focus on other crucial areas of Muslims welfare, such as the development of waqf property, inheritance and etc. The change of name from PZS to Lembaga Zakat Selangor (LZS) was inaugurated by Sultan of Selangor on 31 January 2006. This transformation is to provide a new outlook for PZS in the management of zakat collection and distribution, that have reached RM100 million a year. This change brought with it, a greater sense of responsibility and commitment, not only in terms of collection and distribution of zakat, but also in the improvement of customer service and overall organization.

LZS was established under the Trustee Act (Incorporation) Act 1952 through a Deed of Trust which is registered in the Legal Division of the Department of the Prime Minister. LZS is administered through the Board of Trustees appointed by MAIS and is currently comprises ten members of a combination of religious, academic, corporate and professional sectors. In order to strengthen the management and operation of LZS, the Board of Trustees has established six committees with specific portfolios, each chaired by a member of the Board of Trustee. These committees are made up of a mixture of members of the Board of Trustee and experts from outside LZS. The six committees are Zakat Collection Operations Committee, Zakat Distribution Operations Committee, Nomination and Remuneration Committee, Audit Committee, Finance Committee and Tender Committee.

Since its inception, LZS showed impressive increase in the collection of zakat. From a collection of around RM7 million in 1994, LZS zakat collection in 2009 has reached RM283.7 million from 155,000 contributors. For 2010, total collection was RM336.9 million and the number of contributors increased to 168,000. As for distribution, the amount distributed in 1994 was RM14 million. In 2010, RM330.4 million was distributed to more than 110,000 recipients.

Literature Review

The concept of Zakat being as a social institution and an instrument to improve the Muslims socio-economic welfare has been acknowledged. The establishment of Zakat Collection and Distribution Units and the appointment of Zakat officials at every State level to implement Zakat rules and regulations were the first project to make zakat as a social institution (Shawal, 2011). However, there is no standardization of managing zakat across the states in Malaysia (Shawal, 2011). States have the authority to practice and implement different zakat rules and regulations. Since the 1990s, as the number of contributors increase whether from corporations, co-operative bodies, NGOs and individuals, several state religious bodies see it necessary to decentralize and privatize the Zakat management, encompassing its collection and distribution to the ordained beneficiaries. Kahf (1989) studied on what are the items of wealth that can be imposed zakat upon during the lifetime of Prophet Mohammad and suggests that zakat can achieve its objective of eradicating poverty in the Muslim world more quickly if income derived from industrial, commercial and financial income from corporate bodies are made zakatable.

In another study, Buang (2000) laid out the basic principles of zakat management (based on the Qu'ran and Hadiths, and fatwas). Further, Bakar and Rahman (2007), made the distinction between zakat and taxation and the imposition of zakat and taxation in Malaysia. Yet, another study by Rahman (2007) looked into the effective integration of zakat into mainstream Islamic financial system in Malaysia, laying down the pre-requisites for such integration which include the objective and fair measurement of business wealth for zakat purposes, standardizing zakat accounting practices and development of appropriate performance measures.

Shehata (1994) studied the rules that govern the utilization of zakat, what are the expenditures allowed using zakat funds, who are entitled to it and the distribution of zakat among the eight types of beneficiaries (asnafs). Another study on level of compliance among Muslim employees was done by various scholars. For example, Idris and Ayob (2002) and Nor et al. (2004). Idris and Ayob (2002) found that the attitude of employees towards zakat governance and knowledge of zakat influence compliance. Nor et al. (2004) revealed that level of religious faith (iman) and religious education influence compliance.

Wahid et al. (2005) showed that gender, age of the respondents, marital status, income and expenses of the respondents were significant factors influencing zakat payment. Of late, there have been allegations of inefficiencies in the governance of zakat. Ahmad et al. (2006) used logistic regression to analyse the probability of payment of zakat against factors contributing to dissatisfaction of zakat contributors and found that 57% of respondents were dissatisfied with the distribution of zakat by zakat Institutions. This finding was also supported by Muhammad (2008) which found a positive relationship between perception on the distribution of zakat by zakat institution. While studies by Wahid et al. (2008, 2009) identified that the two main factors contributing to dissatisfaction are the ineffectiveness and the lack of transparent information on zakat distribution.

A study on the performance of zakat distribution in Malaysia, by Abd Halim et al. (2005) was mentioned in length about the efficiency and effectiveness issues among the Zakat Institution in Malaysia. The study stated the percentage of zakat distribution of the states in Malaysia for the year 2000. Demographic factors was the main influence on the distribution of zakat in the states between the beneficiaries that is namely asnafs the poor and fisabilillah (on the path of Allah). Amil (collector of zakat) distribution was noted to be a big gap between 11% and 26%. The study also proposed a framework to show performance of the zakat distribution.

From the economic point of view, according to Kahf (1997), zakat could affect the aggregate supply in three ways: supply of labour, supply of capital and resource allocation. The funds from zakat can be channeled to the improvement of the health, nutrition and other living conditions of the poor, thus, increasing the availability of labour and improve

efficiency of productivity. Subsequently, the supply of goods produced in the economy will also increase.

Efficiency generally refers to the rate of output, compared to the input processed by a system. In economic context, efficiency describes the ability of a system in generating the maximum desired outputs from the constrained inputs using the available technology. Therefore, efficiency improves when output increases, while inputs remain the same or reduced. An economic system is efficient if it can provide more goods and services, without having to seek out more than the available resources. Efficiency measurement model were first introduced by Farrell (1957), consisting two components, Technical Efficiency and Allocative Efficiency. Technical Efficiency reflects the firm's ability to obtain maximum output from a given set of inputs, and Allocative Efficiency reflects the firm's ability to use the inputs in optimal proportion based on given prices and production technology. According to Leibenstein (1966), efficiency, in terms of operations is, when people and organizations normally work neither as hard nor as effectively as they could.

Study done by Norazlina and Abdul Rahim (2012), is to analyze the efficiency of zakat institutions in Malaysia by using data envelopment analysis (DEA) method to estimate zakat efficiency and Tobit model to determine the efficiency of zakat institution in Malaysia. Technical efficiency, pure technical efficiency and scale efficiency of DEA model being used. The empirical findings suggest that zakat payment, computerized zakat system, board size, audit committee and decentralization significantly affect the efficiency if zakat institutions in Malaysia. The analysis showed that fully corporatized zakat institutions are positively associated with efficiency of zakat institutions in Malaysia while partially corporatized negatively affect zakat efficiency.

Sarker and De (2004) used DEA (Data Envelopment Analysis) on measure farming efficiency based on the different farm sizes and tenures. Choosing labour costs as input and the various crops, credit, marketing products and agricultural extensions as outputs, the study yielded that most of the farms are efficient, but small farms are found to be more efficient than larger farms. Norazlina & Abdul Rahim (2011), in their framework to analyse the efficiency and governance of zakat institutions by using the DEA. They argued that the characteristics of

DEA are suitable for application to zakat institutions, as it was successfully applied as indicator for efficiency of non-profit and public sectors. Further, Norazlina & Abdul Rahim (2012) measure the productivity growth of zakat institutions by using the variable returns to scale (VRS) and they found that most of zakat institutions were operating at non-CRS (Constant Return Scale) . Thus, they need more improvements by zakat institutions to improve the overall of efficiency. However, in their work, their study of efficiency seemed to focus on technical efficiency and scale efficiency.

Nur Hafizah and Selamah (2013) analyze the profile of zakat collection institutions and the efficiency of the institutions in collecting the zakat by using Data Envelopment Analysis (DEA) approach. The study conducted in the three states of Federal Territories including Kuala Lumpur, Putrajaya and Labuan. The results of the efficiency found that all of the three areas of zakat institutions are efficient. The overall finding indicate that the center managed by Federal Territories maintain their performance and able not only to increase the total of zakat collections but also number of new and existing zakat payers.

A zakat institution is, thus, akin to a non-profit organization in its functionality. Berber et al. (2011) suggested a two stage DEA analysis in measuring the efficiency of non-profit organization. The stage one measures the efficiency of fund-raising and the stage two measures the delivery of service (in our case the distribution of zakat to the beneficiaries). The output of stage one is included in the input of stage two. Berber et al. (2011) found that the separation of the fundraising function from product delivery function will show a clearer analysis of efficiency, as both efforts of fund raising and service delivery (distribution) are equally important. Hence, this study will follow the framework from Berber et al. (2011) to measure the efficiency of zakat management.

Methodology

The Model

In this study the efficiency model is constructed by combining the model introduced by Berber et al. (2011) and Norazlina & Abdul Rahim (2011). The efficiency of Lembaga Zakat Selangor will be tested by

using the two stage linked DEA (Data Envelopment Analysis) model. In stage one, the zakat collection expenses and other collection effort variables are considered as input and the collection amount as output. In the second stage the collection amount is added as input to the other distribution variables and the distribution amount as output.

Data Envelopment Analysis (DEA)

Lovell (1996) identified three techniques for the measurement of efficiency of producers, namely, Deterministic Frontier Analysis (DFA), Stochastic Frontier Analysis (SFA), and Data Envelopment Analysis (DEA). Lovell finds that DFA and DEA achieved a more satisfactory reorientation towards productivity measurement compared to SFA.

DEA, as defined by Talluri (2000), is a multi-factor productivity analysis model for measuring the relative efficiencies of a homogenous set of decision making units (DMUs). DMUs can be anything from an individual or cost/profit centre to a whole organization. For this study, the DMUs will be the state of efficiency of one entity at different points of time.

The efficiency score in the presence of multiple input and output factors is defined as:

$$Efficiency = \frac{weighted\ sum\ of\ outputs}{weighted\ sum\ of\ inputs}$$

In applying DEA, the basic assumption is that, if one DMU can produce Y of output utilizing X of input, then, other similar DMUs is expected to perform at the same level, if they are efficient. However, since there are many DMUs, there will be varying levels of outputs, using varying levels of inputs. Taking the outputs against inputs of all the DMUs, we can generate a composite DMU (known as a virtual or dummy DMU), that will be the benchmark in assessing the real DMUs. DEA attempts to identify which of the DMUs are most efficient and point out specific inefficiencies in the other DMUs.

DEA uses mathematical programming to locate an "efficiency frontier" that enables an evaluation of the efficiency level for each DMU. DMUs

that do not fall on the efficiency frontier are therefore deemed inefficient.

The model can be presented in equation form:

$$Max\ h_0(u,v) = \frac{\sum_{r=1}^{s} v_r y_{r0}}{\sum_{i=1}^{m} u_i x_{i0}}$$

$$Subject\ to: \quad \frac{\sum_{r=1}^{s} v_r y_{rj}}{\sum_{i=1}^{m} u_i x_{ij}} \leq 1\ for\ j = 0,1, \ldots . n$$

$$u_i \geq 0\ for\ i = 1,2, \ldots, m$$

$$v_r \geq 0\ for\ r = 1,2, \ldots, m$$

Where;

x_{ij} = the amount of input i utilized by the jth DMU

y_{rj} = the amount of output r produced by the jth DMU

u_i = weight given to input i

v_r = weight given to output r

j = number of DMUs

To further develop into DEA, we will have to look at the different concepts of efficiency as defined by Farrell (1957). Technical efficiency is the most common concept, i.e. the ability to utilize physical inputs (e.g. manpower and machines) to produce outputs optimally, without any wastages. A firm operating at "best practice" is 100% technically efficient. The size of the operations and managerial practices affect technical efficiency. Allocative efficiency provides the indication that the organization is utilizing its input proportionately to ensure minimum cost incurred to produce a given output at a given input prices. Finally, cost efficiency is a combination of both technical and allocative efficiency. It is calculated as the product of technical and allocative efficiency; which means, that an organization can only be cost efficient if it is both technically and allocatively efficient.

This study separates the collection function from the distribution function, as recommended by Berber (2011). In the first stage, the study evaluates the efficiency of zakat collection, considering the number of Amils employed (represented by Am), the number of branches (represented by Br), the number of Banks who act as collection agent

(AgB) and the expense incurred in collecting zakat (CE) will be the input, and the amount of zakat collected (ZC) will be the output. This can be expressed as:

$$ZC = f_1\,(Am, Br, AgB, CE)$$

Subsequently, using the zakat collection amount as input, the second stage of our efficiency evaluation is on the distribution of zakat. In this second stage, we included the distribution expenses (DE) and number of staff (St) as additional inputs in producing the output that is the zakat distribution are included., thus;

$$ZD = f_2(ZC, DE, St)$$

This process is depicted below:

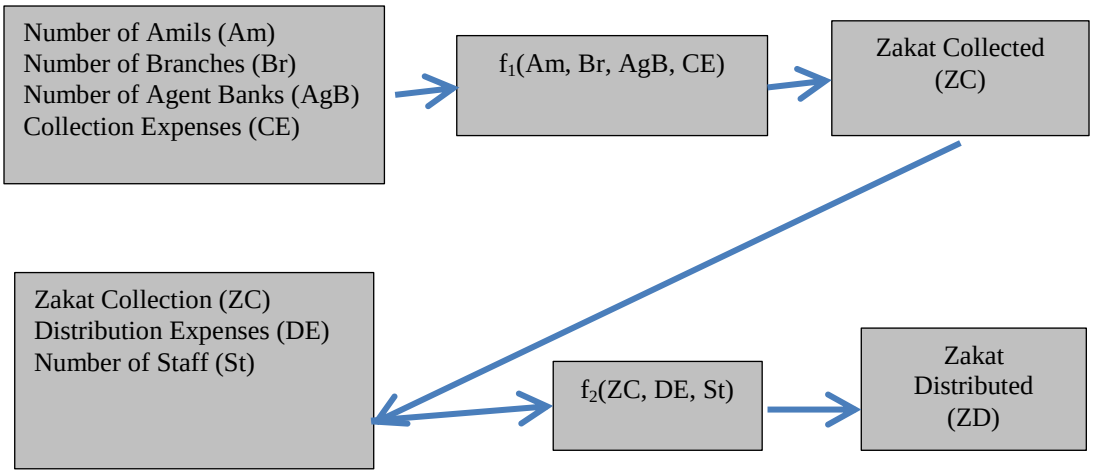

Figure 1: Two-Stage Process in Measuring Efficiency

Therefore, in measuring efficiency, the theoretical framework as follows (Figure 2 to Figure 4).

For collection efficiency, (using the DEA Excel solver, (Zhu, 2003), first, the study will measure technical efficiency of zakat collection by taking the physical inputs and measure this against the output, which in this first stage is the zakat collection. Then, the test for allocative efficiency, by taking the monetary input and compare it to zakat

collection as output will be carried out. Finally, for this first stage, both the physical and monetary input and measure this against zakat collection will be combined to give the cost efficiency scores.

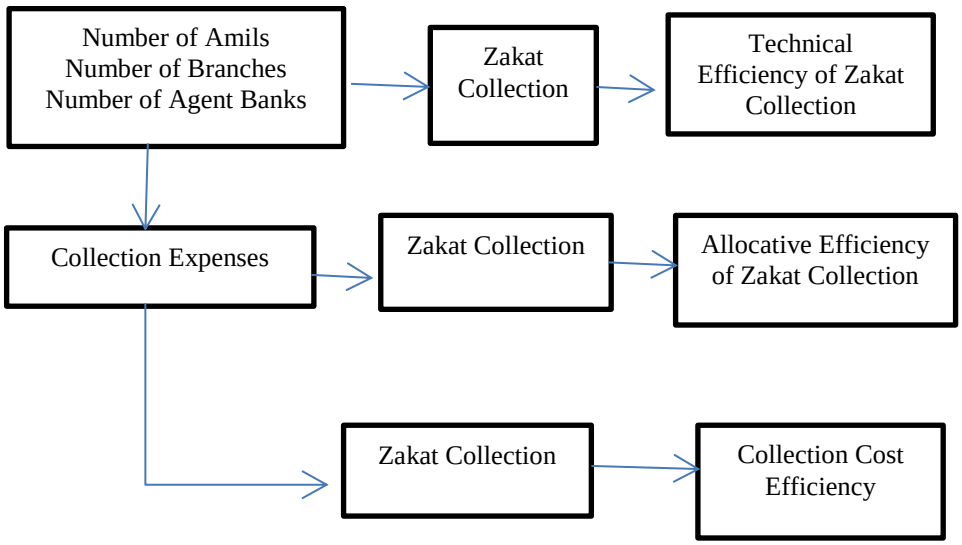

Figure 2: Theoretical Framework of Zakat Collection Efficiency

For distribution efficiency, the same process is repeated; however, in measuring allocative and cost efficiency, the zakat collection (which is the output in the first stage framework above) is included as input and measured against zakat distribution as output. This is illustrated in figure 3.

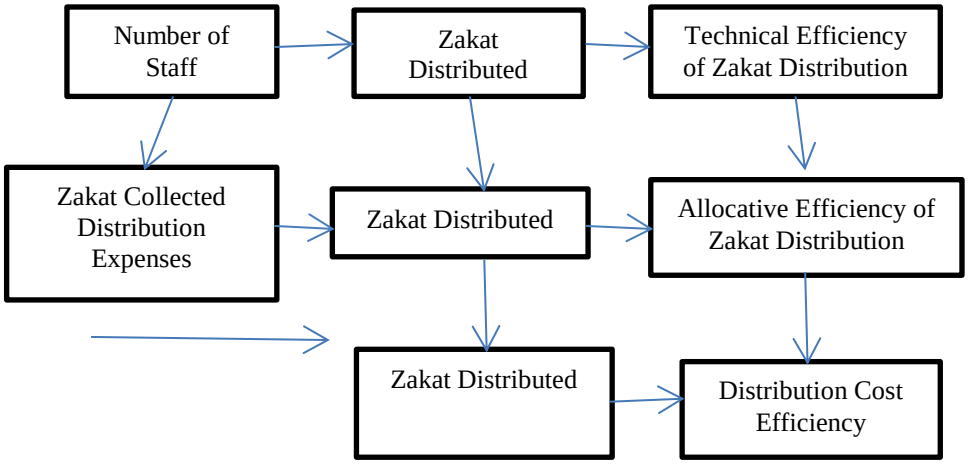

Figure 3: Theoretical Framework of Zakat Distribution Efficiency

As a means for comparison we will also run the data on an overall basis, where all the physical and monetary resources will be used as input to measure against both zakat collection and distribution as outputs. The processes will be similar to the first and second stage measure where we will test for technical, allocative and cost efficiency as illustrated in figure 8 below.

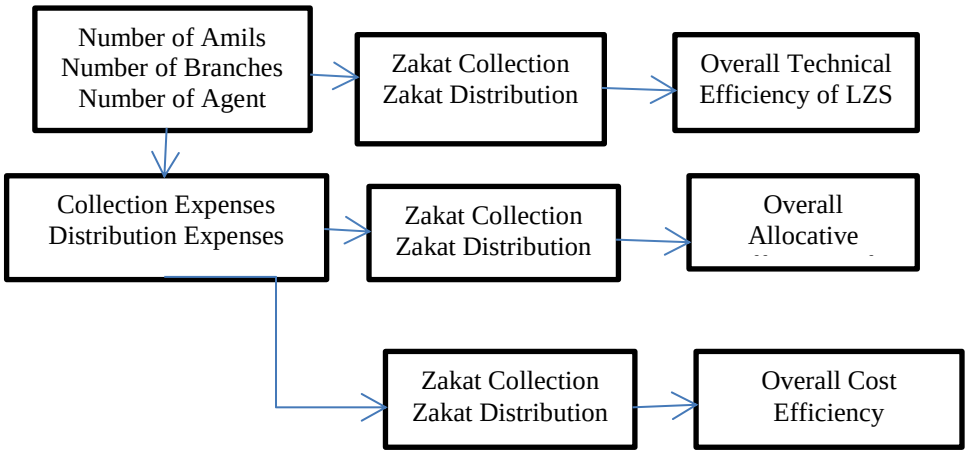

Figure 4: Overall Efficiency Framework

The above frameworks are based on a combination of previous studies. However, this research substituted the variables with proxies which are more relevant to study, which are listed in table 1 below.

The core reference for this study is the work of Norazlina & Abdul Rahim (2011) and Berber et al. (2011). Therefore, the proxies for the variables in this study are identified as follows:

Table 1: Variable Proxies

Variable	Proxy	Research by
Input		
Number of Amil/Number of Staff	Labour	Sarker and De (2004) Ibrahim and Salleh (2006)
Number of Branches	Number of Branches	Norazlina & Abdul Rahim (2011)
Number of Agent Banks	Number of Branches	Norazlina & Abdul Rahim (2011)
Collection/Distribution Expenses	Fund Raising/General Management Expenses	Berber et al. (2011)
Output		
Zakat Collection	Contribution Received	Berber et al. (2011)
Zakat Distribution	Programme Service Delivered	Berber et al. (2011)

The Data

The data obtained for this study were for 11 years from 2001 to 2011 from the annual report of LZS and also from their website www.e-zakat.com.my. To measure LZS's efficiency of collection, this study identified the variables to be the number of Amils, number of branches, number of agent banks and the cost of collection (the portion taken by Amil as an asnaf). Table 2 depicts the efficiency calculation employed in this study whereby utilization is calculated as a percentage of input.

Table 2: Efficiency Calculation

Year	Total Input	Amil (%)	Branches (%)	Agent banks (%)	Total
2001	200	87.50	9.00	3.50	100
2002	202	87.13	8.91	3.96	100
2003	210	87.14	9.05	3.81	100
2004	215	86.05	9.30	4.65	100
2005	211	85.31	9.48	5.21	100
2006	216	84.72	10.19	5.09	100
2007	267	86.89	8.24	4.87	100
2008	274	86.86	8.03	5.11	100
2009	323	88.85	6.81	4.33	100
2010	335	88.66	6.87	4.48	100
2011	397	90.18	6.05	3.78	100

The portion taken by amil is not only used to pay those who act collectors of zakat, but LZS's itself is considered an amil an thus, the amil portion is also used for the administration (including salaries of LZS employees), sales and promotion, research and development, to list a few utilisation of the portion. However, due to the reticence of LZS, the researchers were not given access to the details of the various expenditures. As such, for the purpose of this study, the whole amount is taken as amil's portion as an input in the effort of getting zakat collections. For efficiency of distribution, the inputs were identified to be the amount collected, the cost of distribution (which include costs of holding ceremonies where zakat were distributed to the asnafs and the number of staff manning the distribution department of the LZS. The actual amount distributed is the output. Table 3 depicts the descriptive statistics of the inputs and output employed in this study.

Table 3: Descriptive Statistics of the Inputs and Output used in the DEA model

	Mean	Median	Maximum	Minimum	Std. Dev.
Input					
Agent Banks	11.45	11.00	15.00	7.00	2.94
Branches	20.91	22.00	24.00	18.00	2.02
Collection Expend.	25.56	20.06	49.20	5.24	11.78
No. of Amils	226.73	185.00	358.00	175.00	62.41
Output					
Total Collection	209.23	159.84	393.50	126.99	92.94

Table 3 reveals a wide range between the minimum and the maximum amount of inputs used and output produced by LZS. This scenario happened as the state of Selangor has different districts with different size of populations. Eventually, LZS has been using different quantity of input in their operation.

Findings

DEA Results

The data collected have been processed in a two staged analysis using Data Envelopment Analysis (DEA). Stage 1 is to test the LZS's efficiency in collecting Zakat and stage 2 tested the efficiency of distribution. In addition, DEA is run using all the data to test on the overall efficiency of LZS. Using the DEA Excel Solver, the data are run and the result would either be 1.000 which means full efficiency or less than 1.000 which represent inefficient result. The efficiency scores obtained for collection and distribution of Zakat by LZS are as follows.

Collection Efficiencies

Table 4: DEA Result for LZS Collection Efficiencies

Collection Efficiency			
Year	Technical	Allocative	Cost
2001	0.69153	0.97679	0.99077
2002	0.70393	0.97679	0.98700
2003	0.70103	0.97679	0.98915
2004	0.64255	0.97679	0.97679
2005	0.68067	0.97679	0.97679
2006	0.76990	0.93392	0.94403
2007	0.76823	1.00000	1.00000

Collection Efficiency (Cont.)			
2008	0.90545	0.94272	0.98152
2009	0.87708	0.97835	1.00000
2010	1.00000	0.93772	1.00000
2011	1.00000	0.93748	1.00000

Table 4 shows the result of running the stage one data through the DEA software. LZS was found to be technically efficient in 2010 and 2011, and was least efficient in 2004.The input variables showed a steady increase from 2001 to 2011, except for a jump in the number of amils in 2004 and a reduction in collection amount. This contributed to the lowest efficiency score in 2004. Allocative efficiency was achieved in 2007, otherwise the results showed a rather consistent allocative inefficiencies within the period under review. 2007 is deemed to be the benchmark for efficiency as it has the highest output for each unit of input. The same consistency can be seen in the cost efficiency result, however, LZS was 100% cost efficient in 2007, 2009, 2010 and 2011.

Distribution Efficiencies

Table 5: DEA Results for LZS Distribution Efficiencies

Distribution Efficiency			
Year	Technical	Allocative	Cost
2001	0.55450	0.86399	0.86399
2002	0.61143	0.88178	0.88178
2003	0.55794	0.81317	0.81317
2004	0.53737	0.83350	0.83350
2005	0.59008	0.86399	0.86399

Distribution Efficiency (Cont.)			
2006	0.66642	0.86268	0.86268
2007	0.67627	0.87734	0.87734
2008	0.71391	0.78581	0.78658
2009	0.87455	1.00000	1.00000
2010	1.00000	0.99664	1.00000
2011	0.93341	0.96015	0.96268

Table 5 shows the distribution efficiencies. LZS's technical efficiency was 100% in 2010, and was least efficient in 2004. Again, as per the technical efficiency results above, 2004 was the least efficient because there was an increase in the number of staff, yet the distribution amount saw a decrease. Allocative efficiency results showed 100% efficiency in 2009 right after its worst score of 78.581% in 2008.The most inefficient result in 2008 is due to the high increase in collection amount (input) against the increase of distribution (output). The same is true for distribution cost efficiency, although maximum efficiency was achieved also in 2010.

Overall Efficiencies

Overall technical efficiency seems to follow the collection technical efficiency pattern where total efficiency was achieved in 2010 and 2011. The minimum technical efficiency score also follows suit i.e. in 2004.This indicates that the number of amils has a significant high influence on the efficiency scores. Allocative and cost efficiency scores show maximum efficiency every year under review. However, when running the overall efficiency test, both the collection and the distribution amount were considered outputs. This indicates that allocative efficiency i.e. LZS is utilizing its input proportionately to ensure minimum cost incurred to produce a given output (amount collected and amount distributed) at a given input prices (cost of collection and cost of distribution).

Table 6: DEA Results for LZS Overall Efficiencies

Overall Efficiency			
Year	**Technical**	**Allocative**	**Cost**
2001	0.69153	1.00000	1.00000
2002	0.70393	1.00000	1.00000
2003	0.70103	1.00000	1.00000
2004	0.64255	1.00000	1.00000
2005	0.68067	1.00000	1.00000
2006	0.76990	1.00000	1.00000
2007	0.76823	1.00000	1.00000
2008	0.90545	1.00000	1.00000
2009	0.88637	1.00000	1.00000
2010	1.00000	1.00000	1.00000
2011	1.00000	1.00000	1.00000

Target Efficient Input versus Actual Input

The DEA Excel Solver also yielded the target efficient input so as to provide an indication of the amount of resources that are either over or underutilized.

Collection Technical Efficiency Target Input

Appendix 2 shows the amount of resources that was underutilized with in the period prior to 2010 which is deemed to be the benchmark for technical efficiency. The number of Amils that were over the efficient requirements were the highest in 2004 where the required number was 119 yet the actual number employed by LZS was 185, resulting in an

"excess" of 66. In 2006, 2007 and 2008, the actual number of branches LZS had was 20, 20 and 22 respectively, giving an overcapacity of 11 branches in each of these years, when benchmarked against 2010. In 2005, LZS had 11 banks as collection agents. But, benchmarked against 2010, the efficient number of banks should be only 6.

Collection Allocative Efficiency Target Input

For allocative efficiency measure, 2007 was identified as the benchmark (Appendix 3). Prior to 2007, the amount "over-spent" on collection efforts ranged from RM350,000 in 2001 to RM1.33 million in 2006. However, the differences grew even bigger after 2007 with the amount overspent reaching RM3.08 million in 2011.

Collection Cost Efficiency Target Input

LZS was found to be fully efficient in 2007, 2009, 2010 and 2011. Benchmarked against these years, input of the number of Amils was deemed underutilized as high as 40 people in 2001 which showed a gradual decreasing trend until the excess was only for 4 people in 2008. The number of branches underutilized was highest in 2006 with 7 branches. In 2008 2.5 collection agent banks was deemed to excesses and the cost of collection (Amil portion) too high by a maximum of RM1.12 million in 2006 (Appendix 4).

Distribution Technical Efficiency Target Input

Distribution wise, LZS was 100% technically efficient in 2010. However, the results show (Appendix 5) that LZS was overstaffed in all the other years, with the maximum being 86 staff in underutilized in 2004 and the lowest in 2011 with 24.

Distribution Allocative Efficiency Target Input

Distribution allocative efficiency for LZS peaked in 2009 (Appendix 6). Compared to amount collected (as input) to the amount distributed, the highest "over collection" was in 2008, just a year before achieving 100% allocative efficiency, with RM52.36 million of underutilized portion.

The same pattern emerges for distribution expenses. LZS was most efficient also in 2009, while its most inefficient year was in 2008when it is deemed to have overspent by RM1.57million on efforts of distribution of Zakat.

Distribution Cost Efficiency Target Input

LZS was found to be cost efficient in 2009 and 2010 (Appendix 7).In fact, as depicted by chart 2 above, allocative and cost efficiency move in tandem with each other. This is due to the influence of collection amount and distribution expenses in both allocative and cost efficiency while there is only no of staff in technical efficiency measure.

Overall Technical Efficiency Target Input

Overall technical efficiency was 100% in 2010 and 2011. Least efficient years were 2004 for number of Amils, 2004 to 2006 for number of branches and 2005 for number of agent banks (Appendix 8).

Overall Allocative Efficiency Target Input

Allocative efficiency was 100% in throughout the period under review (Appendix 9). Even so, collection expenses do show underutilization, though very minimal. Collection expenses do reach full efficiency in 2007 and 2009.

Overall Cost Efficiency Target Input

Although, overall cost efficiency was found to be fully efficient, this is due mainly to the efficient utilization of collection expenses and distribution expenses (Appendix 10). Other resources still showed underutilizations except in the year 2007, 2009, 2010 and 2011.

Overall Efficiency

Finally, both the inputs of the first stage and the second stage were grouped and compared them against both outputs of amount collected and amount distributed using the same DEA software and the result actually confirms the findings of stage one and stage two. While allocative and cost efficiencies are 100% for all the years under review,

the technical efficiency only achieve 100% in 2010 and 2011. However, when testing for overall efficiency, the 100% results of the allocative and cost efficiencies maybe misleading. As shown in appendix 8 and 9 that there are inputs which are underutilized but are overshadowed by the efficiencies of other inputs. Thus, testing for efficiency using the two stage method, allows for a higher scrutiny of the relevant inputs, compared to a single stage method.

Conclusion

The measurement of efficiencies is not by any means a deliberate effort to find irregularities or misappropriation of funds in a zakat institution. What these scores provide is only an indication that the DMU (in this case LZS) can do better than it already has. Although, the inaccessibility of information may make this study not totally conclusive, the separation of the collection and distribution function in a linked two stage analysis has given a better perception of efficiencies between these two functions. It lets us observe clearly, where LZS excels and where they lag.

In summary, in both collection and distribution, LZS has lagging resources, especially in technical efficiency. The public perception that there are inefficiencies in distribution is pronounced here in this study as the DEA results shows a lower efficiency mean in distribution than in collection function. Using these DEA results, LZS can use the benchmarked years as a guide to gauge the efficiencies of the resources e.g. on the efforts by their branches, the amils and the collection agents. Of course, should this study being given access to more details of the amil portion, on how much was specifically spent for the activity of collection (e.g. in giving talks and seminars to create awareness of zakat and LZS's collection outlets) and distribution (e.g. amount spent in seeking out the needy), the allocative and cost efficiency scores would have been more accurate and meaningful to LZS in gauging their performances.

In light of the above, it is strongly recommend that LZS and all zakat governing bodies, particularly in Malaysia and countries where the payment of zakat is not compulsory, to practice transparency in their operations. Their reservation in imparting certain information may only bring more negative perceptions in the public eyes. Although, zakat

contributors have no claims on the zakat that they have given, they, as Muslims who had given zakat out of faith, have the right to know how efficiently their contributions are utilized. The establishment of a central governing body to oversee the governance of zakat institution is also recommended. One such body, JAWHAR (Department of Wakaf, Zakat and Haj), established by the federal government is a positive move, and it is hoped that it will play a proactive role in the proper management of zakat distribution in this country. Finally, we also recommend this technique to all non-profit organizations, to gauge their performance in raising the funds and subsequently, using it in their policy making and strategic decisions, in reaching their intended goals.

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Appendices

Appendix 1A: Stage 1 Variables

	Input				Output
	No of Amils	**Branches**	**Agent banks***	**Collection Expenses** (RM Million)**	**Collection (RM Million)**
2001	175	18	7	15.24	126.99
2002	176	18	8	16.56	137.98
2003	183	19	8	17.04	141.97
2004	185	20	10	16.18	134.86
2005	180	20	11	16.68	139.00
2006	183	22	11	20.06	159.84
2007	232	22	13	23.70	202.19
2008	238	22	14	30.40	244.47
2009	287	22	14	34.00	283.79
2010	297	23	15	42.12	336.93
2011	358	24	15	49.20	393.50

* Agent Banks - Banks which act as collection agents for Lembaga Zakat Selangor
** Collection Expenses - Comprising expenses for administration, R & D, marketing and promotion, human resource, infrastructure and commission for collection agents

Appendix 1B: Stage 2 Variables

	Input			Output
	Collection (RM million)	**Distribution Expenses* (RM million)**	**No of Staff**	**Distribution (RM million)**
2001	126.99	3.81	175	107.94
2002	137.98	4.14	176	119.70
2003	141.97	4.26	183	113.57
2004	134.86	4.05	185	110.58
2005	139.00	4.17	180	118.15
2006	159.84	4.80	183	135.65
2007	202.19	6.07	232	174.52
2008	244.47	7.33	238	189.00
2009	283.79	8.51	287	279.19
2010	336.93	10.11	297	330.36
2011	393.50	11.81	358	371.70

* Comprising expenses incurred during distribution including costs for organizing zakat giving ceremonies.

APPENDIX 2: Collection Resources Analysis: Technical Efficiency

	Efficient Input Target			Actual Input			Over/(Under) Utilized		
Year	**No of Amils**	**Branches**	**Agent banks**	**No of Amils**	**Branches**	**Agent banks**	**No of Amils**	**Branches**	**Agent banks**
2001	116	8	5	175	18	7	(59)	(10)	(2)
2002	124	9	6	176	18	8	(52)	(9)	(2)
2003	128	9	6	183	19	8	(55)	(10)	(2)
2004	119	9	6	185	20	10	(66)	(11)	(4)
2005	123	9	6	180	20	11	(57)	(11)	(5)
2006	141	11	7	183	22	11	(42)	(11)	(4)
2007	178	14	9	232	22	13	(54)	(8)	(4)
2008	215	17	11	238	22	14	(23)	(5)	(3)
2009	252	19	12	287	22	14	(35)	(3)	(2)
2010	297	23	15	297	23	15	-	-	-
2011	358	24	15	358	24	15	-	-	-

APPENDIX 3: Collection Resources Analysis: Allocative Efficiency

	Efficient Input Target	**Actual Input**	**Over/(Under) Utilization**
Year	**Amil Portion**	**Amil Portion**	**Amil Portion**
2001	14.88	15.24	(0.35)
2002	16.17	16.56	(0.38)
2003	16.64	17.04	(0.40)
2004	15.81	16.18	(0.38)
2005	16.29	16.68	(0.39)
2006	18.74	20.06	(1.33)
2007	23.70	23.70	-
2008	28.66	30.40	(1.74)
2009	33.26	34.00	(0.74)
2010	39.49	42.12	(2.62)
2011	46.12	49.20	(3.08)

APPENDIX 4: Collection Resources Analysis: Cost Efficiency

	Efficient Input Target				Actual Input				Over/(Under) Utilization			
Year	**No of Amils**	**Branches**	**Agent banks**	**Amil Portion**	**No of Amils**	**Branches**	**Agent banks**	**Amil Portion**	**No of Amils**	**Branches**	**Agent banks**	**Amil Portion**
2001	135	11	7	15.10	175	18	7	15.24	(40)	(7)	(0)	(0.14)
2002	149	13	8	16.34	176	18	8	16.56	(27)	(5)	(0)	(0.22)
2003	152	13	8	16.85	183	19	8	17.04	(31)	(6)	(0)	(0.18)
2004	155	15	9	15.81	185	20	10	16.18	(30)	(5)	(1)	(0.38)
2005	159	15	9	16.29	180	20	11	16.68	(21)	(5)	(2)	(0.39)
2006	173	15	9	18.94	183	22	11	20.06	(10)	(7)	(2)	(1.12)
2007	232	22	13	23.70	232	22	13	23.70	-	-	-	-
2008	234	18	12	29.84	238	22	14	30.40	(4)	(4)	(2)	(0.56)
2009	287	22	14	34.00	287	22	14	34.00	-	-	-	-
2010	297	23	15	42.12	297	23	15	42.12	-	-	-	-
2011	358	24	15	49.20	358	24	15	49.20	-	-	-	-

APPENDIX 5: Distribution Resources Analysis: Technical Efficiency

	Efficient Input Target	**Actual Input**	**Over/(Under) Utilization**
Year	**No of Staff**	**No of Staff**	**No of Staff**
2001	97	175	(78)
2002	108	176	(68)
2003	102	183	(81)
2004	99	185	(86)
2005	106	180	(74)
2006	122	183	(61)
2007	157	232	(75)
2008	170	238	(68)
2009	251	287	(36)
2010	297	297	-
2011	334	358	(24)

APPENDIX 6: Distribution Resources Analysis: Allocative Efficiency

	Efficient Input Target		Actual Input		Over/(Under) Utilization	
Year	Collection	Distribution Expenses	Collection	Distribution Expenses	Collection	Distribution Expenses
2001	109.72	3.29	126.99	3.81	(17.27)	(0.52)
2002	121.67	3.65	137.98	4.14	(16.31)	(0.49)
2003	115.44	3.46	141.97	4.26	(26.52)	(0.80)
2004	112.40	3.37	134.86	4.05	(22.45)	(0.67)
2005	120.09	3.60	139.00	4.17	(18.90)	(0.57)
2006	137.89	4.14	159.84	4.80	(21.95)	(0.66)
2007	177.39	5.32	202.19	6.07	(24.80)	(0.74)
2008	192.11	5.76	244.47	7.33	(52.36)	(1.57)
2009	283.79	8.51	283.79	8.51	-	-
2010	335.80	10.07	336.93	10.11	(1.13)	(0.03)
2011	377.82	11.33	393.50	11.81	(15.68)	(0.47)

APPENDIX 7: Distribution Resources Analysis: Cost Efficiency

	Efficient Input Target			Actual Input			Over/(Under) Utilization		
Year	**Collection**	**Cost of Distribution**	**No of Staff**	**Collection**	**Cost of Distribution**	**No of Staff**	**Collection**	**Cost of Distribution**	**No of Staff**
2001	109.72	3.29	111	126.99	3.81	175	(17.27)	(0.52)	(64)
2002	121.67	3.65	123	137.98	4.14	176	(16.31)	(0.49)	(53)
2003	115.44	3.46	117	141.97	4.26	183	(26.52)	(0.80)	(66)
2004	112.40	3.37	114	134.86	4.05	185	(22.45)	(0.67)	(71)
2005	120.09	3.60	121	139.00	4.17	180	(18.90)	(0.57)	(59)
2006	137.89	4.14	139	159.84	4.80	183	(21.95)	(0.66)	(44)
2007	177.39	5.32	179	202.19	6.07	232	(24.80)	(0.74)	(53)
2008	192.30	5.77	187	244.47	7.33	238	(52.17)	(1.57)	(51)
2009	283.79	8.51	287	283.79	8.51	287	-	-	(0)
2010	336.93	10.11	297	336.93	10.11	297	-	-	-
2011	378.81	11.36	345	393.50	11.81	358	(14.69)	(0.44)	(13)

APPENDIX 8: Overall Resources Analysis: Technical Efficiency

	Efficient Input Target			Actual Input			Over/(Under) Utilization		
Year	**No of Amils**	**Branches**	**Agent banks**	**No of Amils**	**Branches**	**Agent banks**	**No of Amils**	**Branches**	**Agent banks**
2001	116	8	5	175	18	7	(59)	(10)	(2)
2002	124	9	6	176	18	8	(52)	(9)	(2)
2003	128	9	6	183	19	8	(55)	(10)	(2)
2004	119	9	6	185	20	10	(66)	(11)	(4)
2005	123	9	6	180	20	11	(57)	(11)	(5)
2006	141	11	7	183	22	11	(42)	(11)	(4)
2007	178	14	9	232	22	13	(54)	(8)	(4)
2008	215	17	11	238	22	14	(23)	(5)	(3)
2009	254	19	12	287	22	14	(33)	(3)	(2)
2010	297	23	15	297	23	15	-	-	-
2011	358	24	15	358	24	15	-	-	-

APPENDIX 9: Overall Resources Analysis: Allocative Efficiency

	Efficient Input Target		Actual Input		Over/(Under) Utilization	
Year	Collection Expenses	Distribution Expenses	Collection Expenses	Distribution Expenses	Collection Expenses	Distribution Expenses
2001	15.21	3.81	15.24	3.81	(0.02)	-
2002	16.53	4.14	16.56	4.14	(0.03)	-
2003	17.01	4.26	17.04	4.26	(0.03)	-
2004	16.16	4.05	16.18	4.05	(0.03)	-
2005	16.65	4.17	16.68	4.17	(0.03)	-
2006	19.15	4.80	20.06	4.80	(0.91)	-
2007	23.70	6.07	23.70	6.07	-	-
2008	29.29	7.33	30.40	7.33	(1.11)	-
2009	34.00	8.51	34.00	8.51	-	-
2010	40.37	10.11	42.12	10.11	(1.75)	-
2011	47.14	11.81	49.20	11.81	(2.06)	-

APPENDIX 10: Overall Resources Analysis: Cost Efficiency

					Efficient Input Target			Actual Input			Over/(Under) Utilization				
Year	No of Amils	Branches	Agent banks	Collectn Exp	Distribtn Exp	No of Amils	Branches	Agent banks	Collectn Exp	DistribtnExp	No of Amils	Branches	Agent banks	Collectn Exp	Distn Exp
2001	128	10	6	15.24	3.81	175	18	7	15.24	3.81	(47)	(8)	(1)	-	-
2002	139	11	7	16.56	4.14	176	18	8	16.56	4.14	(37)	(7)	(1)	-	-
2003	143	11	7	17.04	4.26	183	19	8	17.04	4.26	(40)	(8)	(1)	-	-
2004	136	10	7	16.18	4.05	185	20	10	16.18	4.05	(49)	(10)	(3)	-	-
2005	140	11	7	16.68	4.17	180	20	11	16.68	4.17	(40)	(9)	(4)	-	-
2006	141	11	7	19.98	4.80	183	22	11	20.06	4.80	(42)	(11)	(4)	(0.08)	-
2007	232	22	13	23.70	6.07	232	22	13	23.70	6.07	-	-	-	-	-
2008	220	17	11	30.40	7.33	238	22	14	30.40	7.33	(18)	(5)	(3)	-	-
2009	287	22	14	34.00	8.51	287	22	14	34.00	8.51	-	-	-	-	-
2010	297	23	15	42.12	10.11	297	23	15	42.12	10.11	-	-	-	-	-
2011	358	24	15	49.20	11.81	358	24	15	49.20	11.81	-	-	-	-	-