



EFFICIENCY OF GOVERNMENT SPENDING IN EDUCATION SECTOR IN EAST JAVA

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Abstract

This study aims to determine the level of efficiency of government spending in the education sector in period of 2015-2021, by using quantitative approach, Data Envelopment Analysis (DEA). Linear program of non-parametric approach with the model used, namely Constant Return to Scale (CRS), which aims to calculate and evaluate efficiency values. The results of this study showed that the level of efficiency for the field of education in five districts/cities varied during the research period. The highest level of efficiency is in Malang Regency, while the lowest efficiency value is in the city of Surabaya. The cause of inefficiency in a regency/city is due to waste in the use of resources and weak management systems.

Keywords: *Efficiency, Education Sector Expenditure, Data Envelopment Analysis (DEA)*

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INTRODUCTION

Based on Law Number 32 of 2004 which contains, education is one of the mandatory matters that must be given priority in an effort to improve the quality of Human Resources (HR). Education is a central issue in people-centered development because one of its important premises is to magnify choices for the people. Through education, it is hoped that it can increase the knowledge and ability of human resources so that it can then be utilized to participate in the development process (Zulfahmi Pratama, 2016).

If you look at the current situation, the implementation of education in East Java is far from efficient. This condition can be seen from the large number of unemployed in East Java caused by the quality of education they receive being less effective and efficient. The factors that cause the low level of education in East Java are due to the large number of children who have dropped out of school, which affects the low average length of schooling and expectations of school length, and the lack of schools and teachers who will teach.

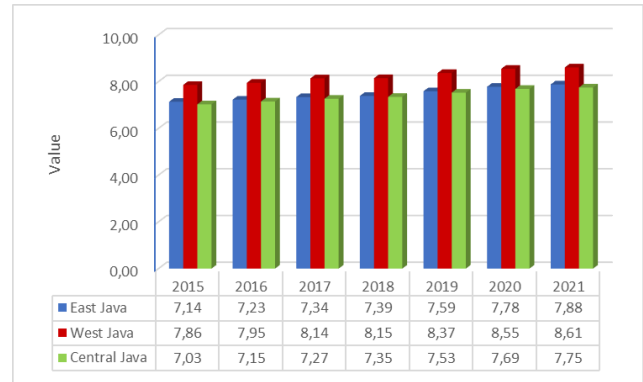


Figure 1. Comparative Diagram of Education Levels between Provinces on Java Island

Source: Badan Pusat Statistik

The picture above explains that the level of education in West Java is superior to that in East Java. As strengthened in the Constitution Article 31 paragraph 4 of the 4th Amendment which contains where the State prioritizes the education budget of at least 20% of the State Budget (APBN) and the Regional Revenue and Expenditure Budget (APBD) to meet the needs of the implementation of National education.

By means of decentralization, the Indonesian government intends to improve the efficiency of its expenditure by paying attention to the planning and provision of public services by taking into account the needs (demands), budgets spent, and results achieved in an area aimed at regional and national socio-economic development. The effort in question is to pay attention to the equitable distribution of education by means of a zoning system, this aims to increase access to quality education without discrimination, in addition to realizing the acceleration of

equitable distribution of education quality in Indonesia.

With the existence of regional autonomy policies implemented by fiscal decentralization. Then the policy will give greater authority to local governments. This fiscal decentralization is designed with the assumption that local governments are more aware of the needs and conditions of their respective regions. Thus, it is hoped that fiscal decentralization will be able to increase the efficiency of government spending (Pertiwi, 2007).

It can be concluded that the purpose of implementing a decentralization policy, one of which is to increase the efficiency of public service costs (government spending), then the important point is that the efficiency of government spending is the subject of discussion that should get more attention in the current era of regional autonomy. Moreover, in public spending in sectors related to public welfare such as education.

Based on the description above, the author is interested in further examining the role of district/city governments in East Java Province through expenditure policies in the education sector, as well as measuring the efficiency of government performance, especially in the expenditure of district/city governments in East Java Province. Therefore, the author is interested in conducting a study entitled "Efficiency of Government

Expenditure in the Education Sector in East Java Province in 2015-2021"

THEORETICAL BACKGROUND

Government Spending

According to Law No. 27 of 2014, government expenditure or state expenditure is an obligation of the central government which is recognized as a reduction in the value of net worth consisting of central government expenditure and transfers to regions and village funds. Government expenditure or called government expenditure is the use of goods and services expressed in the form of money. The main role of the state is to prosper every member of its society. Therefore, the government always strives to meet the wants and needs of its people by providing a variety of diverse goods and services, including money. This use of money is what is meant as government expenditure (Prasetya, 2012).

Government spending is a picture of government policy. Meanwhile, public expenditure is a cost incurred by the central and local governments that are allocated to the public sector such as education.

Government spending in macro principles there are several models outlined by economic experts that can be classified into several groups namely, the Development Model of Government Expenditure Development, Adolf Wagner's Theory, and Peacock and Wiseman's Theory. Meanwhile,

the analysis of factors that contribute to the demand for public goods and the factors affecting their availability is the goal of the micro-theory of the growth of government spending. The amount of public goods that will be provided through the budget is determined by the relationship between supply and demand. The demand for other goods will then result from the number of public goods offered. Regional Expenditure Regional expenditure is defined as all regional expenditures according to Law Number 33 of 2004 as a decrease in the value of net worth during the applicable fiscal year. Government spending is divided into two categories, namely according to organization and nature. Prasetya (2012) provides an opinion if according to the organization, state expenditures are divided into 3, namely, central government expenditures, provincial government expenditures, and regency/city government expenditures. Meanwhile, according to the category of state spending, it is divided into 5, namely, investment expenditure, employment creation expenditure, people's welfare expenditure, future savings expenditure, and unproductive expenditure.

According to Permendagri No. 13 of 2006 regarding regional financial management is grouped into 2 groups, namely: direct expenditure which means expenditure whose budget is directly related to the programs and activities carried out such as employee

expenditure, capital expenditure, and expenditure on goods and services. Meanwhile, indirect expenditures are expenses that are not related to government programs and activities, such as employee costs (salaries and benefits, representation money), subsidy costs, interest costs, grant fees, social assistance costs, financial assistance costs, profit-sharing costs, and unexpected costs.

Efficiency

According to Peritiwi (2007) efficiency is defined as the ratio of input to output, or the amount of output produced for each input unit. Efficiency is often assessed by comparing actual costs to benchmarks, where actual costs are defined as costs that exceed output. Efficiency relates to the efficient use of resources to achieve goals. An activity is considered efficient if it produces the same results as other activities by using fewer resources.

The definition given above efficiency is the capacity to maximize the output by changing the input so that there is no improvement in achieving the desired goal. Efficiency results from three things, whether the same input produces a larger output, whether a smaller input produces the same output, and whether a larger input produces a larger output.

Efficiency is cited as a factor that economists often use to evaluate government actions (Suparmoko, 2003). Economic efficiency

means that government policy is better and, as far as possible, takes into account how the economy affects the well-being of the people. This efficiency can be emphasized carefully, especially if it becomes impossible to distinguish the allocation of resources in an economy that benefits the prosperity of one party at the expense of the other. In general, there are two types of efficiency measurement, namely, technical efficiency and allocative efficiency.

Efficiency measurement using the Data Envelopment Analysis (DEA) method, efficiency provided by the government, non-profit organizations, and SOEs. The DEA estimates the relative efficiency of an organization that is in the same group. This study aims to determine the level of efficiency of government spending in the education sector in East Java, the DEA technique is the model used, and the calculation is carried out based on the number of inputs that can be reduced by a certain level of output with a constant return to scale. Two variables, the input variable, and the output variable are used to calculate the efficiency value. A comparison of the two factors will result in an efficiency score for each field. The result of the comparison of the two variables will be divided into 2 conditions, namely efficient and inefficient. Then if there are inefficient conditions, further analysis will be carried out to achieve efficiency.

RESEARCH METHOD

Type of Research

The approach used in this study is a quantitative approach, namely calculations accompanied by interpretation of the results of the analysis. The method used is Data Envelopment Analysis (DEA), which uses a linear program of non-parametric approach that aims to calculate and evaluate efficiency values.

Time and Place of Research

During the research period that lasted from 2015 to 2021, this research was conducted only in 5 regencies and cities in East Java Province. The data used is secondary data taken from the website of the Central Statistics Agency (BPS) of East Java, the Directorate General of Financial Balance (DJPK), and the results of the publication of education indicator data.

Subject of Research

This study samples were taken using purposive sampling techniques, namely, techniques taken with certain considerations. Education spending in East Java is the input data from this study, and the output variables are the average length of schooling, the expectation of school length, the number of schools, and the number of teachers. During the period of the study that lasted from 2015 to 2021.

The sampling technique is sorted based on the top five amounts of education

expenditure used in regencies/cities in East Java. The reason the researchers took a number of five District/City samples was because they considered that about 25% were already representative of the existing population. In addition, the reason is based on the value of education spending so that there is no significant difference between the inputs used because it will affect the efficiency value and efficiency value which will later be compared between districts/cities.

The following regencies/cities were selected by the researcher to be used as samples that were in accordance with the criteria, namely the City of Surabaya, Sidoarjo Regency, Kediri Regency, Malang Regency, and Pasuruan Regency.

Data Collection Techniques

The documentation method and literature study used in this study are in the form of annual data and records regarding the recapture of the Budget and Regional Expenditure Revenue of the Regency/City education sector in East Java for the 2015-2021 period obtained from the Directorate General of Financial Balance (DJPK) and the Central Statistics Agency (BPS) as well as books and literature, both from research journals, papers and so on related to the title of this research.

Data Analysis Technique

By using Data Envelopment Analysis (DEA) analysis. Constant Return to Scale (CRS) is a mathematical model used in this study that refers to the basic model developed by Charnes, Cooper, and Rhodes (1978). The calculations performed by the DEA use two approaches: a graphical approach and a linear programming approach. The linear programming method used in this study was using Banxia's Frontier Analyst software.

RESULTS AND DISCUSSION

Efficiency Calculation Results Using the DEA Method

The results of the calculation of the efficiency value of educational expenditure in this study were obtained using the Data Envelopment Analysis (DEA) method which is input-oriented (input oriented) using the help of Banxia Frontier Analyst Software. From 2015 to 2021, the DEA will generate efficiency values between units of economic activity, in this example five regencies/cities in East Java. In DEA analysis, efficiency is measured by comparing outputs and inputs. The efficiency of the DEA method is relatively efficient. Regencies/Cities that have the best efficiency value of 100% can be used as a reference for other regencies/cities.

Table 1. The Value of Education Spending Efficiency in Five Regencies/Cities in East Java in 2015-2021 (%)

Regency/City	2015	2016	2017	2018	2019	2020	2021
Kediri Regency	98,20	100,00	100,00	99,50	100,00	100,00	100,00
Malang Regency	100,00	100,00	100,00	100,00	100,00	100,00	100,00
Pasuruan Regency	100,00	79,70	100,00	100,00	100,00	100,00	100,00
Sidoarjo Regency	100,00	78,40	96,90	100,00	93,40	100,00	94,20
Surabaya City	90,50	72,70	83,00	84,10	93,10	94,90	81,00

Source: Data Processing Results, 2022

Based on the table above, there is one district with the highest level of efficiency in 2015, namely Malang Regency, Pasuruan Regency, and Sidoarjo Regency with an efficiency value of 100%, this shows that the allocation of education expenditure in these areas has been allocated properly according to the target. Furthermore, the regency/city can be a comparison to other regions. In addition, there are two regions whose efficiency value is close to 100%, namely Kediri Regency with a value of 98.20%, and the City of Surabaya with a value of 90.50%. Unlike 2015 in 2016, there were only two regions that had a 100% efficiency value, namely Kediri Regency and Malang Regency. And there are three areas with values that can be said to be less efficient, namely Pasuruan Regency, Sidoarjo Regency, and Surabaya City. This indicates that 2015 was better than 2016 because some regencies/cities experienced an efficient value decline.

Similar to 2016, three regions in 2017, namely Kediri Regency, Malang Regency, and Pasuruan Regency had an efficiency value of 100%. This year, Pasuruan Regency experienced a fairly high increase of 20.3%.

Then in 2018, three regencies achieved efficiency with a value of 100%, namely Malang Regency, Pasuruan Regency, and Sidoarjo Regency. Then the lowest efficiency value in 2018 was in the city of Surabaya which has an efficiency level of 84.10%. In 2019 there are 3 regencies whose efficiency level reaches 100%, namely Kediri Regency, Malang Regency, and Pasuruan Regency. However, Surabaya experienced a considerable increase compared to the previous year, with an efficiency figure close to 93.10%.

In 2020, the four regencies have achieved efficiency with a value of 100%, namely Kediri Regency, Malang Regency, Pasuruan Regency, and Sidoarjo Regency, while the City of Surabaya is close to the efficient value of 94.90%. In 2021 of the five regencies/cities in East Java, only Surabaya City has the lowest level of efficiency and can be said to be less efficient where in 2020 it was 94.40% then the value decreased in 2021 to 81.00%. Meanwhile, Kediri Regency, Malang Regency, and Pasuruan Regency have an efficiency value of 100% and Sidoarjo Regency has a value close to the efficiency of 94.20%. So it can be said that government spending in the education

sector in that year is still not allocated properly.

In general, in the seven-year period, several regencies/cities are able to maintain their efficiency values to remain stable, namely Kediri Regency and Malang Regency, even though Kediri Regency has decreased twice, but the efficiency value obtained has never stayed away from 100%. There are many districts that have experienced erratic growth and decline, including Pasuruan Regency, Sidoarjo Regency, and Surabaya City.

Based on the results of calculating the efficiency value obtained through the DEA method, it is known that out of the five regencies/cities observed for seven years, there are still some areas that have not reached the 100% efficiency value. The efficiency values in each region are different from each other. There are areas where the efficiency value is stable, there are areas where the efficiency value has increased, and there are also areas where the efficiency value has decreased, and there are also areas where

the efficiency value has increased and then decreased and vice versa.

Based on the results of the calculation of efficiency values using the DEA method, efficient areas and inefficient areas have been known. From 2015-2021 in the education sector, there are still more inefficient areas than those that are already efficient. Therefore, the DEA can provide information about the efficiency value and the state of the variables that need to be improved (potential improvement) to get a 100% efficiency value. The improvements that need to be made are expressed in percentage terms based on the potential improvements that need to be improved.

These inefficient areas are the result of inputs and outputs being collected and used inefficiently. So there needs to be improvement (potential improvement) in both input and output, either by reducing input or increasing output. Here are five districts and cities in East Java with a level of improvement (potential improvement) in the education sector in 2015-2021.

Table 2. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2015 (%)

Regency/City	Education Spending	Average Length of Schooling	Expectation of School Length	Number of Schools	Number of Teachers
Kediri Regency	-1	0	0	5	5
Malang Regency	0	0	0	0	0
Pasuruan Regency	0	0	0	0	0
Sidoarjo Regency	0	0	0	0	0
Surabaya City	-9	0	35	58	0

Source: 2022 Data Processing Results

There are three areas whose potential improvement is worth zero, namely Malang Regency, Pasuruan Regency, and Sidoarjo Regency. Then it can be seen that the three regions have been able to say that their education expenditure can be said to be

efficient, so there is no need to make any more improvements. The three districts have utilized and allocated education spending appropriately. So the three districts are a comparison for other Kabuapaten/Cities.

Table 3. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2016 (%)

Regency/City	Education Spending	Average Length of Schooling	Expectation of School Length	Number of Schools	Number of Teachers
Kediri Regency	0	0	0	6	5
Malang Regency	0	0	0	0	0
Pasuruan Regency	-20	7	0	0	12
Sidoarjo Regency	-21	0	19	35	5
Surabaya City	-27	59	96	36	0

Source: 2022 Data Processing Results

The city of Surabaya is quite large in need of improvement in the old school expectations by 96% by increasing the implementation of 12-year compulsory education. To be efficient, the City of Surabaya needs to increase the average length of schooling by 59% by increasing the participation of quality basic education level schools, and increasing the number of schools by 36% because there are still many facilities and infrastructure that are not representative, as well as reducing education spending by 27% to minimize education expenditures. For Pasuruan

District to be efficient, it is necessary to reduce education spending by 20% and increase the average length of schooling and the number of teachers by 7% and 12%, respectively. Meanwhile, Sidoarjo Regency needs to reduce education spending by 21% and increase the number of old-school expectations, the number of schools, and the number of teachers by 19%, 35%, and 5%, respectively. Then for Kediri Regency, it is enough to increase the number of schools by 6% and the number of teachers by 5%.

Table 4. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2017 (%)

Regency/City	Education Spending	Average Length of Schooling	Expectation of School Length	Number of Schools	Number of Teachers
Kediri Regency	0	0	0	0	0
Malang Regency	0	0	0	0	0
Pasuruan Regency	0	0	0	0	0
Sidoarjo Regency	-3	0	22	47	5
Surabaya City	-17	0	27	52	0

Source: 2022 Data Processing Results

Of the five regencies/cities, only two districts/cities need repairs. For Sidoarjo District, it is necessary to reduce the input variable, namely education expenditure by 3% and increase the number of old school expectations by 22%, then increase the number of schools and the number of teachers by 47% and 5%, respectively. Furthermore, the city of Surabaya needs to reduce its education expenditure by 17% and

increase the expectations of old schools and the number of schools by 27% and 52%, respectively. For the two districts/cities, it is expected to reduce education spending in order to reduce the occurrence of waste which will also have an impact on the output variables such as the number of old school expectations, the number of schools, and the number of teachers.

Table 5. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2018 (%)

Regency/City	Education Spending	Average Length Of Schooling	Expectation Of School Length	Number Of Schools	Number Of Teachers
Kediri Regency	0	0	0	10	15
Malang Regency	0	0	0	0	0
Pasuruan Regency	0	0	0	0	0
Sidoarjo Regency	0	0	0	0	5
Surabaya City	-15	0	21	70	0

Source: 2022 Data Processing Results

The improvement is quite high in the city of Surabaya by increasing the number of schools by 70% because facilities in the field of education are very important and affect learning activities. Increase the number of old school expectations by 20% by providing understanding to the community to reduce the number of out-of-school children, as well

as reducing education spending by 15%, namely by allocating spending appropriately. Next, improvements in Kediri Regency by increasing the number of schools by 10% and increasing the number of teachers by 15%. Adding quality classrooms and education staff so that the learning process runs smoothly.

Table 6. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2019 (%)

Regency/City	Education Spending	Average Length of Schooling	Expectation of School Length	Number of Schools	Number of Teachers
Kediri Regency	0	0	0	0	0
Malang Regency	0	0	0	0	0
Pasuruan Regency	0	0	0	0	0
Sidoarjo Regency	-6	0	15	68	0
Surabaya City	-6	1	30	92	0

Source: 2022 Data Processing Results

In 2019 the city of Surabaya needs considerable improvement, namely by increasing the number of schools by 92%, increasing the average length of schooling and the old school expectation rate by 1% and 30%, and reducing education spending by 6%.

In addition, Sidoarjo Regency needs to improve also by reducing education spending by 6%, then increasing the number of old school expectations by 15%, and increasing the number of schools by 68%.

Table 6. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2020 (%)

Regency/City	Education Spending	Average Length of Schooling	Expectation of School Length	Number of Schools	Number of Teachers
Kediri Regency	0	0	0	0	0
Malang Regency	0	0	0	0	0
Pasuruan Regency	0	0	0	0	0
Sidoarjo Regency	0	0	0	0	0
Surabaya City	-5	0	22	75	0

Source: 2022 Data Processing Results

The improvements that need to be made are by reducing education spending by 5% by minimizing employee spending, as well as increasing the number of old school expectations by 22% by improving the quality of education so that there are no out-of-

school children and the last is by increasing the number of schools by 75% to increase comfort in the learning system. Meanwhile, the other four districts are already in efficient value.

Table 6. Potential improvement of the Education sector of 5 Regencies/Cities in East Java in 2021 (%)

Regency/City	Education Spending	Average Length of Schooling	Expectation of School Length	Number of Schools	Number of Teachers
Kediri Regency	0	0	0	0	0
Malang Regency	0	0	0	0	0
Pasuruan Regency	0	0	0	0	0
Sidoarjo Regency	-5	0	20	43	0
Surabaya City	-18	0	25	78	0

Source: 2022 Data Processing Results

Just like in previous years, Sidoarjo Regency and Surabaya City have reduced education spending so that there is no waste in an inappropriate shopping system, in addition to that, there is also a need for an increase in the number of old-school expectations by providing socialization of interest in learning

and learning for 12 years, as well as increasing the number of schools to provide good and comfortable facilities in the learning process so that the learning system runs well and smoothly.

In the education sector, unnecessary improvements are made in almost all regions,

namely the number of teachers. This means that the number of teachers does not need to be added anymore, although in some districts/cities it is necessary to add the number of teachers but it is only a small number. For the number of schools, some districts still need an increase in the number of schools, and the improvement that is still needed is to reduce the input variable, namely education spending. Then for the variable output of the average length of schooling, there needs to be another improvement by increasing the average number of school lengths, the most effective way to increase the average number of school length

According to the Minister of Education and Culture Mohammad Nuh accessed from the Kompas Tahun website (2011), namely by reducing the dropout rate and increasing the number of continuing numbers between levels of education, other efforts are to increase access to the quality of early childhood education (PAUD), increase the participation of quality primary education schools, increase access and quality of secondary education, increase access and competitiveness of higher education, and improving the quality of educators and education personnel. Furthermore, it is also necessary to improve the variable of old-school expectations, by increasing the number of old-school expectations. According to RW Wulandari (2018), the efforts that need to be made are by holding a

series of activities consisting of socialization of interest in learning in PAUD, socialization of 12-year compulsory education, procurement of reading gardens, and tutoring activities. This is due to the importance of advanced education for the community.

In reality, there are still many regions in Indonesia whose education budgets are still used to pay the salaries of employees or teachers. According to Mae Chu Chang (2013) The World Bank's education specialist quoted from the world bank's website mentions that the budget needed to pay teachers' salaries continues to increase sharply often with the increase in the number of teachers, this number will continue to increase even though Indonesia is the country with the lowest level of student to teacher ratio in the world. The current financing pattern does not seem to have a significant impact on improving the quality of education and access provided by local governments after the nine-year compulsory education system was implemented for underprivileged students.

CONCLUSION AND SUGGESTION

Conclusion

The level of efficiency for education in the five districts/cities varied during the research period. The highest level of efficiency is in Malang Regency. While the lowest efficiency value is in the city of Surabaya. An increase in the amount of

expenditure budget is not necessarily followed by an increase in performance in the education sector, this is like the achievement of the efficiency value of the city of Surabaya is quite poor and not once able to reach a value of 100% during the seven research periods. Then followed by Sidoarjo Regency which still experienced a fairly drastic decline of 78.40% in 2016 so it can be said to be inefficient and uncomfortable as well as an unstable decrease in efficiency value. Furthermore, for Pasuruan Regency, only in 2016, which experienced inefficiency with a fairly drastic decrease of 79.70%. This shows that the City of Surabaya, Sidoarjo Regency, and Pasuruan Regency have inefficiencies in the field of education and shows that there is a waste in the use of resources due to weak management systems.

Meanwhile, there were differences in the level of potential improvement in each year in each region. There are still some areas that need to be improved in each variable. There are some regions that need to improve their input variables, and there are even regions that still need to improve one of their outputs or all their outputs, all of which depend on the conditions of each respective region.

Furthermore, based on the results of the efficiency value produced by the five districts/cities, there is a tendency that the quantity of facilities and services is not handled optimally (ruled out) because it is more concerned with improving the quality of existing facilities and services so that the expansion for equitable access to areas far from the center of government is hampered.

Suggestion

From the result of this research, we suggested that for regencies/cities that have achieved efficiency such as Malang Regency, they should continue to evaluate and supervise their spending so that there is no waste and the distribution can still be minimized. An efficient area is an area that already produces output that has been comparable to an input. So if it has produced an appropriate output, it should be further improved for the quality and facilities of the school.

Similar with For regencies/cities that are not yet efficient, the government should minimizing employee spending, the point is that the government does not use most of its spending on teachers. It is also better for local governments to increase the portion of direct spending than indirect spending. Manage planning as

carefully as possible so that there is no misuse of education expenditure funds that will harm the community, also Minimizing local spending, the intention is not to reduce development and public services, but local governments should use them as effectively as possible and prioritize urgent programs. To the extend, Allocate education spending according to predetermined needs, and it is necessary to improve or improve government performance for areas that are still inefficient in the education spending sector. This seeks to ensure that government spending can be perfectly realized.

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