

Implementation of data envelopment analysis (DEA) in measuring the efficiency zakat fund management

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<u>ARTICLE INFO</u>	<u>ABSTRACT</u>
<p><i>Keywords:</i> National Amil Zakat Agency (BAZNAS); Data Envelopment Analysis (DEA); Efficiency</p>	<p>This study aims to determine the level of efficiency of management of zakat funds at the National Zakat Amil Agency (BAZNAS). The author uses the quantitative non-parametric Data Envelopment Analysis (DEA) method. Total assets, promotion, and documentation costs, and official travel costs as variable inputs. Whereas the output variance consists of receiving zakat funds and distributing zakat funds. The results showed that BAZNAS increased efficiency in 2012-2014 and 2017 with a score of 100%. Inefficiencies occurred in 2015 at 79.16% and in 2016 amounted to 98.72%. In 2015-2016, all variable inputs use inefficiency, while the variable output is the only inefficient distribution of zakat funds. DEF. In overcoming DEF. The author decided that BAZNAS should pay attention to the causes of inefficiency so that it can improve better performance.</p>

Implementasi Data Envelopment Analysis (DEA) dalam Mengukur Efisiensi Pengelolaan Dana Zakat. Penelitian ini memiliki tujuan untuk mengetahui tingkat efisiensi pengelolaan dana zakat di Badan Amil Zakat Nasional (BAZNAS). Penulis menggunakan metode kuantitatif non-parametrik Data Envelopment Analysis (DEA). Total aset, biaya promosi dan dokumentasi, serta biaya perjalanan dinas sebagai variabel input. Sedangkan variabel output terdiri atas penerimaan dana zakat dan penyaluran dana zakat. Hasil penelitian menunjukkan bahwa BAZNAS mengalami efisiensi pada tahun 2012-2014 dan 2017 dengan skor 100%. Inefisiensi terjadi pada tahun 2015 sebesar 79.16% dan tahun 2016 sebesar 98.72%. Pada tahun 2015-2016, semua variabel input mengalami inefisien, sedangkan variabel output hanya penyaluran dana zakat yang inefisien. Dalam mengatasi inefisiensi dapat disesuaikan antara besaran target dan actual yang ditetapkan dalam perhitungan DEA. Penulis merekomendasikan agar BAZNAS memperhatikan faktor penyebab inefisiensi sehingga dapat meningkatkan kinerja yang lebih baik.

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1. Introduction

In research entitled "Economic Estimation and Determinations of Zakat Potential in Indonesia" states that zakat can reduce the amount of poverty (Firdaus, Beik, & Irawan, 2012). Beik (2016) is an indisputable proof that zakat instruments have the potential to alleviate poverty very large. With the number of Muslims in Indonesia reached 87.18% of the population (BPS, 2016), so that Indonesia has a huge potential for zakat. The amount of potential zakat in Indonesia must be followed by the Organization Zakat Manager (OPZ) is optimal and efficient in collecting and distribution of zakat. Therefore, an institution is needed management of trustworthy, transparent and professional zakat (Najma, 2014). In order to maximize the potential of zakat owned, the government issued Law No. 23 of 2011 concerning Management Zakat, so that the management of zakat can be more integrated and professional.

Divides zakat management (Sri Eko & Indrawati, 2011) into two forms between institutions formed by the government and those formed community (amil zakat institution / LAZ) . Management of zakat as it is mentioned in RI Law No. 23 years article 1 paragraph 1, management of zakat are activities, planning, implementation, supervision of collection and distribution and utilization of zakat. For knowing the extent to which OPZ is able to collect and channel.

Zakat, Infak, and Shodaqoh (ZIS), a measuring instrument or indicator is needed and appropriate. One indicator that can be used as a benchmark for performance OPZ is efficiency. Efficiency is the ability to perform tasks well and right (not wasting time, energy, costs) (Language Center Ministry of National Education, 2008) and can be used as a measuring tool to compare performance with each other. So that the efficiency of an OPZ can be measured and it is known that good financial statements are needed, in this case OPZ is guided by PSAK 109 concerning accounting for zakat. Application PSAK 109 is proof of the commitment of the management in realizing transparency and accountability in managing ZIS funds (Saputro Eko, Shodiq, Askandar Noor, & Afifudin, 2018).

Efficiency is efforts to achieve the greatest possible use possibilities available (material, machinery, and humans) in the shortest possible time, in real circumstances (as long as the situation changes) without disturbing the balance between the factors of goals, tools, energy and time (Susilowati & Setyorini, 2018). Efficiency can also be translated with usability, besides the results, also emphasized the efficacy of effort/sacrifice to achieve results so that there is no waste (Wahyuni, 2016).

There are a number of requirements that must be fulfilled in order for activities within an organization is said to be efficient, namely, (1) Efficiency must be measurable, the standard for setting efficient and inefficient limits is size normal. (2) Efficiency refers to rational considerations. Rational meaning all considerations must be based on common sense, reasonable, logical and not emotional. (3) Efficiency must not sacrifice quality (quality). The quantity may be increased but don't sacrifice quality. Do not let the quantity be increased but with quality low. Quality must be maintained. (4) Efficiency is technical implementation so that it does not conflict with superior policies.

Implementation of efficiency must be adjusted to capability the organization concerned. This means that the application is adjusted with the ability of human resources (HR), funds, facilities, etc. Owned by the organization concerned while trying to increase. Measurement of efficiency should be based on the level ability, because of government and private institutions must have different abilities (Azizah, 2018).

The National Amil Zakat Agency (BAZNAS) is an official body and the only one formed by the government based on the Republic of Indonesia's Presidential Decree No. 8 of 2001 which has duties and functions to collect and distribute zakat, infaq, and alms (ZIS) at the national level. Birth UU no. 23 of 2011 concerning Management of Zakat is increasingly confirmed the role of BAZNAS as an

institution authorized to manage zakat nationally (central.baznas.go.id). Based on the explanation above, the writer tries to analyze the efficiency of the amil zakat (BAZNAS) body in managing the period zakat funds 2012-2017.

The frontier approach in measuring efficiency is divided into two types, namely, approach parametric and nonparametric frontier. The parametric frontier approach can be measured by parametric statistical tests such as the Stochastic Method Frontier Approach (SFA) and Distribution-Free Approach (DFA). The nonparametric frontier approach was measured by a nonstatic test parametric, namely by using the Data Envelopment Analysis method (DEA) (Puspitasari, 2017).

The main purpose of zakat is to purify the treasure owned and distributed wealth evenly. Impact of zakat on the prosperity of society and the Islamic economy are also clear. Because in zakat there is an element of providing assistance to the needy; in a side, embody general interests (Aristoni & Abdullah, 2015). The function and purpose of zakat, in general, is to purify oneself personal from the filth of sin, purifying the soul (growing noble morals, being generous, sensitive to humanity) and eroding properties hunks (miserly) and greedy (Beik, 2016).

2. Research Method

This research is quantitative research, namely by doing processing input and output variables used in research. Quantitative data is numerical data. This research is shown to determine the level of efficiency of the National Zakat Amil Agency (BAZNAS) and what variables affect the level of efficiency.

This study uses non-parametric *data* methods *Envelopment Analysis* (DEA) to analyze efficiency with variables the inputs are Fixed Assets, Promotion Costs, and Documentation, Costs Official Travel and the output variable is the Receipt of Zakat Funds and Distribution of Zakat Funds. The data used in this study was obtained from the Report Annual Finance from 2012 to 2017 be *published* officially on the website of the National Zakat Agency (BAZNAS) the research sample. DEA is a linear programming technique for researching unit performance decision-making (*Decision Making Unit / DMU*) (Cooper, Seiford, & Zhu, 2011).

This technique makes a collection of *frontier sets* of zakat institutions that are efficient and inefficient. This is done to make a score (value) efficiency. Next, score the efficiency of zakat institutions is limited to between 0 and 1, which is the institution efficient zakat will have a score of 1 and zakat institutions that do not efficient will have a score of 0. The approach commonly used in the measurement of efficiency is the rational use of output and input.

3. Result and Discussion

Zakat management organizations can be said efficient if the efficiency value reaches 100% or equivalent 1. The more the level of efficiency away from the number 100% or close 0%, it will be more inefficient. A company can be said to be efficient if (Soboh, Oude Lansink, & Van Dijk, 2012)(Wahyuni, 2016): (a) Use fewer input units than the number of input used by other companies by generating amounts same output (b) Using the same number of input units but can produce a greater amount of output.

Efficiency measurement is done by entering input and output into WDEA *software* to be processed into efficiency values. Following this is data from BAZNAS financial statements during the observation period used as input and output variables:

Table 1. BAZNAS Input and Output Variable Data

Year	Input			Output	
	Total Aset	Travel expense	Service Promotion Fee and Documentation	Funds Receipt Zakat	Funds Distribution Zakat
2012	22,105,699,228	310,749,622	1,968,040,600	40,387,972,149	36,019,079,930
2013	27,981,168,290	744,636,038	1,452,825,059	50,741,735,215	45,068,566,496
2014	39,861,217,575	664,450,920	2,056,430,469	69,865,506,671	64,365,141,159
2015	60,822,688,145	1,519,781,869	2,976,714,402	82,272,643,293	66,766,033,369
2016	92,761,171,701	2,662,787,737	2,831,748,922	97,637,657,910	67,727,019,807
2017	110,044,770,250	2,001,511,551	7,069,888,437	138,096,290,551	118,071,046,770

Source: 2012-2017 BAZNAS financial statements

Based on Table 1 it can be seen that the input variables and output from 2012 to 2017 has increased on average. There is one variable that has decreased, namely the cost of official travel in 2014 amounting to Rp 664,450,920 from before in 2013 amounted to Rp 744,636,038.

After this input variable and output are processed into DEA, they can know the results of efficiency. Based on the results of the analysis using WDEA software with an oriented *Constant Return to Scale* (CRS) model in the input variable, it can be seen the efficiency level of BAZNAS in Table 2, calculation results show the achievement of BAZNAS from 2012 until 2017.

Table 2. Efficiency Calculation Results Based on the DEA Method

Year	BAZNAS efficiency (%)	Efficient Criteria
2012	100	Efficient
2013	100	Efficient
2014	100	Efficient
2015	79,16	Efficient enough
2016	98,72	Efficient
2017	100	Efficient

From the processed DEA it is known that the efficiency of BAZNAS during an observation period of 6 years (2012-2017), namely in 2012, 2013, 2014 and 2017 has a maximum efficiency level of 100%. Next is 2015 is the lowest efficiency level of BAZNAS which is 79.16%, and at 2016 the efficiency level rose again to 98.72%.

In DEA calculations, a period that is already efficient assumed to have a score of 100%, while the inefficiency has a score between 0% and 100%. Besides that, there are also numbers of actual and target number. Actual numbers are input numbers owned, while the target number is the number suggested by calculation of DEA so that the input-output becomes efficient. Whereas *to gain* and *to achieve* is a percentage in addition of numbers to achieve the target produced by the DEA calculation.

The DEA method has one excellence produces relative efficiency values for each Activity Unit Economy (UKE) that is by showing *potential improvement* or the level of repairs required from each UKE. Repair the input and output variables show the efficient level of the UKE not yet efficient can be increased or reduced to achieve conditions efficient both technically cost or technical system (Puspitasari, 2017)(Cooper et al., 2011).

In 2015 BAZNAS experienced inefficiency with a score of 79.16%. For increasing the efficiency of BAZNAS on the input side can be done by setting the total assets of Rp 60,822,688,145 from the current amount of Rp 45,384,697,512. Current conditions can reach the target if total assets are reduced by 25.4%. Another input variable that experiences inefficiency is the cost of official travel. To be efficient it can be done by setting official travel costs of Rp 1,203,016,889 or by making a reduction of 20.8% from the current actual value. Then the variable costs of promotion and documentation also experience inefficiencies. To be efficient it can be done by setting a promotion and documentation costs of Rp 2,356,283,999 which is currently Rp 2.976,714,402 or equivalent to a reduction of 20.8% of the actual value.

Furthermore, on the output side, there is inefficiency in the distribution of zakat funds. In 2015 zakat funds were disbursed in the amount of Rp 66,766,033,369 so that in order to reach an efficient point BAZNAS had to add the distributed zakat funds to Rp 73,101,937,642 or equivalent to increase by 9.5% from the actual value. While the variable of zakat acceptance is no problem because reached the target and achieved 100%. So that to achieve efficiency in 2015 can be seen in each variable shown in Table 3.

Table 3. Target for Unit Annual 2015 Efficiency 79,16% Radial

Variable	Actual	Target	To gain	Achieved
Total asset	60,822,688,145	45,384,697,512	25.4%	74.6%
Travel expense	1,519,781,869	1,203,016,889	20.8%	79.2%
Service promotion fee and documentation	2,976,714,402	2,356,283,999	20.8%	79.2%
Funds receipt zakat	82,272,643,293	82,272,643,293	0%	100%
Funds distribution zakat	66,766,033,369	73,101,937,642	9.5%	90.5%

Whereas in 2016 BAZNAS experienced inefficiency of 98.72%, because there was not yet 100%, efforts were still needed to make it more efficient. To increase the efficiency of BAZNAS on the input side it can be done by setting total assets of Rp 53,841,590,672 from the current amount of Rp 92,761,171,701. Current conditions can reach the target if total assets are reduced by 42%. Another variable that experiences inefficiency is the cost of official travel. To be efficient it can be done by setting official travel costs of 1,432,834,695 or by making a reduction of 42.2% from the actual value. Then for the variable costs of promotion and documentation also experience inefficiencies. To be efficient it can be done by doing a reduction of 1.3% of the actual value or decrease to be 2,795,537,746.

Furthermore, in the output variable, there is inefficiency in the distribution of zakat funds. The zakat funds disbursed in 2016 amounted to Rp 67,727,019,807. So to reach the point of efficiency must add the number of zakat funds distributed to Rp 86,721,300,709 or equivalent to increase by 28.0%. While the variable of zakat acceptance is no problem because reached the target and achieved 100%. So that to achieve efficiency in 2016 can be seen in each variable shown in Table 4.

Table 4. Target for Unit Annual 2016 Efficiency 98,72% Radial

Variable	Actual	Target	To gain	Achieved
Total asset	92,761,171,701	53,841,590,672	42.2%	58.0%
Travel expense	2,662,787,737	1,432,834,695	46.2%	53.8%
Service promotion fee and documentation	2,831,748,922	2,795,537,746	1.3%	98.7%
Funds receipt zakat	97,637,657,910	97,637,657,910	0%	100%
Funds distribution zakat	67,727,019,807	86,721,300,709	28.0%	78.0%

DEA analysis shows information about sources of efficiency by conducting potential improvement analysis. With input characteristics that are difficult to change, the potential improvement analysis in the BAZNAS research object is focused on improving and increasing the output side. BAZNAS who are members of the 100% efficiency group does not have a potential improvement on the output side because it is considered an efficient unit

The potential improvement results in efficiency measurement with the DEA method can show which input or output side should be improved or improved so that it becomes efficient. Potential improvement can also be used as information about sources of inefficiency in terms of input or output in the unit. With input characteristics that are difficult to change, the potential improvement analysis in BAZNAS is focused on improving and increasing the output side. The year incorporated in the 100% efficiency group does not have a potential improvement on the output side because it is considered an efficient unit (Djayusman, 2015).

The next analysis is the analysis of input and output contributions to efficiency. Information about input and output contributions is a useful indicator because it provides information about which inputs and outputs are important in defining the unit to be efficient (Lestari, 2015). Non-contrived inputs and outputs remain part of the analysis but are not part of indicating that the unit is in the best condition.

The management of BAZNAS organizations must have an information system and administrative procedures that can support the performance of zakat management organizations (Mardiah, 2018). Legal accountability is related to guaranteeing compliance with other applicable laws and regulations. Meanwhile, honesty accountability is related to avoidance of office abuse. Legal accountability is related to the establishment of BAZNAS. Honesty accountability is related to avoidance of office misuse by dividing the division of BAZNAS employees into working in accordance with standard operating procedures (SOP). The procedures used in carrying out activities at BAZNAS are quite good, both in terms of accounting information systems, management information systems, and administrative procedures.

In managing the zakat BAZNAS performs stages according to the incoming budget provided by the muzakki, people who gave zakat (Amymie, 2017). BAZNAS is trusted to manage and regulate the distribution of the zakat. Zakat will go well not to deviate from the laws and regulations in BAZNAS. The trust of the muzakki towards BAZNAS is very high and they expect the zakat that they manage properly, and the way of utilizing zakat is done conceptually so that it can be useful in empowering asnaf groups or recipients of zakat (Najma, 2014). Because the utilization can be programmed whether for consumptive or productive purposes.

BAZNAS also needs to manage zakat funds in alleviating poverty (Beik, 2016), namely by distributing zakat funds for distribution and utilization. That the distribution of zakat is interpreted as distributing zakat to mustahik, people who received zakat, in a consumptive manner, namely assistance that is directly consumed in daily life, such as food, clothing, and so on. While the utilization of zakat is defined as the distribution of zakat to mustahik by oriented to the productive aspect, namely distribution in the form of productive goods, such as business equipment assistance, business capital assistance, and so forth (Parisi, 2017).

4. Conclusions

Inefficiencies did not occur in 2012, 2013, 2014 and 2017 because the efficiency score in the three years reached a maximum. Whereas in 2015 and 2016 there were inefficiencies, this shows there is a

waste of costs worth of these inefficiencies, or inefficiencies the balance of the number of funds between the variables measured by the level efficiency.

Based on the calculation of the DEA *input* orientation, the main cause inefficiencies in BAZNAS in 2015 and 2017 are total assets, costs of official travel, promotion costs (input variables) and distribution of zakat (output variable). This is due to the input allocated by BAZNAS still exceeds the required input. Whereas for the output itself is still less than the target that should be diplomatic by BAZNAS. Honesty accountability is related to avoidance of office misuse by dividing the division of BAZNAS employees into working in accordance with standard operating procedures (SOP). The procedures used in carrying out activities at BAZNAS are quite good, both in terms of accounting information systems, management information systems, and administrative procedures

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