

IMPLICATIONS OF REGIONAL SPLIT IN LOCAL GOVERNMENT EFFICIENCY: EVIDENCE FROM NORTH SUMATRA, INDONESIA

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Abstract

The purposes of this study are to measure the level of the relative efficiency of educational spending in achieving the years of schooling at local governments in North Sumatra Province and to compare the relative efficiency level of per capita educational spending between the parent local government and the local governments resulting from the splitting. The analytical method used is Data Envelopment Analysis with an output-oriented model. The approach used is a variable return to scale. In measuring efficiency, the input used is educational spending per capita, while the output used is the years of schooling. The results showed that the average level of the relative efficiency of 33 local governments in North Sumatra decreased from 2015 to 2018. In 2015, there were three relatively efficient local governments: Medan, Pematang Siantar, and Labuhan Batu. However, in 2018, only Medan is relatively efficient. The efficiency level of Labuhan Batu declined in 2018. All parent local governments and local governments resulting from the splitting experienced a decrease in inefficiency. Thus, a regional splitting has not succeeded in increasing the relative efficiency of local governments in North Sumatra. The local governments resulting from splitting do not have sufficient experience in managing budget spending in education. Meanwhile, the parent local governments still need to adapt after their loss of administrative area and reorganize the management of its government to be efficient

Keywords: *Efficiency, Per-capita Educational Spending, Years of Schooling, DEA, Local Government*

JEL Classification: H52, H75

INTRODUCTION

Municipal merging or amalgamation has been common in developed countries. The purpose of most municipal mergers in developed countries is to increase efficiency in service provision and spending. Some local governments were able to improve efficiency by merging (Reingewertz, 2012), others were unable to achieve better efficiency (Allers & Geertsema, 2016; Suzuki & Ha, 2018). Municipal splitting, on the other hand, has been pursued often in developing countries (Suzuki & Ha, 2018).

Regional splitting in Indonesia has grown rapidly since the enactment of Law No. 32 of 2004. The purpose of the regional splitting is to bring local

governments closer to their communities so that local governments can provide services and accommodate the fulfillment of people's needs better. With community needs fulfilled better, community welfare is expected to increase. Increasing community welfare becomes the goal of the local government.

Booth (2011) revealed that the regional splitting in Indonesia was a reaction to injustice and inequality of development felt by many people outside Java. People perceive that the development of the country has been focused on Java and therefore autonomy for local governments outside Java is important to develop the country equally. In the same fashion, Fitriani et al. (2005) stated that the regional splitting in Indonesia was mainly caused by the geographical isolation of the region, the political ambition of local politicians, and the potential claims of the natural resources of the regions.

In Sumatra, 8 out of 10 provinces experienced a splitting resulted in the addition of new autonomous regions, especially the addition of districts and cities. Only Bangka Belitung Province and Riau Islands Province did not experience any addition in the new local region. The issuance of a permit from the central government over the emergence of new local regions aims to improve services and the ability to meet people's needs in these new local regions. On the other hand, the parent local government is expected to maintain their performance in services and needs fulfillment of its people so that community welfare in the main district does not decrease.

Since the enactment of Law 32/2004 in Sumatra, North Sumatra Province has experienced the most additional new local governments. In this province, four districts have experienced a splitting and produced 8 new local governments, namely 1 city and 7 districts.

One indicator of community welfare is the achievement of the human quality of life that can be achieved through formal education. People who obtain higher education are considered to have a better quality of life. The government can have a significant role in developing human capital by encouraging research and human development to increase productivity (Bado et al., 2018). Investing in education can eventually improve the knowledge and expertise of workers which eventually leads to improvement in productivity level.

Therefore, the local government should be able to increase the average education of the community (average schooling years). Dufrechou (2016) utilized the schooling years as output in measuring government spending efficiency in Latin American countries. As such, years of schooling become an indicator of success for the local government's performance, especially in the education sector in Indonesia. The higher years of schooling achieved by districts/cities, the more successful the local government is in carrying out its educational function.

This success in carrying out their functions shows a high level of efficiency because it shows that local governments can manage education spending. Efficiency is an important thing that must be conducted by local governments because efficiency is one of the principles of state financial management in Indonesia.

Based on the status of regencies/cities, unsplitting or splitting (parent local government and new local governments from splitting), in North Sumatra Province in 2018 years of schooling in different regions varied. There is a parent district (South Tapanuli) with lower years of schooling than its new districts from

splitting (Padang Lawas and North Padang Lawas). Although the contrary exists in the parent district (Labuhan Batu) and its new districts from splitting (North Labuhan Batu and South Labuhan Batu).

Associated with the education sector, in the Republic of Indonesia Law Number 23 of 2014, it is stated that education becomes a compulsory affair of local governments related to basic services. So it is natural for the local government to allocate the spending for the education function efficiently to achieve high years of schooling for the people in their area. If at the beginning of the implementation of the new local government has not achieved efficiency, especially at the beginning of the enactment of the Law, then over time the 8 new local governments can increase its efficiency.

As such, it is necessary to examine the level of the relative efficiency of government spending in the education functions of district and city governments in North Sumatra Province. Besides, it is also necessary to know whether the local government resulted from the splitting can achieve a higher output in the education sector than the parent local government. Have local government resulted from splitting efficiently managed education spending? Which local government is the most relatively efficient in North Sumatra? Which is more relatively efficient, parent local government or new splitting-result government?

The objectives of this study are to measure the level of the relative efficiency of educational spending in achieving years of schooling in local governments in North Sumatra province (at the beginning of the enactment of Law Number 23/2014 (2015), as well as 2018), and to compare the relative efficiency level of educational spending between the parent local government and new governments resulted from splitting in 2015 and 2018.

Years of schooling as output in measuring government efficiency have not been thoroughly explored. One of the researchers who has examined this variable as output is Dufrechou (2016). This is surprising, as this variable is one of the components of the Human Development Index. The usage of years of schooling as an output is the contribution of this research to strengthen the knowledge about measuring government efficiency.

The effort to compare the level of the relative efficiency of the local government between the parent local government and the splitting-result local government is the contribution of this study as it can provide information on whether a regional splitting is beneficial to improve community welfare in the education sector.

The use of government purchases varies greatly between regional governments. The solution to determine the size of government spending is not yet resolved. Is government spending in a large amount better than a small amount, or vice versa? One of the ways to determine if government spending (input) has been used correctly is to measure the efficiency of the use of government spending.

The efficiency level of government spending should be maintained by local governments in Indonesia as efficiency is one of the principles in the government's financial management. This is stated in Minister of Home Affairs Regulation of Republic Indonesia Number 13 (2006) which refers to being efficient as achieving maximum output with certain input or using the lowest input to achieve certain output.

Pindyck & Rubinfeld (2013) explain that efficiency is related to the relationship between output (in the form of goods or services) produced by the input (resources) used to produce these outputs. There are two types of efficiency, namely input efficiency and output efficiency. An organization is said to be input efficient if it can produce certain output with the lowest possible input or with certain inputs capable of producing maximum output (output efficiency).

Bogetoft & Otto (2011) showed a mathematical relationship in explaining efficiency, where efficiency is the ratio of output per input. Efficiency measurements can be in the ratio of 1 output to 1 input, or the ratio of multi-output to multi-input.

For the government, expenditure is input. This input is used by the government to produce output that is useful for the people in the region, evaluate achieved outcomes and analyze the impact on the people (Simson et al., 2011). Thus, if the use of public money can produce maximum or effective output, the use of public funds is deemed efficient.

The most commonly used method for measuring efficiency is Data Envelopment Analysis (DEA). DEA is the use of linear programming methods for forming the highest limit (frontier) in a data set (Coelli et al., 2005). DEA uses the mathematical program method used to estimate the best production limits and evaluate the relative efficiency of different units.

There are several assumptions that must be met in using DEA (Bogetoft & Otto, 2011). The assumptions are as follows: first, there no wasted input or output. Second, Convexity. Third, τ -Return to scale (in which τ is constant, decreasing, or increasing return to scale). Fourth, there is addition or replication.

In DEA, the unit measured is called a Decision-Making Unit (DMU). The efficiency resulting from DEA for efficient DMUs ranges from 0-100 percent or 0-1. The ing of a DMU that has a score of less than 1 (on a scale of 0-1) is that it is considered a relatively inefficient unit compared to other units (Coelli et al., 2005).

DEA is considered capable of measuring the efficiency of government spending because DEA has several advantages (Bogetoft & Otto, 2011; Ouertani et al., 2018). Some of the advantages of the DEA are: (1) it is permissible to use input and output even though there is no functional relationship between input and output, and (2) DEA is capable of benchmarking efficient units. Measuring efficiency with DEA will reveal real peer units for every unit evaluated. Another advantage of DEA explained by Cooper et al. (2002) is DEA's ability to identify the source of inefficiency and the amount of input that should be reduced or output added to reach an efficient level. Therefore, this research uses the DEA method to measure the efficiency of education spending.

Empirical Review: Input and Output In Measuring The Efficiency Of Local Government. In measuring government efficiency, several inputs have been used in previous studies. Some studies use the percentage of total government spending on GDP (Afonso et al., 2013; Gavurova et al., 2017) or use the percentage of education spending on total spending (Chan & Karim, 2012) as input. Other proxies used as input are per capita government spending, which has been examined (Afonso & Fernandes, 2008; Dutu & Sicari, 2016; Hsu, 2014; Rayp & Van De Sijpe, 2007; Yusufany, 2015).

Besides, several studies use spending components as input, such as total direct spending (Boetti et al., 2012; Geys & Moesen, 2009; Gupta & Verhoeven, 2001; Sinimole, 2012). Other researchers also use operational spending and capital spending components input (Davis & Hayes, 1993). Meanwhile, Rambe et al. (2020) uses three types of expenditure per capita as input in measuring government efficiency: direct personnel spending, capital spending, and goods and services spending.

Various research on government spending per sector on efficiency has been conducted. Several authors examined government spending in specific sectors. Adam et al. (2011) used government spending in six sectors: education, health, economic affairs, public service, welfare, and social security. Other studies used educational spending as input in their research (Brini & Jemmali, 2016; Ouertani et al., 2018). There are also several other studies using per capita education spending as input (Dufrechou, 2016; González et al., 2010; Gupta & Verhoeven, 2001; Lavado & Domingo, 2018; Prasetyo & Zuhdi, 2013; Vierstraete, 2012).

The use of this input is considered important for Indonesia, especially Sumatra, because the population density varies in each district and city. One example of districts/cities that have large spending because of their large population is Medan. The city of Medan has greater spending than some autonomous regions in the same province because it has to take care of a larger population. The difficulty of managing state money faced by local governments with a large population is certainly greater than the difficulties of local governments with a small population. Measuring the efficiency of education spending is considered to be more objective when using per capita government spending on education.

According to Hauner & Fund (2008), measuring efficiency is achieved by comparing the actual output with the minimum output in producing the same actual outcome. As such for government, the output used does not necessarily mean direct output of government activities. The outcome of government activities can also be used as output in measuring efficiency. Therefore, the efficiency of local government spending can be inferred as a local government's effort to increase community welfare optimally through government spending.

Output used must be variables that reflect the state of community welfare. Several outputs have been examined to measure government efficiency. For the education sector, the percentage of secondary school enrollments (Adam et al., 2011; Brini & Jemmali, 2016; Rayp & Van De Sijpe, 2007), and years of schooling (Dufrechou, 2016; Rambe et al., 2020) were used as output variables.

The output of this research is years of schooling. The choice of the output is considered appropriate since the government has BOS funds (education subsidy for the students in Indonesia) which are channeled to local governments to improve public education. Formal education achieved by people reflects the government's success in providing education. As such, the year of schooling is used as output in this research.

METHOD

This research is quantitative and descriptive. To answer the first research objective, which measures the relative efficiency of education spending, it is necessary to determine the input used and the output produced by local governments. For this reason, the input is per capita spending on education in North Sumatra Province (single input). Output used is the years of schooling (single output). Input data was obtained from the Ministry of Finance, while output data was obtained from the Central Agency of Statistics of Indonesia (BPS).

The number of local governments in North Sumatra Province is 33. Thus, there are 33 DMU (decision-making units). Measurement of the relative efficiency of per capita education spending is carried out using the Data Envelopment Analysis (DEA) method. The measurement of the relative efficiency of government spending in this study uses the single output to a single input. This efficiency measurement implements the output-oriented model.

The aim of implementing an output-oriented model is to assess how the years of schooling should be able to be achieved optimally with existing education spending. As explained by Coelli et al. (2005) that for the output-oriented model, DEA identifies technical inefficiency as an increase in the proportion of output production by not changing the input level (given input). Then relationship scale between input and output is determined to be variable returns to scale (VRS).

The government spending efficiency model in this study is:

Objective function

$$Max E = \mu_1 Y + \mu_0 \dots\dots\dots (1)$$

Subject to

$$vX = 1 \dots\dots\dots (2)$$

$$\mu_1 Y - vX \leq 0 \dots\dots\dots (3)$$

$$\mu_1, v \geq 0 \dots\dots\dots (4)$$

In which Y is years of schooling (years) and X is per capita government spending on education. E explains the efficiency score, μ_1 shows weight for output Y, v is a weight for input X, and μ_0 which is cut can be positive or negative.

RESULTS AND DISCUSSION

Table 1 shows statistics of per capita government spending on education and years of schooling. For per capita government spending on education in 2015, all local governments in North Sumatra Province had expenditure in the range of IDR 13,000-679,000. The higher number of deviation standard in 2015 shows that the distribution of spending among local government is very large.

In 2018, there was a massive increase in per capita government spending on education; from all local governments having education spending below IDR 750,000 in 2015 to only 6 local governments having education spending below IDR 750,000. The range of per capita government spending on education is between IDR 400,000 and IDR 2,850,000.

Noting the increase of per capita government spending on education in general in 2015-2018, the output of the local government of North Sumatra

Province will now be explained. There is an increase in years of schooling in 2015-2018. However, this increase in output is not as large as the increase in input. With years of schooling ranging from 4.64 to 11 years in 2015, local governments with the lowest and highest years of schooling are local governments that did not experience splitting. The mean of the variable is 8.5 years, meaning that the average people over fifteen of age have not finished secondary schools (under nine years of schooling).

In 2018, the lowest output was achieved by Nias District (parent local government which experienced splitting). Nias District had the second-lowest output in 2015. Meanwhile, the highest output was achieved by Medan. South Nias managed to improve years of schooling in its region. On the contrary, Nias is slower in its efforts to increase efficiency in education. Medan remains the city with the highest years of schooling.

Table 1. Description of research input and output

Variable	2015	2018
Input (per Capita Government Spending on Education)		
< IDR 250,000	28 (84.9%)	-
IDR 251,000-500,000	1 (3%)	1 (3%)
IDR 501,000-750,000	4 (12.1%)	5 (15.2%)
IDR 751,000-Rp1,000,000	-	14 (42.4%)
IDR 1,001,000-2,000,000	-	11 (33.3%)
IDR 2,001,000-3,000,000	-	2 (6.1%)
Minimum	IDR 12,600 (Labuhan Batu)	IDR 400,000 (Medan)
Maximum	IDR 679,000 (Medan)	IDR 2,850,000 (GnSitoli)
Mean	IDR 170,000	IDR 1,075,000
Standard Deviation	IDR 175,000	IDR 500,000
Output (Years of Schooling)		
4.1-6 years	3 (9.4%)	3 (9.1%)
6.1-9 years	19 (57.6%)	13 (39.4%)
9.1-12 years	10 (30.3)	17 (51.5%)
Minimum	4.64 years (South Nias)	4.94 years (Nias)
Maximum	11 years (Medan)	11.37 years (Medan)
Mean	8.54 years	8.8 years
Standard Deviation	1.51 years	1.51 years

Source: BPS and Ministry of Finance, data processed

Local government spending efficiency in north Sumatera

After the description of the input and output, efficiency calculation is presented by the DEA method using DEAP 2.1 software. The level of efficiency with the DEA method especially with the output-oriented approach ranges from 0-1. A score of 1 shows that the local government is relatively efficient compared to others in North Sumatera Province. The results of DEA calculations in 2015 and 2018 can be seen in Table 2.

In 2015, of 33 local governments, 3 local governments are relatively efficient, with the score of efficiency equal to 1: Medan City, Labuhan Batu, and Pematang Siantar City. With an output-oriented approach, these three relatively efficient local governments can achieve years of schooling with their per capita government spending on education in comparison to other local governments in the same Province.

Of the three efficient provinces, the city of Medan is the richest local government in North Sumatra based on gross regional domestic product. The result of the study supports the work of Dufrechou (2016), who employed average schooling years as output. Dufrechou (2016) concluded that in Latin American countries, the most efficient country is the richest country that can manage their resource properly.

Table 2. The relative Efficiency of Education Spending to Local Governments in North Sumatra in 2015 and 2018

Efficiency Score	2015		2018	
	Amount (%)	Local Government	Amount (%)	Local Government
≤ 0.75	9 (27.3%)	South Nias, Nias, West Nias, North Nias, Mandailing Natal, Batu Bara, Langkat, Central Tapanuli, Serdang Bedagai	14 (42.4%)	Nias, South Nias, West Nias, North Nias, Batubara, Padang Lawas, Mandailing Natal, Central Tapanuli, North Labuhan Batu, Gunung Sitoli, Asahan, Pakpak Bharat, Serdang Bedagai, Langkat
0.76- 0.90	16 (48.5%)	Kota Gunung Sitoli, North Labuhan Batu, South Tapanuli, Asahan, Padang Lawas, Pakpak Bharat, Simalungun, South Labuhan Batu, Dairi, Samosir, Humbang Hasundutan, North Padang Lawas, Tanjung Balai, North Tapanuli, Deli Serdang, Karo.	13 (39.4%)	South Tapanuli, South Labuhan Batu, Labuhan Batu, North Padang Lawas, Dairi, Simalungun, Tanjung Balai, Humbang Hasundutan, Karo, North Tapanuli, Deli Serdang, Sibolga, Samosir
0.91–0.99	5 (15.2%)	Sibolga, Toba Samosir, Tebing Tinggi, Binjai, Padang Sidempuan.	5 (15.2%)	Tebing Tinggi, Toba Samosir, Padang Sidempuan, Binjai, Pematang Siantar
1 (efficient)	3 (9.1%)	Medan, Pematang Siantar, Labuhan Batu	1 (3%)	Medan
Minimum	0.431	South Nias	0.434	Nias
Mean	0.799		0.775	
Standard Deviation	0.139		0.135	

Source: Research results

The efficiency level in North Sumatra will be analyzed through the average efficiency level of municipal and city between the years 2015 and 2018. The efficiency level between parent local and splitting-result local government will be compared.

To see the average relative efficiency level, the mean efficiency score was used. The mean of the relative efficiency of 0.799 indicates the case the level of inefficiency education spending is 20% on average in the province. It can be said that per capita government spending on education used in local governments in the province of North Sumatra is not on target because it does not produce optimal output (years of schooling).

The low mean efficiency score indicates that most local governments had relatively low-efficiency levels in 2015. This is emphasized by the fact that the majority of local government (48.5%) had a score of efficiency of between 0.76 and 0.90. In fact, 27.3% of 33 regional governments have spending efficiency level around only 0.431-0.75. This shows a very inefficient use of education spending because it does not result in an increase in years of schooling in the region.

Compared to efficiency scores in 2015, there was a decrease in efficiency level in 2018. Of the 3 relatively efficient local governments (2015), only the city of Medan was efficient in 2018. The efficiency level of government Labuhan Batu district dropped dramatically, with an efficiency score of 0.795. This shows the inefficiency of per capita education spending by 20.5% there.

A decrease in the efficiency level of local governments also occurred in several districts/cities. From 9 local governments with a low-efficiency score (less than 0.75), in 2015, there are now 14 local governments included in this low-efficiency category. This can be seen from the mean of decreased efficiency in 2018, which became 0.775. This number describes the relative inefficiency of 23.25% on average; it can be inferred that the inefficiency of education spending in the province of North Sumatra is running rampant.

During 2015-2018, only the city of Medan was able to remain relatively efficient compared to other local governments in North Sumatra. However, there were five local governments that succeeded in raising the efficiency score in 2018: South Nias (the biggest efficiency improvement, from 0.431 to 0.457), followed by Mandailing Natal, Langkat, Simalungun and Serdang Bedagai. The remaining 27 local governments experienced a decrease in relative efficiency; some decreased dramatically, some only slightly. The local government that experienced the greatest reduction in efficiency was the Labuhan Batu.

The high number of relatively inefficient local governments in North Sumatra Province, even at a low level (less than 0.75), should be a serious concern. With their educational spending, the relatively inefficient local governments should have been able to improve years of schooling optimally. In this case, the Data Envelopment Analysis determines the relatively efficient local governments to become peers for those who are relatively inefficient. Because in 2018 there was only one relatively efficient local government (Medan), the city of Medan was the only peer for the other 32 local governments in North Sumatra Province.

To be efficient, all local governments in the province can refer to peer (Medan). Based on the input and output achieved by Medan City, Data Envelopment Analysis provides information on how much output (years of schooling) should be achieved by a relatively inefficient local government based on existing education spending. This is called the projected value. Thus, those who are relatively inefficient can find out how much additional output must be achieved (radial movement) to be relatively efficient. Radial movement information for regional governments that are relatively inefficient in 2018 is shown in Table 3 below. The higher the level of local government efficiency (which is relatively inefficient), the less radial movement for output needs to be increased.

Table 3 shows that one of the local governments with the lowest radial movement (less than 1 year) is a city government. In other words, city governments tend to be more relatively efficient than district governments in North Sumatra Province. This is because the education level of people in the city is higher than that in the district. The greater number of school buildings, teachers, and students in the city also reinforces the tendency of city governments to have higher efficiency. Therefore, a high-efficiency (but not yet efficient) local government can achieve efficiency if it can increase the years of schooling by less than 1 year from the years of schooling it currently has. A few solutions that local governments can do are to increase school assistance to poor students and improve the quality of teachers.

Table 3. Radial movement for the relatively inefficient local governments in 2018

Radial movement	Number of local governments	Relatively inefficient local governments
< 1 year	3 (9%)	Pematang Siantar, Binjai and Padang Sidempuan
1-1.99 years	6 (18.18%)	Toba Samosir, Tebing Tinggi, Deli Serdang, Sibolga, North Tapanuli, and Karo
2 – 2.99 years	15 (45.45%)	Humbang Hasundutan, Tanjung Balai, Simalungun, Dairi, Samosir, North Padang Lawas, Labuhan Batu, South Labuhan Batu, South Tapanuli, Padang Lawas, Langkat, Serdang Bedagai, Pakpak Bharat, Asahan, Gunung Sitoli
3 – 3.99 years	4 (12.12%)	North Labuhan Batu, Central Tapanuli, Mandaling Natal, Batu Bara
4 – 4.99 years	0	-
5 – 5.99 years	2 (6.06%)	North Nias and West Nias
6 – 6.99 years	2 (6.06%)	South Nias and Nias
Average	2.55 years	

Source: Research Results

The contrary occurs in local governments resulting from the splitting of Nias (North Nias and West Nias). With a very large level of inefficiency (50%), these local governments must be able to spend education funds more seriously and effectively so that the years of schooling can increase by 5-5.99 years. Even the parent local government (Nias) had to increase the average school duration by 6.48 years. This is considered very difficult to achieve in the short term.

The reason for the inefficiency of education spending in the Nias and the local government resulting from its splitting is that this region is an island separated from the mainland. Nias and its local splitting results are the poorest regions in this province. In addition, the population in this region is also smaller than in other regions. The number of school buildings is quite large for the community, but with a small population, the education spending allocated by the Nias local government and the regions resulting from its splitting appears inefficient. The number of teachers who is smaller than other regions also becomes a limitation for the government to add more classes. These conditions caused Nias local government to be relatively inefficient. To improve the efficiency of education spending going forward, local governments should create a school assistance fee program for school students (including the provision of books, stationery, and school uniforms), increase the number of teachers and increase school operational costs. Over time, it is expected that years in schooling

in this region will increase and the level of efficiency of the Nias local government will be better in the future.

Comparison of efficiency level between parent local government and local governments resulting from its splitting

Previous descriptions of the efficiency levels in 2015 and 2018 show that the changes in efficiency have occurred in both types of local governments: parent local governments and local governments resulting from splitting. Out of 33 districts/cities, there was a decrease in efficiency in 27 local governments (81.8%) in North Sumatra Province. This is concerning because the decrease in relative efficiency shows that 27 local governments are unable to obtain output (mean year of schooling) higher than the other 6 local governments.

One reason for the decline of efficiency is that the local government is not effective in allocating education spending. For example, the local government should provide tuition assistance for students who cannot afford it and improve the quality of teachers, but instead, the local government has set up additional school buildings which in fact are already sufficient to meet the needs of the number of students. Comparative analysis of per capita education spending efficiency between the parent local government and the local governments resulting from its splitting can provide information on the impact of splitting on spending efficiency for the parent local government and the local governments resulting from its splitting for 3 years (2015-2018).

As mentioned in the background that since the enactment of Law 32/2004, there have been 4 districts that have experienced splitting. From these 4 parent local governments, 8 new local governments were formed, consisting of 1 city and 7 districts. The parent local governments and the new local government resulting from splitting in North Sumatra Province are:

1. South Tapanuli, with 2 splitting-result local governments: Padang Lawas and North Padang Lawas.
2. Labuhan Batu, with 2 splitting-result local governments: South Labuhan Batu and North Labuhan Batu.
3. Asahan, with 1 splitting-result local government: Batu Bara.
4. Nias, with 3 splitting-result local government: North Nias, West Nias, and Gunung Sitoli City.

All governments in the 12 regions experienced a decrease in efficiency during 2015-2018. For this reason, it is necessary to analyze the development of education spending efficiency in the parent local government and the local governments resulting from its splitting and compare the two; this is the second objective in this study. Which local government experiences a larger decrease in efficiency: parent local government or splitting-result local government?

This sub-section discusses the development of per capita education spending (input) and the years of schooling (output) in 12 regions related to splitting, both parent local governments and local governments resulting from their splitting in 2015 and 2018 (Figure 1). Analysis of the conditions of input and output will show the causes of why one local government manages to be relatively more efficient than other local governments. Then the analysis is complemented by Figure 2 which informs the changes in efficiency level in the 12 regions.

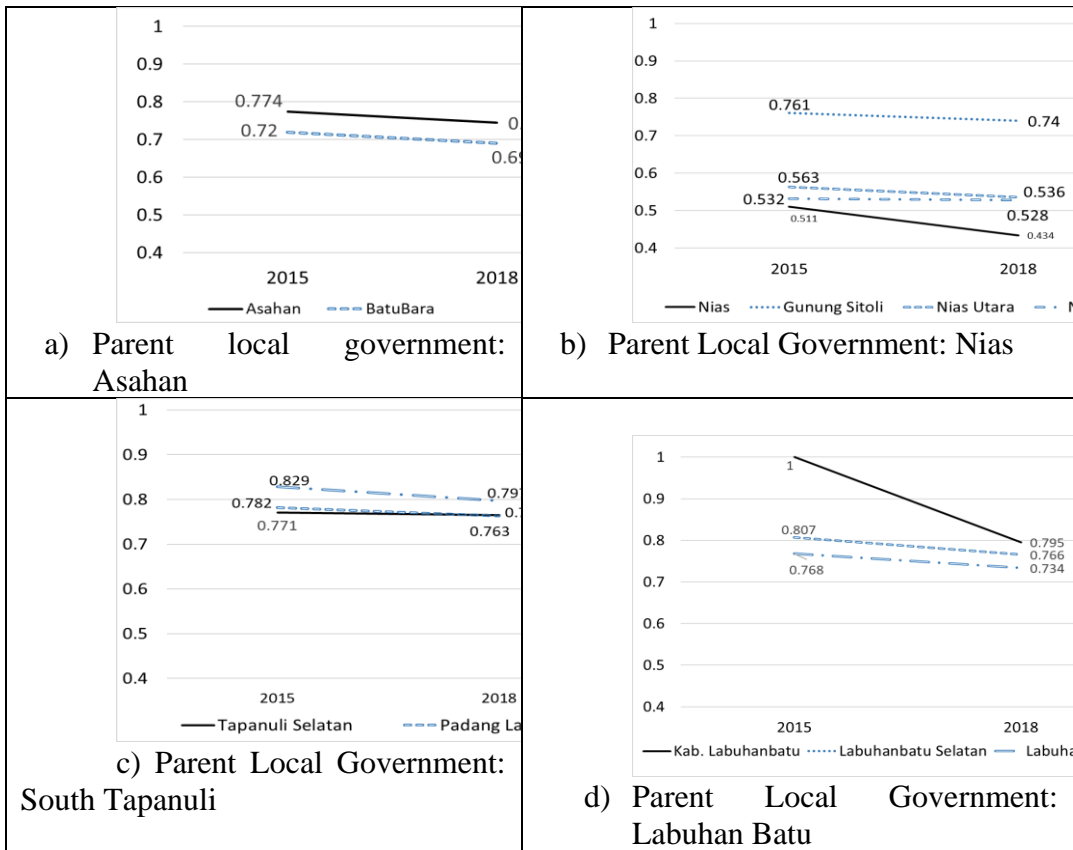


Figure 1. Changes in Efficiency of Parent Local Governments and Their Respective Splitting-Result Governments in North Sumatra Province in 2015 and 2018
Source: Research Results

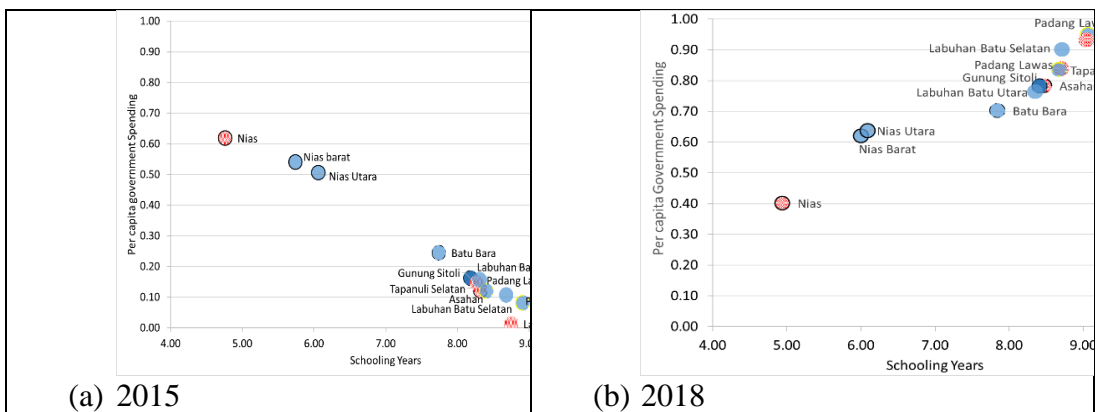


Figure 2. Scatter diagram of input and output in 12 districts (parent and splitting-result) in north Sumatra province in 2015 and 2018
Sources: BPS and Ministry of Finance. Data processed

The parent local government to be discussed first is Asahan district. Although not yet relatively efficient in 2015 and 2018, the relative efficiency level of the Asahan local government is higher than its splitting-result local government (Batu Bara). Judging from the input (Figure 2), the increase in per capita government spending on education in the Asahan local government is higher than

that of the Batubara local government. Likewise, the increase in years of schooling was also higher in Asahan Local government. In addition, judging from the student-teacher ratio between these two districts, Asahan District has a higher student-teacher ratio (secondary and high school) than Batu Bara district. Education spending is allocated to various programs such as capital spending (including school construction), employee spending (including teacher salaries), school operational costs and others. This higher-student teacher ratio shows that employee spending on the education function (teacher salary) is relatively cheaper, one of the reasons why the Asahan local government has become more efficient.

The second parent local government is Nias Regency, which splitting results into 3 new regions (2 districts and 1 new city). The case is different from Asahan district. High inefficiency occurs in Nias local government and 2 splitting-result local governments in Nias (West Nias and North Nias).

The causes of inefficiency in education spending in the 3 districts have been described previously such as high poverty rates and a small population. The construction of a school that was supposed to accommodate a large number of students was wasteful because the number of students is less than in other regions. Another reason is the low student-teacher ratio in this region, which is far from the optimal ratio. The poverty of the local community has also contributed to increasing the inefficiency of the local government because the poor have no money to send their children to school.

However, the three local governments resulting from the splitting of Nias district could be more relatively efficient than their parent local government, especially the Gunung Sitoli city government, which has a much better level of relative efficiency. This condition shows the benefits for Gunung Sitoli to stand on its own because the years of schooling in Gunung Sitoli City are much higher than Nias District.

Economic conditions in this region are not much different from the parent district (Nias), with a small population and high percentage of poor people; even the poverty rate in Gunung Sitoli is higher than Nias. With a small population, the city of Gunung Sitoli provides a school building in accordance with the needs of the region. With fewer schools, there are more high school students in Gunung Sitoli than Nias, West Nias, and North Nias districts. The ratio of student-teachers in this region is also still low, but higher than the student-teacher ratio in Nias. In addition, there are also more high school teachers there than Nias. This indicates that there are differences in the allocation of education funds between Nias and Gunung Sitoli districts, which makes the Gunung Sitoli local government relatively more efficient than Nias local government.

The next parent local government is South Tapanuli. In 2015 the level of relative efficiency of the local government was lower than its 2 splitting-result local governments. During 2015-2018 the North Padang Lawas local government (splitting from South Tapanuli) has the highest relative efficiency score among these 3 local governments. North Padang Lawas has the highest student-teacher ratio, from elementary to high school, compared to South Tapanuli and Padang Lawas. Because of this, the level of relative efficiency of the North Padang Lawas local government is higher than its parent local government.

The last one is Labuhan Batu, which also experienced splitting. Among the 4 parent local governments, the largest decrease in efficiency occurs in Labuhan Batu local government. The local government managed to be relatively efficient in 2015, but it did not maintain its efficiency. The local government had a much larger per capita education spending (from 126 thousand rupiahs per capita in 2015 to 932 thousand rupiahs per capita in 2018). Even though there is a slight increase in years of schooling in this district, this still caused Labuhan Batu district to experience a drastic decrease in efficiency, almost stepping down to the levels of its splitting-result local governments. Even so, its splitting-result local governments have not yet achieved efficiency higher than that of Labuhan Batu government.

From these findings, it can be inferred that all 12 local governments involved in splitting have not yet allocated their education spending efficiently in comparison to the local governments not involved in splitting. In general, there are several explanations for this condition.

First, the local government resulting from the expansion is still learning to manage local finances, including education funds. Local governments resulting from splitting have not had sufficient experience in implementing development in education sector. As such, they need significant time to manage education spending more efficiently. Meanwhile, the parent local governments still need to adapt after their loss of administrative area and reorganize the management of its government in order to be efficient.

The second reason is that the programs and activities created in education sector are not yet effective so that the allocation of education spending becomes less efficient. This is closely related to the planning and supervision of the implementation of these programs and activities. Local governments should create more measurable plans in education sector to increase output as well as improve supervision so that the local government can achieve their goals. In addition, several cases of corruption in North Sumatra Province are also a significant reason for the decrease in efficiency in North Sumatra Province.

CONCLUSION

Most local governments in North Sumatra experienced a decline in efficiency in education spending during 2015-2018. Only Medan was able to remain relatively efficient. In general, the 12 local governments involved in splitting have not been able to increase their efficiency. Two of the four parent local governments have lower relative efficiency levels than their respective splitting-result local governments. This implies that to this day, splitting has not helped local governments improve their efficiency in education spending. Local governments still have to learn to create educational programs and activities which are better and more effective to improve the years of schooling. An optimal increase in the years of schooling will result in relatively efficient local governments resulting from splitting.

The study is based on a limited number of local governments in Sumatra. In addition, DEA does not reveal detail information about the activities of local government spending, and therefore, an inefficient local government has to read through all activities of efficient local governments to benchmark. The study is

based on the case of regional splitting in Sumatra and therefore the generalization might be limited.

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