

# Analysis of Regional Government Expenditure Efficiency to Improve Human Development Index 2015-2020

Paidi<sup>1</sup>, Sirojuzilam<sup>2</sup>, Suardi<sup>3</sup> and Agus Purwoko<sup>4</sup>  
{paidi@usu.ac.id<sup>1</sup>}

Faculty of Regional Development, Universitas Sumatera Utara<sup>1,2,3,4</sup>

**Abstract.** Decentralization in Indonesia allows local governments to prepare regional budgets that are prepared to carry out regional government functions. One of the goals to be optimized is the effort to increase the human development index (HDI) in each province. The efforts to increase HDI are broadly reflected in three government functions, namely the education function, the health function and the economic function. This study evaluates the relevance between the realization of the use of regional expenditures and the performance of government functions in the three HDI-related functions. The research was conducted by evaluating changes in budget use and indicators of achievement of government functions from 34 provinces throughout Indonesia from 2015 to 2020. The analytical tool used was the Klassen typology. The results of the evaluation on the economic function show that there are only two provinces that are increasingly efficient in using the budget to achieve performance. A total of four provinces in the health function can improve their efficiency in the study period. Only one province is getting better from the use of the budget in the implementation of the education function.

**Keywords:** Efficiency, Economics, Health, Education, Human Development Index

## 1 Introduction

The supervisory function has long been practiced worldwide, both in the private and public Local government management, both at the provincial and district/city levels, entered a new era in line with the issuance of Law No. 32/2004 and Law No. 33/2004, which are revisions to Laws No. 22 and 25 of 1999 governing regional autonomy and fiscal decentralization. The implementation of broader government functions by local governments needs to be supported by adequate sources of financing. It is realized that the sources of revenue between one region and another are very diverse. Some regions with their own resources are able to carry out regional autonomy, but it is possible that some regions will face difficulties in carrying out decentralization tasks, given their limited resources [1]–[3].

Regional autonomy is carried out on the basis that the policy of providing public goods will be more effective and efficient if it is carried out by the level of government that is closer to the community. The impact of public goods and externalities is better managed by local governments in terms of spatial aspects because the benefits or impacts will be more felt by the community in the area [4], [5]. Local governments can achieve economies of scale in the provision of public goods because they are able to identify the needs of the community according to the aspirations of the people in the area.

The economic potential of a region (district/city) is a basic capital and is a very influential factor that is owned by a province and can be used to achieve development goals in improving the welfare of its people [6]. Economic development that occurs in an area is a collaboration between the Regional Government and its people in managing existing resources, by establishing partnerships between the Regional Government and the private sector in creating jobs and in order to stimulate economic growth in the area [7]. Regional development should be tailored at best to the priorities and potential of each area in the region. Moreover, each local government should also strive for a more balanced development within their respective regions [8].

In order to evaluate the implementation of regional development in a region, an indicator is needed that can reflect the success of regional development. The Human Development Index (HDI) is measured through the dimensions of education, health, and decent standard of living. Economic growth and human development are interrelated and contribute to each other. UNDP revealed that human development can be sustainable if it is supported by economic growth [9]. Although the two do not have an automatic relationship, but if these two things are united in a unidirectional development policy, then it will create a force that can encourage each other. So that economic growth will be very effective in improving human development. Many studies use the human development index as a measure of the success of regional development [6], [7], [10]. The human development index is an index that measures three fundamental dimensions, including education, health and welfare. The HDI figure reflects the level of human development achievement as a result of development activities carried out by a country/region. The higher the HDI value of a country/region, the better the development achievements. HDI achievements in a region are grouped into four categories, namely: 1) Low ( $HDI < 60$ ), 2) Medium ( $60 < HDI < 70$ ), 3) High ( $70 < HDI < 80$ ) and 4) Very High ( $HDI > 80$ ).

This study aimed to evaluate the efficiency of budget functions in supporting the achievement of HDI using the Klassen typology. Therefore, this efficiency is measured in three functions, namely education, health and economy which are part of the preparation of the human development index. The period taken in this study is 2016-2020.

## **2 Literature Review**

### **2.1 Human Development Index**

The concept of human development according to the United Nations Development Programme (UNDP) is defined as a process of expanding choices for the population where the elements explicitly lead to the goals to be achieved, namely to live a healthy and long life, to be educated and to enjoy a decent life. As economic development, human development requires the availability of data analysis for planning and policy making to be right on target, it also needs to be evaluated to what extent the development carried out is able to improve the quality of human life as the object of development. One of the commonly used measurement tools is the Human Development Index (HDI). Although not all aspects of human development can be measured through the calculation of the HDI given the very broad dimensions of human development, at least the HDI can describe the results of the implementation of human development according to three very basic components of human capability indicators, namely; degree of health, quality of education and access to economic resources in the form of equalization of the level of purchasing power of the community [11].

## 2.2 Klassen Typology

The Klassen typology analysis in this study is used to determine the pattern of budget utilization for the benefit of governance [12], [13]. This typology divides regions based on two main indicators that are part of this research. In this sub-chapter, the main indicator used as a comparison is the amount of budget for organizing government affairs as a vertical axis with the achievement of performance in government administration as a horizontal axis. Based on the criteria observed in this study, especially in this explanation, the classification of regions can be grouped into four regional quadrants, including:

1. Quadrant 1 (also called developed sector), where budget utilization is below average but results are above average. This region shows very good efficiency in the use of budget in achieving the performance of government administration.
2. Quadrant 2 (also called stagnant or depressed sector), with above-average budget utilization and above-average results. This region maximizes the existing budget in an effort to achieve high government performance.
3. Quadrant 3 (also called potential sector), with below-average budget use and also provides below-average government performance results. This region shows poor budget allocation so as to achieve poor results as well.
4. Quadrant 4 (also called underdeveloped sector), with above-average budget utilization but below-average government performance results. This region shows poor budget use so that the performance results achieved are below average.

<p><b>Quadrant I (K1)</b> advanced and rapidly growing sector <math>r_i \geq r</math> dan <math>y_i \geq y</math></p>	<p><b>Quadrant II (K2)</b> depressed growth sector <math>r_i &lt; r</math> dan <math>y_i \geq y</math></p>
<p><b>Quadrant III (K3)</b> potential or can still growing sector <math>r_i \geq r</math> dan <math>y_i &lt; y</math></p>	<p><b>Quadrant IV (K4)</b> Relatively underdeveloped sector <math>r_i &lt; r</math> dan <math>y_i &lt; y</math></p>

**Fig 1.** Classification of Klassen Typology

Whereas,

- $r_i$  = the level of regional budget planning for education, health or economic development  
 $r$  = average level of regional budget planning for education, health or economic development  
 $y_i$  = regional achievement for education, health or economic development  
 $y$  = average achievement for education, health or economic development

## 3 Research Method





quadrant in 2020 include West Sumatra Province, Bengkulu Province, DI Yogyakarta Province, East Kalimantan Province, North Sulawesi Province, Central Sulawesi Province, Southeast Sulawesi Province, Bali Province, Maluku Province, North Maluku Province, Riau Islands Province and North Kalimantan Province.

The typology in the second quadrant indicates an above-average budget with above-average performance results for the education function. In 2020, there were five provinces classified as part of the second quadrant typology, including Aceh Province, North Sumatra Province, Riau Province, DKI Jakarta Province and Banten Province.

The typology in the third quadrant indicates below-average budgeting in the implementation of the education function. In accordance with the below-average budget, the achievement results of the implementation are also below average. In 2020, thirteen provinces fell into this category, namely Jambi Province, South Sumatra Province, Lampung Province, West Kalimantan Province, Central Kalimantan Province, South Kalimantan Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Papua Province, Bangka Belitung Province, Gorontalo Province, West Papua Province, West Sulawesi Province.

The typology in the fourth quadrant is provinces that experience under achievement where they have allocated budgets above the average but achieved below-average performance in the education function. In 2020 there were four provinces that fell into this category, namely West Java Province, Central Java Province, East Java Province and South Sulawesi Province.

### **Comparison Result**

In the evaluation conducted, there were thirty-one provinces with unchanged performance in 2015 and re-evaluated in 2020. There is one province whose performance has increased in 2020 and leaves two provinces that have decreased performance in that year. The province that experienced an increase in performance was Central Sulawesi Province, which was previously in Quadrant 3 position, managed to improve its performance and became Quadrant 1 in 2020.

Of the thirty-one provinces that maintained their performance, eleven provinces remained in quadrant 1, namely West Sumatra Province, Bengkulu Province, Yogyakarta Province, Southeast Sulawesi Province, Bali Province, East Kalimantan Province, North Sulawesi Province, North Maluku Province, Maluku Province, North Kalimantan Province and Riau Islands Province. Four provinces that remained in quadrant 2, including Riau Province, Aceh Province, DKI Jakarta Province and North Sumatra Province, maintained their position in quadrant 2. Twelve provinces remained in quadrant 3, including Jambi Province, South Sumatra Province, Lampung Province, West Kalimantan Province, South Kalimantan Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Papua Province, Bangka Belitung Province, Gorontalo Province, West Papua Province and West Sulawesi Province. For the record, four provinces remained in quadrant 4, including West Java Province, Central Java Province, East Java Province and South Sulawesi Province. Two provinces experienced a decline in performance in the education aspect in 2020, namely Central Kalimantan Province which previously occupied Quadrant 1 but experienced a decline in performance to Quadrant 3 and Banten Province which previously occupied Quadrant 1 but experienced a decline in performance to Quadrant 2. A clearer picture of the development of the Klassen typology of the education budget function can be seen in the following figure:

**Budget Performance Efficiency of Indonesia 2015-2020**  
**Shift in Klassen Typology**

**Education Function**



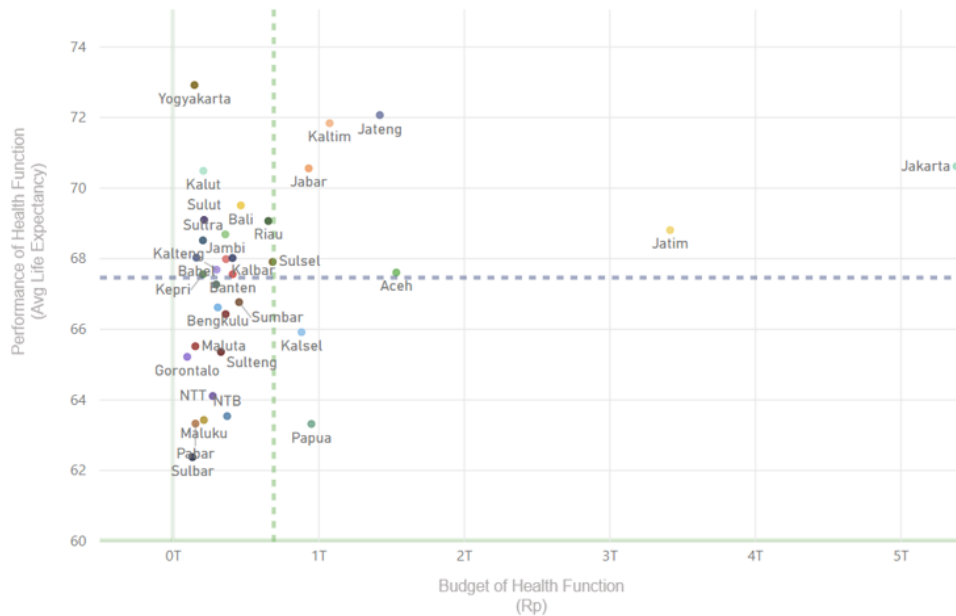
**Fig 4.** Education Function Budget Efficiency 2015-2020

#### **4.2 Klassen Typology for Regional Governance Health Function**

This study evaluates the governance of all provinces in Indonesia. Therefore, the study must have indicators of achievement in the health sector or function that are the same for all provinces. In addition, data must be available from 2015 to 2020 as part of the analysis. Therefore, the health function indicator used in this study is Life Expectancy. In this study, typology will be conducted twice, namely at the beginning of the period in 2015 and the end of the period in 2020. The typology results in 2015 are shown in Figure 5.

The results of the typology evaluation in 2015 showed that there were fourteen provinces that managed to occupy the first quadrant with a low level of budget utilization but provided performance in the implementation of health functions as indicated by Life Expectancy above the average. Provinces classified in the first quadrant include Riau Province, Jambi Province, Lampung Province, DI Yogyakarta Province, West Kalimantan Province, Central Kalimantan Province, North Sulawesi Province, South Sulawesi Province, Southeast Sulawesi Province, Bali Province, Banten Province, Bangka Belitung Province, Riau Islands Province, and North Kalimantan Province.

The typology in the second quadrant indicates an above-average budget with above-average life expectancy results. In 2015 this quadrant was filled by six provinces, namely Aceh Province, DKI Jakarta Province, West Java Province, Central Java Province, East Java Province, and East Kalimantan Province. Provinces in this second quadrant have achieved excellent performance of the health function with an appropriate budget.



**Fig 5.** Health Function Klassen Typology 2015

The typology in the third quadrant indicates below-average budgeting in health. In accordance with the below-average budget, the achievement results of the implementation are also below average. Twelve provinces fall into this category, namely North Sumatra Province, West Sumatra Province, South Sumatra Province, Bengkulu Province, Central Sulawesi Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Maluku Province, North Maluku Province, Gorontalo Province, West Papua Province, and West Sulawesi Province.

The typology in the fourth quadrant is provinces that experience under achievement where they have allocated budgets above the average but achieved life expectancy below the average. In 2015 there were two provinces classified in this grouping, namely South Kalimantan Province and Papua Province.

The Klassen typology evaluation of government affairs in the health sector was carried out again in 2020 to see the development of budget utilization and performance achievement of government affairs in this sector. An overview of the division of groups based on achievements in 2020 is summarized in the following figure:





### **Comparison Result**

In the evaluation conducted, there were twenty-nine provinces with unchanged performance in 2015 and re-evaluated in 2020. There is one province whose performance has improved in 2020 and leaves four provinces that experienced a decline in performance that year. Papua Province, which was previously in Quadrant 4 position, managed to improve its performance and became Quadrant 3 in 2020.

Twenty-nine provinces maintained their performance from the health function aspect. Eleven of them managed to maintain their performance in quadrant 1, including Riau Province, Jambi Province, Lampung Province, DI Yogyakarta Province, West Kalimantan Province, North Sulawesi Province, South Sulawesi Province, Southeast Sulawesi Province, Bali Province, Bangka Belitung Province and North Kalimantan Province. A total of five provinces stayed in quadrant 2, namely DKI Jakarta Province, West Java Province, Central Java Province, East Kalimantan Province and East Java Province. Furthermore, twelve provinces remained in quadrant 3, including Central Sulawesi Province, North Sumatra Province, West Sumatra Province, South Sumatra Province, Bengkulu Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Maluku Province, North Maluku Province, Gorontalo Province, West Papua Province and West Sulawesi Province. South Kalimantan Province still remains in Quadrant 4.

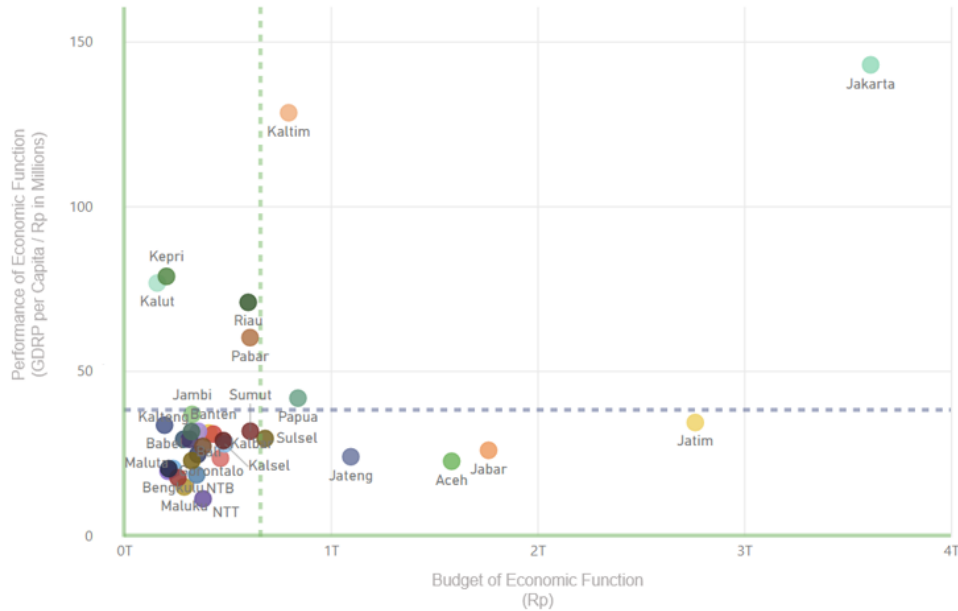
A total of four provinces that experienced a decline in performance in health aspects in 2020 include Aceh Province, which previously occupied Quadrant 2 but experienced a decline in performance to Quadrant 4. In addition, Central Kalimantan Province, Banten Province and Riau Islands Province, which previously occupied Quadrant 1 but experienced a decline in performance to Quadrant 3.

### **4.3 Klassen Typology for Regional Governance Economic Function**

This study evaluates the governance of all provinces in Indonesia. Therefore, this study must have indicators of achievement in the field or the implementation of economic functions that are the same for all provinces. In addition, data must be available from 2015 to 2020 as part of the analysis. Therefore, the economic function indicator used in this study is gross regional income (GRDP) per capita. In this study, typology will be carried out twice, namely at the beginning of the period in 2015 and the end of the period in 2020. The typology results in 2015 are shown in Figure 7.

The results of the typology evaluation in 2015 showed that there were four provinces that managed to occupy the first quadrant with a low level of budget utilization but provided performance in the implementation of economic functions as shown through GRDP per capita above the average. Provinces classified in the first quadrant include Riau Province, Riau Islands Province, West Papua Province and North Kalimantan Province.

The typology in the second quadrant indicates an above-average budget with above-average economic performance. In 2015 this quadrant was filled by three provinces, namely DKI Jakarta Province, East Kalimantan Province and Papua Province. Provinces in this second quadrant achieved excellent performance of the economic function with an appropriate budget.

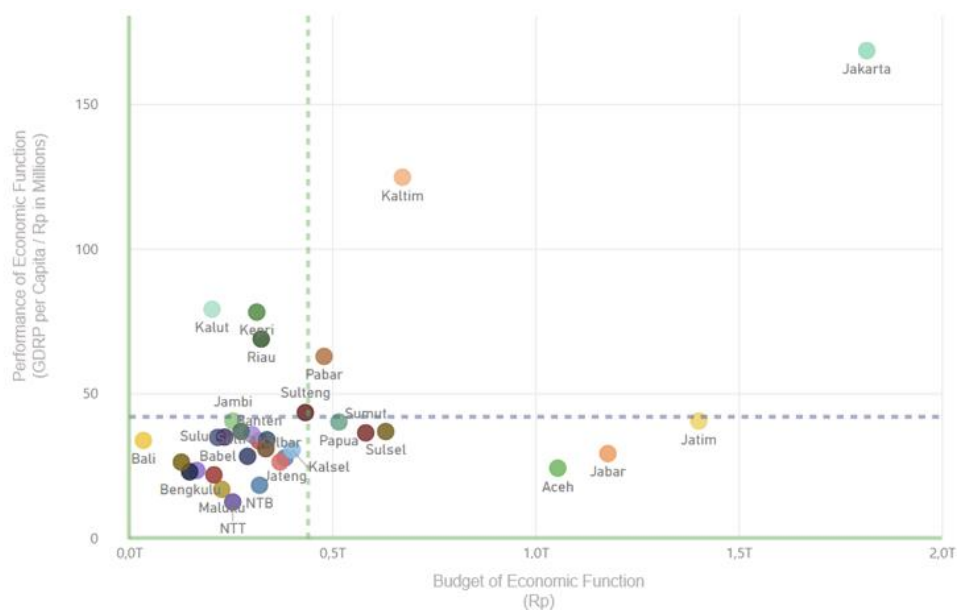


**Fig 7.** Economic Function Klassen Typology 2015

The typology in the third quadrant indicates below-average budgeting in the implementation of economic functions. In accordance with the below-average budget, the results of the implementation are also below average. Twenty-two provinces fall into this category, namely North Sumatra Province, West Sumatra Province, Jambi Province, South Sumatra Province, Bengkulu Province, Lampung Province, Yogyakarta Province, West Kalimantan Province, Central Kalimantan Province, South Kalimantan Province, North Sulawesi Province, Central Sulawesi Province, Southeast Sulawesi Province, Bali Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Maluku Province, North Maluku Province, Banten Province, Bangka Belitung Province, Gorontalo Province and West Sulawesi Province.

The typology in the fourth quadrant is provinces that experience under achievement where they have allocated budgets above average but achieved economic performance below average. In 2015 there were four provinces classified in this grouping, namely Aceh Province, West Java Province, Central Java Province, East Java Province and South Sulawesi Province.

Evaluation of the Klassen typology of government affairs in organizing economic functions was again carried out in 2020 to see the development of budget utilization and the achievement of government affairs performance in this field. An overview of the division of groups based on achievements in 2020 is summarized in the following figure:



**Fig 8.** Economic Function Klassen Typology 2020

The results of the typology evaluation in 2020 show that from the previous four provinces that successfully occupied the first quadrant, in 2020 there were also four provinces that entered the first quadrant of Klassen's typology. These provinces have a low level of budget utilization but provide above-average order and tranquility performance. Provinces classified in the first quadrant in 2020 include Riau Province, Central Sulawesi Province, Riau Islands Province and North Kalimantan Province. Compared to the previous year, Central Sulawesi Province managed to enter quadrant one from the previous third quadrant in 2015.

The typology in the second quadrant indicates an above-average budget with above-average economic function performance results. In 2020, there were three provinces that belonged to the second quadrant typology, including DKI Jakarta Province, East Kalimantan Province and West Papua Province.

Typology in the third quadrant indicates below-average budgeting in the implementation of economic functions. In accordance with the below-average budget, the achievements of the implementation are also below average. In 2020 there were twenty-one provinces in this category, namely West Sumatra Province, Jambi Province, South Sumatra Province, Bengkulu Province, Lampung Province, Central Java Province, DI Yogyakarta Province, West Kalimantan Province, Central Kalimantan Province, South Kalimantan Province, North Sulawesi Province, Southeast Sulawesi Province, Bali Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Maluku Province, North Maluku Province, Banten Province, Bangka Belitung Province, Gorontalo Province and West Sulawesi Province.

The typology in the fourth quadrant is provinces that experience under achievement where they have allocated budgets above average but achieved economic function performance below average. In 2020 there were six provinces that fell into this category, namely Aceh Province, North Sumatra Province, West Java Province, East Java Province, South Sulawesi Province and Papua Province.

### **Comparison Result**

In the evaluation conducted, there were twenty-nine provinces with unchanged performance in 2015 and re-evaluated in 2020. There are two provinces whose performance has improved in 2020 and left three provinces that experienced a decline in performance in that year. The two provinces that experienced improved performance include Central Java Province (Quadrant 4 to Quadrant 3) and Central Sulawesi Province (Quadrant 3 to Quadrant 1). Twenty-nine provinces maintained their performance in the 2015-2020 period. A total of three provinces remained in quadrant 1 position, including Riau Province, Riau Islands Province and North Kalimantan Province. Two provinces remained in quadrant 2, namely DKI Jakarta Province and East Kalimantan Province. Twenty provinces remained in quadrant 3, namely West Sumatra Province, Jambi Province, South Sumatra Province, Bengkulu Province, Lampung Province, Yogyakarta Province, West Kalimantan Province, Central Kalimantan Province, South Kalimantan Province, North Sulawesi Province, Southeast Sulawesi Province, Bali Province, West Nusa Tenggara Province, East Nusa Tenggara Province, Maluku Province, North Maluku Province, Banten Province, Bangka Belitung Province, Gorontalo Province and West Sulawesi Province. It should be noted that there are four provinces that remain in quadrant 4, including South Sulawesi Province, East Java Province, Aceh Province and West Java Province. Provinces that experienced a decline in performance in environmental aspects from 2015 to 2020 include North Sumatra Province which previously occupied Quadrant 3 but experienced a decline in performance to Quadrant 4, Papua Province which previously occupied Quadrant 2 but experienced a decline in performance to Quadrant 4 and West Papua Province which previously occupied Quadrant 1 but experienced a decline in performance to Quadrant 2

## **5 Conclusion**

In the implementation of the education function, provincial governments in Indonesia have carried out their functions quite well. In 2020, there were twelve provinces that performed well and were efficient in allocating their budgets to achieve the education function. In the implementation of the health function, there are eleven provinces that are in the first quadrant or the most efficient category in using the budget to carry out the health function. In terms of the economy, unfortunately there are only four provinces that are in the first quadrant. The government needs to be more focused in allocating budget functions to achieve human development targets. The highest inefficiency occurs in the implementation of the economic function which needs to be a concern in the future to further optimize the achievement of HDI in Indonesia.

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