ANALYSIS OF EDUCATION EXPENDITURE EFFICIENCY AND EFFECTIVENESS IN 12 CITIES IN WEST JAVA, INDONESIA

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ABSTRACT

This study analyzes the efficiency and effectiveness of education spending in 12 cities in West Java which are included in the 6 highest and lowest education expenditure areas in 2012. The analytical tool used to see efficiency is (DEA) Data Envelopment Analysis, namely frontier analysis which refers to efficiency. technically, the variables used are (education spending) as input and (number of elementary, junior high, and high school schools and the number of elementary, junior high, and high school teachers) as output. Meanwhile, to see the effectiveness of education spending is to look at the APS (School Participation Rate) as a result of education spending. These results show that only 3 regions get efficient and effective scores, namely Bandung City, Bogor Regency, and Garut City. Other regions that are not yet efficient and effective tend to experience wastage of education spending that is too high, but the output is still not optimal and the absorption of the school-age population is also still low.

Keywords: *Efficiency, Effectiveness, Education Expenditure, Number of Schools, Number of Teachers, Data Envelopment Analysis, School Participation Rate, Input, Output, Outcomes*

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A. BACKGROUND

Good economic development at this time is not only seen from economic growth that continues to increase or is of other economic nature but special attention to non-economic or social matters also needs to be increased. Education is one of the factors that can affect non-economic economic development, more precisely the development in terms of human resources. Human resource development is an investment that is "human investment", this investment will not appear in the short term or its impact on the economy cannot be seen because this activity is not in economic terms. A good economy can be seen from the high GRDP. As in West Java, it can be described in the determination of regional expenditures in each Regency and City because spending is a fulfillment of needs, economic investment and as a government goal so that it can provide high regional income due to investments made by the government through policies and regulations that apply in the West Java region. One of the policies implemented by the government is investment in education. This investment is in the form of education expenditures which can later produce outputs and outcomes that can be felt by the community.

Large education spending for the development of a large quality of education has a source of funds from government taxes collected from the community, the higher the tax imposed. The condition of regencies and cities in West Java in terms of the economy is very good. A very good economic development program contribute to tax revenue which ultimately results in an increase in spending on education spending

Education expenditures taken from the APBD have been implemented since the change in regulations from centralization to decentralization. Of course, through a very long process to produce a policy as it is today. The advantage of decentralization is that it can improve government performance as well as local government responsibilities to make it easier to supervise. In addition, decentralization also plays an important role in the delivery of basic services, the capacity of local governments to manage education spending at the primary to secondary level is very large. by 53 (World Bank, 2013). This shows that the authority for local governments in terms of decentralization is large enough so that full responsibility rests with local governments. But for now, the budget of this size is still sufficient to implement government programs that focus on primary schools to senior high schools. Because the government prioritizes the quality of education and a better level of education and is more likely to achieve the government's goals. However, currently, especially in West Java, the distribution of education spending is much higher than the national government regulation which stipulates a minimum of 20 for the education budget. Its use is also increasing. but the cost of education for some time still reflects the very expensive cost of education. The number of dropouts just because of limitations in terms of the cost of higher education makes high education spending seem meaningless.

However, the budget for this very large education expenditure cannot be said to be successful if the objectives of the policy are conformity or achieve the target, and transparency in the bureaucracy and the process of providing funds has not reached the very end. This is in accordance with the definition of economics according to Sadono Sukirno which states that " economics analyzes costs and benefits and improves the pattern of use of resources" (Laily, 2013:2). It is necessary to conduct an economic analysis that can help achieve the level of success of the policies that have been made by the Regency and City governments in East Java so that education spending which is classified as very large is useful as much as possible and can achieve the desired goals and minimize the wastage of funds because there can be no right on target. DEA analysis (Data Envelopment Analysis) becomes a tool in measuring efficiency through the Input-Output approach. The usefulness of the DEA analysis tool for research on the efficiency of education spending is to be able to find out how education spending should be used as best as possible by providing educational services in the form of the availability of the number of schools and the availability of teaching teachers to the capacity of students can be done by seeing which areas can do it most efficiently so that serve as a role model for other areas. The way this approach works is by maximizing output without adding inputs and making savings on inputs without reducing output (Hadinata and Manurung, 2008: 2). The advantages of using this analysis tool compared to other tools are data selection More flexible, which does not require the assumption of a functional relationship between Input and Output variables, can be used to assess efficiency, quality, effectiveness and their combinations, has a unit of measure for Input and Output DEA can be different and does not require an assumption of a functional form to link Input with Output and can provide efficiency ratings based on numerical data and does not use subjective opinions from someone. In addition, the number of suburban areas that are difficult to reach by the government makes many inequalities that occur in several areas in East Java. The inequality that occurs can be seen through the absorption of the population aged 7-19 years who are in school so that it can be seen which areas are able to provide excellent educational facilities so as to produce high absorption. This shows that the effectiveness of education spending is also still very low. This effectiveness analysis is very important because it will be able to describe or show that government policies have been realized to the public or not. As explained (Drucker, 2001, p.147 in Mihaiu, Opreana, and Cristescu, 2010: 5). Drucker's opinion explains that there is no efficiency without effectiveness, because it is more important to do well what has been proposed (effectiveness) than to do something well but not necessarily in accordance with what the government wants to achieve. The researchers used the ratio analysis of the school enrollment rate as a tool to see the effectiveness, ways. The work of this approach is to calculate the number of people attending school compared to the total population of school age.

B. LITERATURE REVIEW

In accordance with the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System Chapter 1 Article 1 states "Education in general is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed by himself and society. The meaning above explains that in relation to student actors following the appropriate learning process needed for themselves and when they enter the community, in order to achieve an educated society. Education in Indonesia until the 2013 academic year uses a curriculum based on the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System which contains "National education is education based on Pancasila and the 1945 Constitution of the

Republic of Indonesia which is rooted in the values of religion, Indonesian national culture and responsive to the demands of changing times." It can be concluded that education in Indonesia still upholds divine values, upholds national identity, and continues to be competitive with increasingly advanced conditions. In carrying out Law number 20 of 2003, an education system was created. components of education that are interrelated in an integrated manner to achieve national education goals. Learners are community members who try to develop their potential through learning processes that are available at certain paths, levels, and types of education. It is stated that education is interrelated in an integrated manner, which is the level of education from elementary to higher education which is carried out in stages. And on the second point, students are educated according to a harmonious process so that their potential continues to develop.

As explained by Fattah (2012) that the rationale in marketing education can be divided into two forms. First, market academics in world trade by involving institutions. Second, applying business principles in its management for restructuring educational institutions. This idea describes improvements focused on "inside-out and outside-in" as mentioned by (Buchbinder and Newson, 1990 in Fattah, 2012: 156).

State or Regional Expenditure Theory

The main function of the government is essentially to carry out the distribution function, stabilization function, and allocation function. For the central government, it is more focused on carrying out the distribution and stabilization function because it is regulating and more general in nature. local conditions, conditions and situations. According to Prawoto (2011: 54) the allocation function is a function that provides public goods or the process of resource allocation for use as private goods or public goods and the determination of the composition of public goods is applied. Implementation must be carried out properly through coordination, synchronization, and synergy at each level of government.

As explained in Musgrave and Rostow's theory of State expenditure theory "In the early stages of economic development, large state expenditures are required for government investment, mainly to provide infrastructure such as roads, health, education, etc. At the intermediate stage of economic development, investment is still needed. for economic growth, but it is hoped that private sector investment will begin to develop. In the advanced stages of economic development, government spending is still needed, especially for improving the welfare of the community, for example improving education, health, social security, etc. " (Prasetya, 2012)

Musgrave and Rostow's theory supports large government spending to be used as investments that facilitate economic activities such as infrastructure, health, education. In addition, the government also provides a market for the private sector to intervene in development in accordance with the government's objectives, but the private sector is only facilitated in terms of facilitating the policy process. The government's thinking that must remain in line is that investment through government spending is very concerned, in order to achieve people's welfare. In the development process, Musgrave believes that the ratio of total investment to national income is getting bigger but the ratio between government investment and national income is getting smaller. Rostow also argues that at this stage economic development experiences a shift in government activity from providing economic infrastructure to spending on social services such as health. Musgrave and Rostow's theory is a view that arises from observations of economic development experienced by many countries. Economic growth can occur through stages or several stages can occur simultaneously.

Government spending is very important to use to implement government policies that have a function to be implemented in society. In addition, it has been explained in wealth of nations, in an introductory book on public finance (Prawoto, 2011: 55). In functions three and four of the four functions regarding the role of government mentioned by Adam Smith, namely "forming and maintaining public service agencies in order to provide optimal benefits by setting minimum service standards as required by the public service law" and "fulfilling the required budget for carry out statutory provisions in order to carry out government duties efficiently and effectively".

The theory of Peacock and Wiseman "people have a level of tax tolerance, which is a level where people can understand the amount of tax levies needed by the government to finance government spending". In this case, the view of government spending comes from revenue taxes, so that if the government increases spending it will have an impact on increasing people paying taxes and people will not agree if taxes are raised for no apparent reason.

Regional expenditures must be based on the concept of value for money which has been explained by (Mardiasmo in Sustainable, 2013), namely:

A. Economy

Is the relationship between the market (value for money) and input (Input). Economics is the practice of returning goods and services at the desired quality and at the best possible price. The definition of economy in this case should also mean careful regional expenditure and optimal use of regional finance without waste (effectively).

B. Efficiency

Efficiency is closely related to the concept of effectiveness, namely the ratio that compares the output produced to the input used. The process of operational activities can be said to be carried out efficiently if a certain performance target (Outcome) can be achieved using the lowest possible resources and costs.

C. Effectiveness

Is the relationship between the output of a responsibility center with the goals or objectives to be achieved. Effectiveness in government can be defined as the completion of activities on time and within the available budget

State Expenditure Efficiency

The analysis used in this study is the efficiency of distribution of education spending at the primary to upper secondary level in districts and cities in West Java. This analysis is used in the form of a comparison of education expenditure used in each region, but to analyze a government's performance of a social nature it will be obtained that the economic efficiency of investment is zero. Because measuring government performance will be difficult to do in the form of money as an indicator of benefits, but the achievement of policies that are more welfare/quality of the community (human resources). Not out of the government's function as a public servant in the form of social needs and economic welfare. The government needs to calculate the implementation of policies by taking into account the efficiency of the performance of education spending which will also be needed to achieve effectiveness. Performance can be defined as an adequate combination of efficiency and effectiveness. Efficiency generally refers to the minimum use of a certain number of inputs to produce a certain number of outputs (Wulansari, 2010). Certain inputs and outputs, in this case, mean that the way of managing and the targets to be achieved is as desired, a good combination to achieve efficiency is to obtain optimum results (outputs) by setting the inputs to a minimum.

Peter Drucker argues "is no efficiency without effectiveness, because it is more important to do well what you have proposed (the effectiveness) than do well something else that was not necessarily concerned" (Drucker, 2001, p.147 in Mihaiu, Opreana, and Cristescu, 2010: 5). The opinion explains that there is no efficiency without effectiveness, because it is more important to do well what has been proposed (effectiveness) than to do something well but not necessarily in accordance with what the government wants to achieve.

The basis of efficiency is the ratio/comparison of Output to Input. Ways to increase efficiency include (Yasar A. Ozcan, 2008 in Wulansari, 2010):

a. Increase Output,

b. Reduce Inputs,

c. Or if both Output and Input are increased, then the increment rate for Output must be greater than the increment rate for Input or,

d. If both Output and Input are decreased, the rate of decline for the Output must be lower than the rate of decline for the Input.

The above definition explains that to achieve the target must be adjusted to the available resources. Efficiency used in an economic system will be able to produce more output by adjusting the input so that there is no addition. In economics, market activities are generally considered to be more efficient than other activities, although on the basis of providing welfare. This assumption will apply only if the market occurs in perfect equilibrium. Meanwhile, in the imperfect market, activities that only care about welfare through the provision of goods can be said to be efficient. Efficiency there are 3 concepts proposed by (Ramens Bhat in wulansari, 2010), these three three concepts are technical efficiency, allocative efficiency, and cost efficiency. However, the analysis of this research is more focused on technical efficiency. (Ramens Bhat in Wulansari, 2010) The definition of technical efficiency is efficiency related to the use of labor, capital, and machines as inputs to produce maximum output. By applying the same technology to all units, it is hoped that there will be no wasted input in producing a certain quantity of output. An organization that operates better than all the other organizations sampled is therefore technically efficient.

Microeconomics in assessing the economic system can be seen through efficiency. In achieving efficiency, we must use the available resources in order to provide maximum welfare. This general welfare is used as a concept in the form of allocation efficiency. This allocation efficiency was first developed by Italian economist, Vilfredo Pareto , in the nineteenth century. So this efficiency is often called Pareto efficiency. (Case & Fair, 2006: 302) The definition of Pareto efficiency is a condition where it is impossible for changes to occur that will make some members of society more fortunate, without making other members of society feel more disadvantaged. It is the task of economic policy makers to make the economy more efficient for all people. The microeconomic point of view aims to make policies to increase economic efficiency and reduce market imbalances or so-called economic distortion. Although there is no theory that explained that by reducing market distortions there will be an increase in economic efficiency. Furthermore, the second is based on the argument which states that if there are some market distortions, it is unavoidable that only one sector will move towards greater perfection in the market, there are other sectors that can reduce efficiency. Below is the efficiency formula

$$efisiensi = \frac{output}{input}$$

Information from the formula above, if the result is equal to one or more, it can be said to be efficient and the result is below one, it can be said to be inefficient.

Effectiveness in Public Expenditure

Effectiveness is the right measure in seeing the benefits enjoyed by the community in accordance with the inputs issued by the government. However, in terms of effectiveness, the government is required to do something right. If efficiency looks at the relationship between Inputs and Outputs, then effectiveness looks at the relationship between Inputs and goals/targets/impacts. How to find out the effectiveness of the bias through general government goals/fiscal policies such as welfare (economic growth), social justice (equity), stabilization and others, or more specific sectoral goals such as quality of public health, quantity and quality of public services, condition of infrastructure , health standards, and others.

Understanding effectiveness in general shows how far the achievement of a predetermined goal. Effectiveness can also be interpreted as achieving goals correctly or choosing the right goals from a series of alternatives or choices of ways and determining choices from several other options. Effectiveness can also be interpreted as a measurement of success in achieving predetermined goals.

C. Methodology

This study uses a non-parametric quantitative approach in the form of linear programming. Because the data is collected in the form of numbers to calculate the amount of each variable used. The quantitative approach in this research lies in the Input with Output approach. The units of variables used are not the same for the input variables, the units of calculation using the amount of the currency rupiah and the output variables using the units of calculating quantities. In addition, the researcher also uses the ratio used to see the effectiveness through the output of the input variable. The unit of account used is the percentage.

Researchers use this approach because researchers want to find out how efficient education spending is on the number of teachers and educational facilities in the 12 cities in West Java studied. This variable uses the measurement or DEA test equation because to see the efficiency of government spending in the form of education expenditure allocation as input to output in the form of Output. So the researchers chose to use this approach as material for analyzing.

The researcher also looks at the effectiveness and accuracy of the budget implemented through government spending in 12 regions in East Java, so the researcher strengthens his analysis using the school participation rate seen in 2012 to see the absorption capacity of the school-age population who attend school. Descriptive quantitative is this type of research because after doing research by collecting data and subsequent calculations obtained results. With these results the researcher combines reality and theory by describing the results, so that the gap that occurs between theory and reality is obtained.

DEA Test

Research on education spending to see the efficiency of the input and output that has been achieved by the government, the researcher uses the "data envelopment analysis" method. This method is linear programming used to optimize mathematical models by measuring the relative efficiency by producing a single value of efficiency for each observation. This value can be used to measure technical efficiency, efficiency scale, and allocative efficiency. DEA has a function to draw efficiency limits representing the best Output and Input. The method used is to compare an organization with similar virtual organizations. DEA is a relatively easy mathematical model where the various software packages available are able to measure efficiency relatively easily.

In non-parametric, what is done is to construct a production possibility set from the Input and Output units to be observed. This production possibility set is created so that it contains all possible Input-Output relationships in principle, including the units being assessed. In applying the DEA approach model, there are underlying assumptions (Ramanathan, 2003 in Wulansari 2010), namely:

a. DMU must be homogeneous units, that is, have the same function and purpose.

b. The sum of the DMU sizes of the units examined is 2 or 3 times the sum of the inputs and outputs

Decision Making Unit (Dmu)

Decision making unit is one or a group of companies or organizations that are involved in making and responsible for an important decision on various objectives and risks in carrying out the same activity. Primarily decisions about doing something. In conducting research, the focus is usually on the number of decision phases and time. However, it is also necessary to focus on routine activities such as leveraging decision making in the organization. In conducting the selection of DMU there are several criteria that must be the same, such as the size of the company / organization and the skills of personality and staff members, the type of product / service needed, the type of organization, the stages of the different activity processes, the duration of the relationship between the organization and the activities carried out. In the DEA analysis the efficiency of the DMU is determined by using the ratio of the total weight of the Output variable to the weighted number of the Input variables. 255

DEA CCR (Charnes-Cooper-Rhodes) Models

The first CCR model was discovered by Charnes, Cooper and Rhodes in 1978. This model introduces an efficiency measure for each decision making unit (DMU) which is the maximum ratio between the weighted Output and the weighted Input. DMU is the object under study. Each weight value used in the ratio is determined with the limitation that the same ratio for each DMU must have a value less than or equal to one. Thus, it will reduce multiple Inputs and multiple Outputs into one "virtual" Input and "virtual" Output without the need to pre-determine the weight value. Therefore, the efficiency measure is a function of the weight value of the combination of virtual Input and virtual Output. The DMU efficiency measure can be calculated by solving the following mathematical programming problems:

$$\max \theta_k = \frac{\sum_{r=1}^{t} u_r y_{rk}}{\sum_{i=1}^{m} v_i x_{ik}}$$

Where

u_r = weight from Output to –r

v_i = weight of i-th Input

y_{rk}= value of the r-th Output in the –kth production unit

x_{ik} = value of *Input* –Ith on production unit kth

θ_k =Output and Input efficiency values of the k-th production unit

k = object under study

The following equation on efficiency (Input-Output):

$$\max \theta_k = \frac{jumlah\ SDu_1 + jumlah\ SMPu_2 + jumlah\ SMAu_3 + guru\ SDu_4 + guru\ SMPu_5 + guru\ SMAu_6}{belanja\ pendidikan\ v_1}$$

Potential Improvement Method

The potential improvement method is used to assist DMU in increasing efficiency with optimal steps towards the efficiency frontier. The way the potential improvement works is by making one

DMU a benchmark that is considered the most efficient so that other DMUs that are not yet efficient adjust through an increase in output or a reduction in input.

School Enrollment Ratio

The school enrollment rate is a measure of the education system's absorption of the school-age population. This figure takes into account changes in the population, especially young people. Measures that are widely used in the education sector, such as growth in the number of students, show a change in the number of students who can be accommodated at each school level. Thus, an increase in the percentage of students cannot be interpreted as an increase in school participation. This increase can also be influenced by the increasing number of school-age population which is not matched by the addition of school infrastructure and increased access to school entry so that school participation should not change or even get lower.

How to calculate the school participation rate according to BPS JABAR is

$$APS_h^t = \frac{E_{h,a}^t}{P_{h,a}^t} \, x \, 1000$$

h = Education level

a = Age Group

t = Year

ET = Number of student age group a study in education level h at year t.

Pt = Number of population of age group a

Education Level based on School Age Group:

SD/MI= 7 -12 year

SMP / MTs = 13 – 15 year

SMA / MA = 16 – 19 year

$$\frac{jumlah\ murid\ usia\ sekolah}{jumlah\ penduduk\ usia\ sekolah} \, x \, 1000$$

For APS based on level of education:

$$APS\ 16-19 = \frac{jumlah\ murid\ usia\ 16-19\ thn}{jumlah\ murid\ usia\ 16-19\ thn} \, x \, 1000$$

$$APS\ 13-15 = \frac{jumlah\ murid\ usia\ 13-15\ thn}{jumlah\ penduduk\ usia\ 13-15\ thn} \, x \, 1000$$

$$APS\ 7-12 = \frac{jumlah\ murid\ usia\ 7-12\ thn}{jumlah\ penduduk\ usia\ 7-12\ thn} \, x \, 1000$$

Operational Definition of Research Variables

The variables used are the object of research or what is the point of attention of a study. In analyzing the efficiency level of the City government's education spending where this research is conducted, the researcher separates the variables according to their type, namely the types of Input variables and Output variables. The following is an explanation by type and details of the variables used.

1) Input Variables

In this study, researchers need Input variables as objects to be seenefficiency, which is in the form of details of education spending in 12 research areas in West Java. The researcher separates the Input variables according to the indicators of the researchers' needs. The indicators used in the Input variable are:

a. Education Expenditure (I) in 12 researched cities in West Java Province in 2012 with the calculated size of total education expenditure in rupiah. Researchers chose education spending because this variable is a variable that is directly related to education handled by local governments.

2) Output Variables

Output variable is a variable that serves to see the efficiency of the variable Inputs. Determination of this Output variable has a relationship with the Input variable because this Output comes from the available Input. so that it can see the output needed by the researcher. The indicators needed by researchers are:

a. The number of registered primary schools as a measuring tool for the use of education spending is allocated for the provision of facilities in the form of schools. The calculated measure is the total number of primary schools in 2012.

b. Number of registered junior high schools as a measure of the use of education spending allocated for the provision of facilities in the form of schools. The calculated measure is the total number of junior high schools in 2012.

c. The number of registered senior high schools as a measuring tool for the use of education spending is allocated for the provision of facilities in the form of schools. The calculation measure is the total of senior high schools in 2012.

d. The number of teaching teachers is a measure of output in elementary schools in each city and district in the province of West Java with the arithmetic measure in the form of the total number of teachers in each region in 2012.

e. The number of teaching teachers is a measure of output in junior high schools in each city and district in the province of West Java with the arithmetic measure in the form of the total number of teachers in each region in 2012.

f. The number of teaching teachers is a measure of output in high schools in each city and district in the province of West Java with the arithmetic measure in the form of the total number of teachers in each cities in 2012.

3). Outcomes Variables

Outcomes variable is a variable that serves to see the efficiency of the Output variable. Determination of this Outcomes variable has a relationship with the Output variable so that it can see the results needed by researchers. The indicators needed by researchers are:

a. Elementary school enrollment rate is a measure of outcomes in education spending research in each region in West Java with a calculated measure of the total number of students at the elementary level in 2012/2013 compared to the total population aged 7-12 years.

b. The Junior High School Participation Rate is a measure of Outcomes in the study of education spending in each cities in West Java with a calculated measure of the total number of students at the junior secondary level in 2012/2013 compared to the total population aged 13-15 years.

c.Senior High School Participation Rate is a measure of outcomes in education spending research in each region in West Java with a calculated measure of the total number of students at the upper secondary level in 2012/2013 compared to the population aged 16-19 years.

Table 1: Variables and Data Sources of Research Variables

			Operational Variable Definition	
No		**category**	**Variable**	**Source**
1			Education Expenditure Total	Each Municipal APBD Report from DJPK
2			Number of SD	BPS East Java
3		Efisiensi	Number of SMP	BPS East Java
4			Number of SMA	BPS East Java
5			SD Teacher	BPS East Java
6			SMP Teacher	BPS East Java
7			SMA Teacher	BPS East Java
8		Efektivitas	SD enrollment	BPS East Java
9			SMP enrollment	BPS East Java
10			SMA enrollment	BPS East Java
	Source : BPS			

Data Analysis Technique

In this study, the data were analyzed using the "Data Envelopment Analysis" method. The data were collected, compiled, interpreted, and analyzed so as to provide complete information for the problems encountered. Envelopment data analysis is used to calculate the efficiency of the use of education spending on each sector of the resulting output. And compare the results of the DEA by looking at the APS ratio to see the effectiveness.

The researcher also uses the comparative method. This is done to compare the existing theory with the practice found in the field and then draw conclusions. The final step used in analyzing the data is to provide suggestions from the results of the comparisons that have been made.

D. RESULTS AND DISCUSSION

In the current discussion, it is explained in more detail. Cities that have an efficient value from the calculation of Input and Output efficiency get 5 efficient regions then on the effectiveness benchmark seen from the school participation rate that gets results above 950 to 1000 then the government can be said to be effective in implementing education policies and there are only 6 regions that get effective results only up to middle school level. At the high school level, in the research area and in all areas in East Java, none of them got effective results. The highest APS achievement for the upper middle level was only 714 with the location of the area in Pasuruan City. In the efficiency analysis using the DEA approach and looking at the APS, it is found that the efficiency of Input, Output and Outcomes with the most efficient results is only 3 of the 12 regions studied.

The results of this Data Envelopment Analysis calculation from 12 cities show that those with an efficiency value of 100 do not reach half or there are still many local governments that spend on education inefficiently. Regions that get efficient results with DEA calculations are Bandung, Bogor and Garut. This is not much different from the research conducted by Karina (2007) regarding the efficiency of government spending on education and health, the results of this study indicate that local governments in East Java tend to be inefficient in spending government spending in each region and only one get efficient value. However, in the analysis of education spending in East Java, it is slightly higher, although it does not reach half of it.

This is different from the results shown by the effectiveness in 12 cities/districts. At the elementary and junior high school levels, the score is almost close to 1000 which indicates that the absorption of education at this level is very good or with indicators above 950. The highest score for the school participation rate at the elementary level is in the City of Bandung at 999. Even though the City of Bandungis on the efficiency of education spending get the worst results in managing efficiency but this city is able to encourage people aged 7-12 years to be able to get an education. The school participation rate at the junior secondary level which got the highest score reached 968, namely in the City of Bogor which also had a low efficiency score or only 58. Then the school participation rate at the upper secondary level which got the highest score was in the City of Garut. above, only get a score of 714. The highest score obtained by Garut City cannot be said to be effective because it is far from the education office indicator which sets a value above 950. In all regions the absorption of the population who attends school aged 16-19 years is not as much as the elementary and junior high school levels. This is because of the high cost of education borne by the community. Areas that are able to get effective results are the City of Bandung, Bogor and Garut.

Table 2: Efficiency and Effectivity of 12 Research Cities

no	DMU	Input	Output						Outcomes			Results	
						negeri dan swasta							
	(a)	(b)	©	(d)	€	(f)	(g)	(h)	(i)	(j)	(k)		
	City	Education Expenditure Total	Number of SD	Number of SMP	Number of SMA	SD Teacher	SMP Teacher	SMA Teacher	SD Enrollment	SMP Enrollment	SMA Enrollment	efficiency	effectivity
1	Bandung	Rp1.470.439	807	306	134	14183	10363	3340	989	954	629	efisien	efektif
2	Bogor	Rp1.050.270	1019	271	62	12336	6902	1755	987	837	449	efisien	Not efektif
3	Garuti	Rp816.842	814	159	48	7972	3184	1313	991	932	515	efisien	Not efektif
4	Tasikmalaya	Rp787.519	554	149	58	8215	4601	1805	992	963	687	efisien	efektif
5	Cianjur	Rp771.255	716	97	35	7684	2573	657	985	933	554	Not efisien	Not efektif
6	Purwakarta	Rp755.409	655	95	27	7572	2821	993	990	917	547	Not efisien	Tnot efektif
7	Cimahi	Rp254.106	71	21	13	1011	748	483	999	956	700	Not efisien	efektif
8	Padalarang	Rp197.115	119	22	11	1216	569	319	983	938	646	Not efisien	Not efektif
9	Banjar	Rp181.988	65	20	8	815	623	291	992	968	677	Not efisien	efektif
10	Bekasi	Rp151.003	62	23	9	1048	637	300	994	942	714	Not efisien	Not efektif
11	Karawang	Rp149.539	73	26	9	995	636	290	987	958	611	Not efisien	efektif
12	Subang	Rp121.970	59	17	11	698	596	447	993	957	691	efisien	efektif

In education spending, the most efficient and effective result among the research areas is the City of Bandung. The City of Bandung is the benchmark in this analysis even though when viewed from the nominal education expenditure, the City of Bandung is the least compared to 37 other regencies/cities. In addition, the City of Bandung also allocates the lowest education expenditure or only 20 of the percentage of total expenditure. This area is the area with the smallest area in West Java, but this area is able to spend education expenditure (Input) very efficiently so as to get maximum output. The effective results with the highest APS values were also obtained in this area. Bandung City obtained APS scores for elementary to upper secondary levels with the highest results, namely 993, 957, and 691, respectively. Bandung city is the most efficient and effective area, this is also supported by a development focus that lies in human resources. The city of Bandung is the smallest area in Indonesia so that there are not many natural resources, therefore the local government is further improving in the fields of health and education. (Bandung kota, 2014) in the field of education in 2007 the city government of Bandunghas set a 12-year compulsory education, and in 2009 has launched a program for the city of Bandung with an educational environment. This is also related to effectiveness, namely the school participation rate which has been considered by the Bandung city government. The special budget for education for this area is sufficient and the city government also requires school-age children to carry out education until they finish high school.

The area that gets the second efficient and effective result is Bogor. Regions that have a nominal education expenditure are 5x larger than the City of Bandung. Bogor gets efficient results because this area is able to spend education spending very efficiently. Then the results of the School Participation Figures also get results close to 1000. This shows that the Bogor government in spending education spending has been felt by the community seen from the Outcomes of this area height that is; The APS at the elementary level is 992, the APS at the junior high school level is 963 and the APS at the high school level is 687.

The results of the third efficiency and effectiveness are obtained by the City of Garut. This area becomes a benchmark for 6 other cities in determining efficiency using DEA analysis. The city of Garut which has the highest education expenditure of all regions in WestJava is also able to allocate education spending very efficiently. Data Envelopment Analysis got a result of 100. In addition, the school enrollment rate was slightly below the City of Bandung and Bogor. The elementary grade APS value was 989, the junior secondary APS value was 954, and the upper secondary APS was 629. Even though the City of Garut made it free the cost of education up to high school from 2011 but there are still many students who do not continue their education to high school level.

Cities that have efficient results in education spending on DEA calculations but are not effective in terms of school enrollment rates are 2 cities, namely Bekasi and Subang. 1000. This indicates that there are still many people aged 13-19 years who are not in school or in other words the absorption of children at this age is still said to be lacking. Whereas there should have been a regulation from the Governor of West Java number 81 of 2008 regarding the job description of the secretariat, fields, sub-sections and sections of the East Java provincial education office in chapter 2 article 8 number 1 stating that "the junior high school sector and the senior high school sector have the task of carrying out preparations for operational policies for the expansion of opportunity and equity in obtaining education, improving the quality and relevance of education as well as increasing the efficiency and effectiveness of junior high school (SMP) and senior high school (SMA) education. This means that equity should have been able to be done because the time gap between this governor's regulation and this research is four years. This regulation should have been implemented.

The first discussion of an inefficient area is Bekasi Regency. This area allocates education expenditure of 32 so that in calculations using Data Envelopment Analysis it produces a number of 100 which mean Bekasi is efficient in processing Input and output (Output). In addition, this area is also a benchmark for 4 other regions which indicates that the efficiency carried out is quite good. However, the APS results are not in accordance with the efficiency obtained with DEA calculations. School participation number achieves close results the number 1000 for elementary and junior secondary levels. These results explain that the Bekasi government is able to absorb the population aged 7-12 years to go to school. However, this region has not been able to spend on education efficiently. The efficient result in the DEA calculation is 81.5. If Bekasi City gets efficient results, what this area has to do is reduce education spending by 18 or to Rp 121,812.30. Then it is necessary to increase the number of elementary schools by 25 and the number of elementary school teachers by 16 or 1,163.83 (1,163 teachers). And junior high school teachers are 17 or 747.28 (747 teachers).

Next is the area that does not get efficient results in the calculation of Data Envelopment Analysis also cannot be said to be effective because the results on the school participation rate are very far from 1000. These inefficient areas are Subang, Purwakarta, Karawang, and Cimahi. These four regions are only able to absorb schools only up to the age of 7-12 years or the equivalent of elementary school. So it is necessary to add quite a lot, especially at the junior and senior high school levels in terms of the number of schools and teachers. This is similar to the research conducted by Widya and Salim with the title of the research, namely "allocation of the education budget in the era of regional autonomy: its implications for the management of basic education services". The results of this study indicate that the management of basic education services in the era of regional autonomy has not shown significant changes, even tends to decline. Problems in the field of education since before the implementation of regional autonomy have not shifted, namely around the problem of the lack of educational facilities and infrastructure as well as the low quality and limited management and implementation staff with unequal distribution.

The first discussion for areas that are inefficient in DEA calculations and low APS values are located in Tasikmalaya. This area is different from the City of Bekasi that has been discussed previously. So the results obtained in this area are also different from the City of Bekasi. In the calculation of Data Envelopment Analysis it shows inefficient results. However, this inefficiency is still in the yellow color which indicates it is not too wasteful even though it still cannot be said to be efficient. The number obtained in the DEA calculation is 94 which is close to the efficient value. Likewise with the school participation rate for the junior secondary level, it is still far from 1000 or 933 results. Blitar Regency needs to carry out Potential Improvements in order to achieve efficient results in Input and Output. Reductions are made on education spending by 5 or to Rp 726,400.40. Then large additions were also made to the number of schools and teachers were also needed to be able to absorb the school-age population. This addition was made to the number of junior high schools as many as 160.37 (160 schools) and high schools as many as 42.77 (42 schools). Then for junior high school teachers, the addition of 41 or 3,632.05 (3,632 teachers) and for high school teachers need to be increased by 80.62 or 1,186.66 (1,186 teachers). This very large addition was made in order to absorb more of the school-age population.

Next, discuss Cianjur. The results of the DEA calculation show 88 results or are said to be inefficient in spending on education in terms of Input and Output. Bekasi is an area that has the 6th largest nominal education expenditure in all of East Java. spending on education efficiently. The same results are also shown at low APS. So it can be said that the absorption of school-age children has not been carried out optimally. This area allocates education expenditure of 33 of the total expenditure. However, it is still wasteful in spending on education. If this area wants to be efficient and can absorb school-age children, what this area has to do is reduce education spending by 11 or to Rp 670,896.46. An addition to the number of junior and senior high schools in terms of schools and teachers also needs to be done to absorb school-age children up to high school. The additional amount for the number of junior high schools is 71.87 or 163.28 (163 schools) and junior high school teachers are 41.59 or 3,994.18 (3,994 teachers). At the high school level, 46.53 or 39.56 (39 schools) were also added and 11.90 or 1111.20 (1,111 teachers) were added for teachers.

The next inefficient area is Tasikmalaya City. The city provides 25 of the total spending on education spending. This allocation is above the regulation from the central government which recommends local governments in allocating education expenditure at least 20. The efficiency of the DEA calculation shows inefficient results because it only gets 76.5 results. The school enrollment rate that is close to 1000 is only at the SD level APS. This value is also the smallest compared to other regions, which is only 980 for SD APS. The APS for junior and senior high schools is still below 950, so it is necessary to add to the output in order to absorb more school age. The addition that is needed based on the Data Envelopment Analysis approach is the number of junior high schools with an additional percentage of 30 and for teachers of 31. Then at the basic level it is necessary to add 12 for teachers. A reduction in education spending is also made because it is still considered too wasteful in allocating it. by 23 or to Rp 150,863.4.

The last inefficiency city is Subang. This city got 77 results from the DEA calculation. Then the absorption of the school-age population also gets results that are lacking in absorption. This inefficiency in education spending causes waste which further disrupts the absorption of the school-age population in this city. The primary school enrollment rate reached 994, this indicates that the absorption of children aged 7-12 years is still very good. At the junior high school level the APS score was 942, this indicates that the absorption for 13 -15 year olds is still lacking because it is still far from 1000. Likewise, the high school APS only reached 714, although this APS result is far from the absorption of the 16-19 year old school age. however, this result is the highest compared to other areas in West Java. The waste of education spending by Cibitung lies in too much education spending, so it is necessary to reduce it by 23 or to Rp. 116,229.14. In addition, the addition of output also needs to be done to increase the absorption of school-age children. This addition was made to the number of elementary schools by 29 or to 80.32 (80 schools) then to junior high school teachers to 689.77 (689 teachers) or an addition of 8.28. This is because the city of Cibitung has a development strategy that has not fully supported education. As seen in the 3 strategies published for 2010-2015 (Cibitung kota, 2013) first, community empowerment (empowering) through the formulation of policies that lead to the expansion of employment (pro job). third, equal distribution of economic growth (growth with equity). Pasuruan does not invest in long-term education, but instead invests in short-term investments that can improve the welfare of the community quickly. This is also supported by areas that are concentrated in industrialization.

This shows that there are still many regions that are inefficient in managing education spending in 2012. The number of factors that can influence the occurrence of inefficiency so that the world of education is experiencing a setback, inequality is getting wider so that children who have the right to education are not achieved because of incapacity. There are still many abuses committed by local officials, resulting in wastage of financial spending which ultimately makes the government's goals in terms of education unattainable. The same research was conducted by Nurkolis in his research entitled "Shopping for Education Sucked for Employee Salaries" with the research locations in Purworejo and Wonosobo Regencies. The findings of this author are that the overall expenditure exceeds 20 of the APBD expenditure but if it does not include salaries then the result is only below 10. This indicates that teacher welfare may be achieved but the goal of education expenditure has not been achieved due to the small allocation given to people who have the right to If the education budget does not include spending on salaries of educators and education personnel in Cimahi, it only ranges from 3-9, while in Bekasi it ranges from 5-9. and education personnel has a downward trend. On the other hand, education expenditures, including expenditures on salaries for educators and education personnel, have tended to increase in the last four years.

E. CONCLUSION

Based on the results of the analysis of the efficiency of education expenditure in West Java involving 12 research areas. It shows that only 3 cities get efficient and effective results in spending on education. These results appear after using the Data Envelopment Analysis (DEA) method to analyze efficiency and see the participation rate schools (APS) to analyze effectiveness. The areas that get this result are the city of Bandung, Bogor and Garut.

Meanwhile, other regions tend to be inefficient and ineffective. The trend in regions that spend on education inefficiently is in regions that have a low nominal education spending. This is because the local government is still unable to allocate education spending. However, the average absorption rate for school-age children is higher than for areas with nominal higher education spending. In addition, the ability of local governments to allocate education spending efficiently and effectively should be carried out by all regions. Like the city of Subang which is the lowest city in education spending, this area is able to become a benchmark for other regions. Most local governments in the inefficient use of education spending occur in the use of education spending, but the supply of output is still very lacking.

Education spending in the 6 highest districts/cities tends to be efficient. This is because these regions can perform education spending efficiency very well. As is the case in

Surabaya where education costs are free up to high school, this situation indicates that the Surabaya government is serious about improving education even though the effectiveness of education at the high school level also gets results that are still the same as other regions. However, the regions that have the highest nominal education expenditures in the APS results show that the absorption of school-age children is still low. This is biased because the population at school age is greater so that the absorption of the school age population is also increasingly difficult. The area that has the 2nd highest education expenditure is Jember district, but the school enrollment rate at the junior and senior secondary levels is the lowest, namely 837 and 449 respectively. This indicates that the efficiency of the Cianjur district government has not been able to achieve effectiveness. which is expected.

RECOMMENDATION

Local governments in West Java in spending, especially education spending, need to do as needed and can provide tangible results to the community. The presentation of this research on spending by the government, especially education spending, uses the Data Envelopment Analysis calculation method as a tool in calculating the level of efficiency. However, the government cannot directly use this result as a reference in allocating education spending. Each region has different problems so that the handling must also be done in a complex manner. This research provides a solution in terms of inputs, outputs and outcoms seen from education spending which is still too high compared to the current output, such as the availability of schools and teachers. This seems to make education spending targeted by local governments wasteful. This waste for regions that are not yet efficient can be diverted to finance underprivileged children so that expensive education can be reduced or eliminated. This can also help increase school enrollment rates up to high school level.

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