



An Analysis of Government Expenditure on Education, Health, and Infrastructure Sectors on Poverty Reduction in the Tomini Bay

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Abstract

This study investigates government expenditure on education, health, and infrastructure sectors on poverty reduction in the Tomini Bay. Further, This present study refers to secondary data research obtained from 15 regencies/ cities in the Tomini Bay period of 2010-2019. Those data are based upon data from Statistics Indonesia and the directorate General of Fiscal Balance. The data in this study are analysed using multiple linear regression with panel data. The results show that government expenditure on the education sector is positively and significantly affects the property in the Tomini Bay, meaning that any increase of government expenditure for 1% in the education sector will enhance property for 0.256302 in the Tomini Bay. In addition, the government expenditure on the health sector has a positive influence yet insignificant toward poverty in the Tomini Bay. It means that any increase of government expenditure for 1% in the health sector cannot elucidate an increase of property in the Tomini bay obviously. Lastly, the government expenditure on the infrastructure sector has a negative and significant influence on poverty in the Tomini bay. The result indicates that any increase of government expenditure for 1% in infrastructure sector will reduce poverty for 0.1722 in the Tomini Bay.

Keywords: Poverty, Government Expenditure, Education, Health, Infrastructure

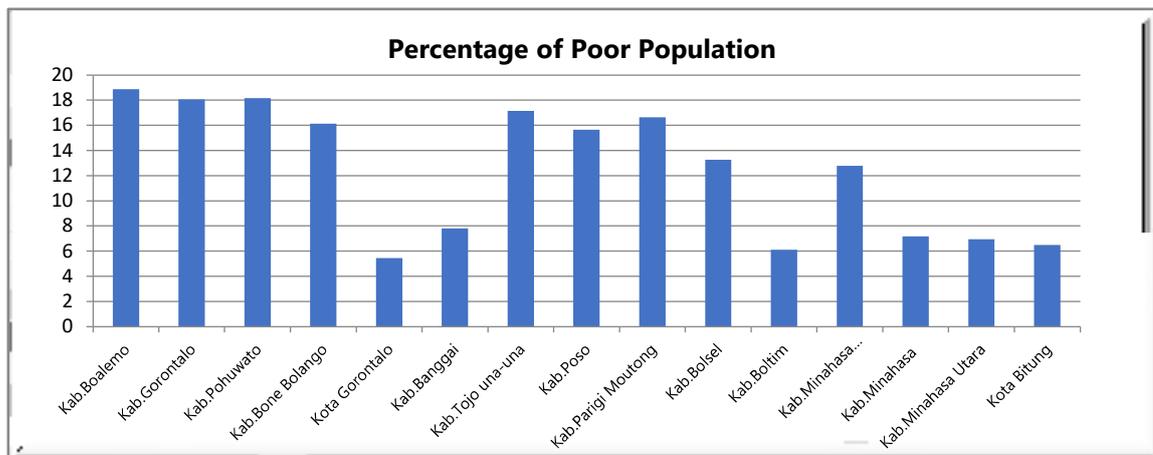
1. Introduction

A common problem that is being faced by developing countries in the world, namely poverty. For example, Indonesia, which is a developing country, always seeks to find solutions to the poverty problem that is experienced by Indonesian society. Poverty is not an easy problem, it needs awareness from the Indonesian government itself to work even though it is difficult to reduce poverty in Indonesia.

In the (island) region Sulawesi itself clicks on one of the potential developmental areas, Tomini Bay, around the waters of Tomini Bay there are three Provincial regions, namely: Central Sulawesi Province, Gorontalo Province and North Sulawesi Province. Of course, with the diversity of potentials in the area owned can be developed according to the potentials in the area.

Tomini Bay is one of the largest bays in Indonesia with a water area of ± 137,700 km². The Tomini Bay area includes the region Coral Triangle Initiative or the world coral reef triangle. As the area crossed by the equator has the potential of fisheries resources, biodiversity of marine and terrestrial biota. Coastal conditions on the coast of Tomini Bay have the potential for coastal cultivation (pegs), spread over all of the districts in both North Sulawesi, Gorontalo and Central Sulawesi, so the opportunity for developing aquaculture is very potential. But congratulations on this potential has not been used optimally. Tomini Bay has considerable economic potential and social capital turns out to contrast with the lives of its people, this is shown by a fairly high poverty rate.

The problem of the poor in this Tomini Bay area can still be said to be high in discount, therefore poverty is a shared responsibility of both the local government and the central government, especially for local governments to refute the process of improving people's lives in a government to immediately find solutions to reduce the high poverty. Data on the presumption of the poor population in the Tomini Bay area in 2019 can be seen in Figure 1.



Source: Central Statistics Agency (BPS)

Figure 1. Percentage of Poor Population in the Tomini Bay Area in 2019

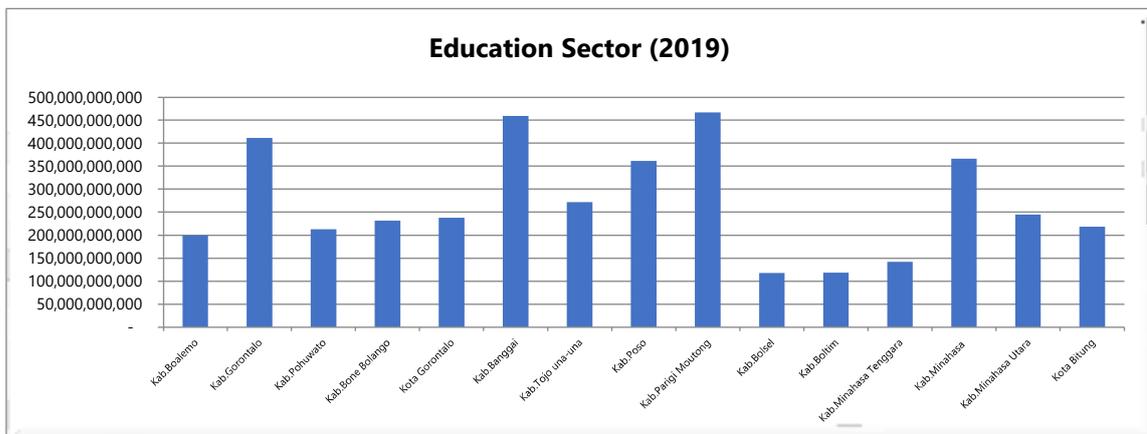
In Figure 1, based on the poverty data above it appears that the poverty rate in the districts in the Tomini Bay region in 2019. Gorontalo Province, Boalemo District, is a region that has a high poverty rate of 18.87%. Central Sulawesi Province, Una-Una Tojo District became a region that had a high poverty rate of 17.16%. And northern Sulawesi, the Southern Mongondow Barbang District, became a region that had a high poverty rate of 13.27%. Factors of poverty that occur in the tomini bay area are among them some residents in rural areas who lack access to education instead of urban areas access to adequate education is very high, and the lack of employment .

Local governments certainly do not want many residents to live below the poverty line or categorized by the poor in their area. For this reason regional development spending should be used to improve people's welfare so that poverty can be reduced in the area. Local governments spending development spending are expected to improve the welfare of the general public. If people's welfare increases, one indicator is the reduction in the poor in the area.

The function of government according to Dumairy (1999) is allocative, distributive, stabilative, and dynamic government must be able to create prosperity for society. The government will carry out development spending as a step to carry out its functions

The development spending is government spending to meet development needs. The purpose of development is one of them to improve the welfare of society. Community welfare can be realized by meeting basic needs such as health, education and infrastructure. Meeting basic needs will improve the quality of human resources. Quality resources will be able to contribute to more up-to-date technological advancements so as to improve production efficiency.

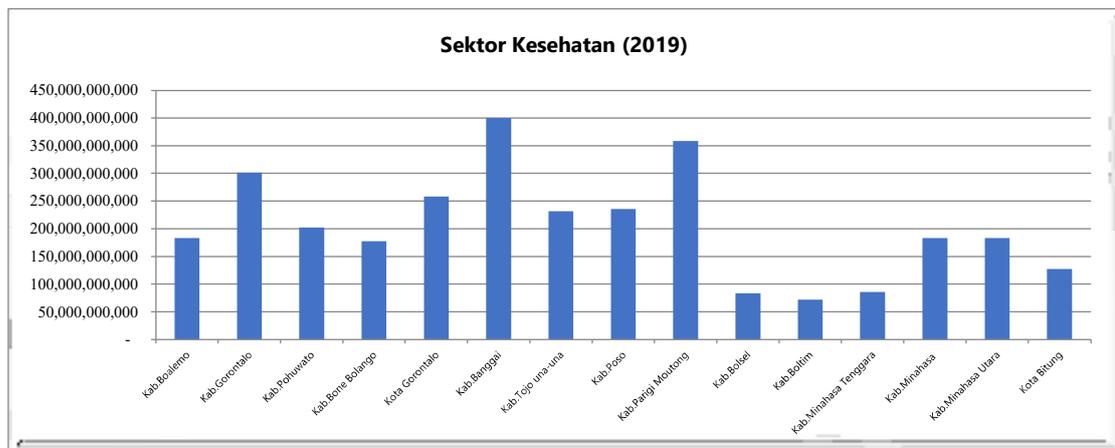
Data on the amount of government spending on the education sector in the Tomini Bay Area in 2019 can be seen in the following Figure 2.



Source: Directorate General of Financial Balance (DJPK)

Figure 2. Education Budget in the Tomini Bay Area in 2019 (Billion Rupiah)

In Figure 2 above it can be seen that in the Tomini Bay area government spending in 2019 for the education sector, the largest expenditure was in Parigi Moutong District with the amount of Rp. 466,427,299,661 billion and the lowest expenditure is in the South Mongondow Bolaang District with the amount of Rp. 117,562,104,662 billion. Data on the amount of government spending on the health sector in the Tomini Bay area in 2019 can be seen in the following Figure 3.

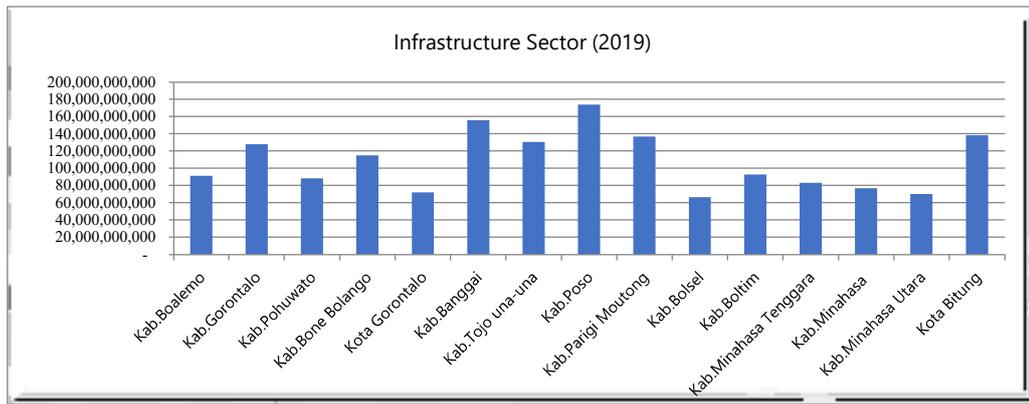


Source: Directorate General of Financial Balance (DJPK)

Figure 3. Health Budget in the Tomini Bay Area in 2019 (Billion Rupiah)

In Figure 3 above it can be seen that in the Tomini Bay area government spending in 2019 for the health sector, the largest expenditure is in Banggai Regency with the amount of Rp. 399,938,787,062 billion and the lowest expenditure is in East Mongondow Bolaang District with an Rp. 72,016,400,528 billion.

Improving the quality of human capital depends on the availability of infrastructure to support investment in human resources. According to Friawan (2008) there are three main reasons why infrastructure is important in an economic integration. The first reason is the new infrastructure is the main engine of economic development. Second, to get the full benefits of integration, the availability of infrastructure networks is very important in facilitating the activity trade and investment. Data on the amount of government spending on the Infrastructure sector in the Tomini Bay Area in 2019 can be seen in the following Figure 4.



Source: Directorate General of Financial Balance (DJPK)
Figure 4. Infrastructure Budget in the Tomini Bay Area in 2019 (Billion Rupiah)

In Figure 4 above it can be seen that in the Tomini Bay Area government spending in 2019 for the Infrastructure sector, the largest expenditure was in the Poso District with an amount of Rp.173,895,656,478 billion and the lowest expenditure was in the South Mongondow Ballang District with the amount Rp. 66,457,163,279 billion.

Based on the phenomenon above it appears that poverty rates in the Tomini Bay region can be said to be very high. Many efforts are being made by local governments in tackling poverty, one of which is to increase regional spending budgets in sectors that are closely related to the poor including spending on the education, health and infrastructure sectors. Given the importance of government spending issued by the government to overcome poverty, researchers are interested in researching about analysis of government expenditures in the education, health and infrastructure sector against poverty reduction in the Tomini Bay area.

2. Literature Review and Hypotheses

Poverty

Poverty is often interpreted as a condition where one cannot meet daily needs because of limited access in order to meet those needs themselves. Economically poverty can be seen from the level of lack of resources that can be used in meeting the necessities of life and improving the welfare of groups of people. In understanding the problem of poverty in Indonesia it is necessary to pay attention to the locality that exists in each region, namely poverty at the local level determined by the community and local government. Thus poverty criteria, goal setting and problem solving and countermeasures will be more targeted.

According to Kuncoro (2000) poverty is the inability to meet minimum living standards. The problem of low living standards is also related to the small amount of income (poverty), inadequate housing, poor health and health services, low levels of community education so that it results in low human resources and large numbers of unemployed. The level of standard of living in a country can be measured from several indicators including Gross National Product (GNP) per capita, relative national growth and per capita income, distribution of national income.

Factors for Causes of Poverty

There are several factors that cause a person to be categorized as poor. However, according to World Bank (2001) there are three main factors that cause poverty, namely: (1) Low income and assets to meet basic needs, such as: food, shelter, clothing, health and education. (2) Inability to speak out and lack of strength in front of state and community institutions. (3) Vulnerable to economic shocks, related to the incapacity of countermeasures.

Government Expenditure Theory

Government expenditure is all purchases of goods and services made by the central government and local governments. Government spending reflects government policy. If the government has established a policy to buy goods and services, government spending reflects the costs that must be incurred by the government to implement the policy.

Government expenditure in the sense of rill can be used in indicators of the magnitude of government activities financed by the government. The greater and more government activities the greater the government expenditure concerned. Government expenditure can be nature "exhaustive" namely the purchase of economic goods and services that can be directly consumed and also produce other goods again.

Government Expenditures for the Education Sector

The level of education will be able to improve one's knowledge and skills. The higher the level of one's education, the knowledge and expertise will also encourage increased labour productivity. In the end someone who has high productivity will get better welfare, which is shown through increased income and consumption. The low productivity of the poor can be caused by their low access to education. Thus it is hoped that this condition will advance the economy of society with reduced poverty. Expenditures in education are needed by the community, therefore the government must build a good means and education system. The allocation of government budgets in education is a real form of investment to increase community productivity.

Government Health Sector Expenditures

Government spending on health is the allocation of funds spent by the government for development spending which is contained in the sector which includes financing in efforts to improve Human Resources from the health aspect. In the 1945 Constitution it is stated that health is a basic human right, so that the government is responsible for meeting the needs of protection and health facilitation to its people. Moreover, in the national development goals it has been mentioned that each population has the right to obtain the highest degree of health. So it is natural that health can be called a government investment in development spending/expenditure for human resource development.

Infrastructure Sector Government Expenditures

Infrastructure is the crust wheel of an economy the better infrastructure dislike a country will facilitate economic activity, the existence of infrastructure will certainly expand market access and reduce transaction costs. It is also hoped that the improved infrastructure will smooth economic mobility between regions which further attracts investors to invest. In the end it can improve development which can then improve welfare to the community.

Hypothesis

The hypothesis is a temporary statement, about the existence of a certain relationship between the variables used, which is taken to answer the problem raised in a study that actually must be empirically tested that has been done in connection with this trial. Then the hypothesis for this study can be proposed as follows:

H₁: allegedly government spending in the education sector affected poverty in the Tomini Bay Area

H₂: allegedly government spending in the health sector affected poverty in the Tomini Gulf Region

H₃: allegedly government spending in the Infrastructure sector affected poverty in the Tomini Bay Area

3. Methods

The location of the study is the place where the researcher obtains an information regarding the data needed. The study took locations in the Tomini Bay region in three provinces namely the provinces of Gorontalo, Central Sulawesi and North Sulawesi. And research time from January to completion.

This study uses a quantitative approach in which this approach reflects the problem and in the analysis is a number from the collection of interpretations to getting the results. Quantitative data is needed in the study to draw conclusions on the results of the study and intend to know the effect between two or more variables.

Variables and Operational Definitions of Research Variables

In this study poverty (Y) was used as a dependent variable which is the type of variable described or influenced by free variables, while the independent variables used were the education sector (X1) government expenditure, health sector (X2), and infrastructure sector (X3) . The operational definitions of the variables used in research are as follows on Table 1.

Table 1. Variables and Operational Definitions Variables

Variable	Definition Variable	Unit
Poverty (Y)	Poverty is a state where a person cannot meet basic necessities of life.	Percent (%)
Government spending on the education sector (X1)	Government spending in the education sector is the amount of local government spending on the education sector which reflects government spending on the total revenue and expenditure budget allocated to the education sector.	Rupiah (Rp)
Government spending on the health sector (X2)	Government spending in the health sector represents the large expenditure of local governments for the health sector that reflects government spending on the total regional income and expenditure budget allocated to the health sector.	Rupiah (Rp)
Government spending on the infrastructure sector (X3)	Government spending in the infrastructure sector is the amount of local government spending on the infrastructure sector that reflects government spending on the total regional revenue and expenditure budget allocated to the infrastructure sector.	Rupiah (Rp)

Data Collection Techniques

The technique used by researchers to obtain the data needed in this study is documentary data, the process of collecting data from or documents in government institutions such as the Central Statistics Agency, Ministry of Finance of the Republic of Indonesia, related services and other sources that discuss issues, economic journals and reference books on government spending in the education sector, health, and infrastructure and poverty.

Data Analysis Method

In this study researchers used panel data regression which was a combination of time series with cross section. According to the fourth edition of the econometrics book there are several advantages to using panel data. First the data panel is a combination of two data time series with cross section able to provide more data so that it will produce a larger degree of freedom. Second, combining information from data time series and cross section can overcome problems that arise when it is a variable removal problem (omitted-variable). The panel data regression model in this study is:

$$Y_{it} = \beta_0 + \beta_1 PP_{it} + \beta_2 PK_{it} + \beta_3 PI_{it} + \varepsilon_{it}$$

Where:

- Y = Poverty
- $\beta_1, \beta_2, \beta_3$ = Regression Coefficient
- PP = Government Expenditures for the Education Sector
- PK = Government Health Sector Expenditures
- PI = Infrastructure Sector Government Expenditures
- Eit = Error terms
- I = Tomini Bay Area
- t = Period 2010-2019

Panel Data Analysis Model

Common Effect Model (CEM) or Pool Least Square (PLS)

This method can use an approach Ordinary Least Square (OLS) or the least squares technique for estimating panel data models.

Fixed Effect Model (FEM)

FEM calculates the possibility of researchers facing problems omitted variable which can be a change in intercept time series or cross-section. REM takes into account error maybe collated along time series and cross-section.

Statistical Test

This hypothesis test is carried out as a test that has the aim to check whether the regression coefficients that are dyed are significant or not. To carry out the test, all coefficients must be tested. There are three types of hypothesis testing of the regression coefficient, namely the F-test, the T-test, and the test goodness of fit (R^2).

Classic Assumption Test

Multicollinearity Test

According to Sunyoto (2013, Multicollinearity test aims to determine whether in a multiple linear regression model there is inter-correlation. A good multiple linear regression model should be inter-correlation is small or completely absent. In other words, a good multiple linear regression model is one that does not experience multicollinearity.

Heteroscedasticity Test

According to Sunyoto (2013) the heteroscedasticity test is to see what the error is error in the data we have the same variance or not. Heteroscedasticity has a condition that the variance of the error differs from an observation to another.

4. Results

Table 2. Results of Regression Analysis

Variable	Coefficient	t-statistic	Prob.
C	10.88093	2.388031	0.0182
LOG(PP)	0.256302	2.889439	0.0044***
LOG(PK)	0.034771	0.389969	0.6971 ^{ns}
LOG(PI)	-0.172132	-1.681646	0.0948*
R-squared	0.070874		
Adjusted R-squared	0.051782		
S.E. of regression	1.165462		
F-statistic	3.712282		
Prob(F-statistic)	0.013043		

***=1%, **=5%, *=10% , ns = significant notes

Based on the panel data regression output above, it can be interpreted as follows. If the influence of all free variables (Education Sector, Health Sector, and Infrastructure Sector) is ignored, then the average poverty rate in the area observed during 2010-2019 will reach a figure of 10.88. Government spending on the education sector has a positive effect on poverty. An increase in government spending on the education sector in each region by 1 percent will increase poverty by 0.256. Health sector government spending has a positive effect on poverty. An increase in government spending on health sector by 1 unit in each of the observed regions will increase poverty by 0.034. Infrastructure sector government spending has a negative effect on poverty. An increase in government spending on the infrastructure sector by 1 unit in each of the observed regions will reduce poverty by 0.172.

5. Discussion

Effect of Government Expenditures on the Education Sector on Poverty

From the results of estimates previously carried out show that education sector government spending has a positive and significant effect on poverty. This means that each 1% of government spending on the education sector can increase poverty by 0.256302 in the Tomini Bay Area. This is interesting considering the main objective of the government in the field of education is to improve the quality of human resources in the field of pendidians who can truly suppress poverty rates. But the results of this study prove that government spending in the education sector actually affects poverty. The possibility that this is the realization in the field of education is precisely not right on target in helping the poor to gain access to appropriate education. Although the realization of the education sector government expenditure is pursued more, it will be improved.

Expenditures The education sector, which has experienced a significant increase annually, aims to provide access for the entire community in order to obtain access to adequate and guaranteed education. Free school access, school operational assistance funds, provision of facilities in the form of buildings and also infrastructure facilities, these are all the result of the allocation of regional notification spending in the education sector. With easy access for communities to obtain education, school participation rates in the Tomini Bay Area are expected to continue to increase. However, although community school participation rates in the Tomini Bay Area are increasing but not offset by good community income, the poverty problem cannot be resolved. In addition, a very high level of inequality in the Tomini Bay Area is also the cause of high poverty rates in the Tomini Bay Area. This high level of inequality also occurs in the field of education. Most residents in rural areas lack proper education, on the contrary in urban areas access to adequate education is very high. Means and infrastructure for education support are more complete in urban areas compared to rural areas. In addition, educator personnel are also more secure in urban areas compared to rural areas. While the Tomini Bay area is largely dominated by rural areas.

Effect of Government Health Sector Expenditures on Poverty

From the results of estimates that have been made previously, it shows that health sector government spending has a positive but insignificant effect on poverty. That is, any 1% increase in government spending in the health sector has not been able to explain significantly the increase in poverty in the Tomini Bay Area. The results of this study prove that health sector government spending is on target and able to improve public health, especially the poor in the Tomini Bay Area. Increased public health can encourage community productivity and ultimately increase community income. Increased productivity and income from masyarakat will in turn reduce the poor that exist. To reduce poverty, quality of quality human resources is needed. Therefore through improving the quality of health by the government, poverty levels can be overcome properly. So that an increase in poverty is expected not to occur.

Health sector government spending aims to meet community services for easy and affordable health access. With the fulfillment of health needs it will increase the level of high public health. Healthy people describe the quality of good human resources. However, qualified residents or guaranteed residents of their education and health cannot necessarily suppress the level of torture or even prevent poverty from increasing, given the still low level of productivity resulting from the lack of available employment. The difficulty of the community to get a job is the cause of high poverty rates in the Tomini Bay Area.

Effect of Infrastructure Sector Government Expenditures on Poverty

From the results of estimates previously carried out show that infrastructure sector government spending has a significant negative effect on poverty in the Tomini Bay Area. That is, any 1% increase in government spending on the infrastructure sector will reduce poverty by 0.1722132 in the Tomini Bay Area. This condition proves that government spending allocated to build infrastructure has a high economic impact so as to reduce poverty. An area if it has complete and adequate infrastructure will facilitate community access to carry out economic activities in an area. With complete infrastructure, there will be an impact on better community welfare.

The Tomini Bay area is largely a rural area, therefore there is a need for adequate road access in each area to be connected to each other in running the economy wheel. In addition, the Tomini Bay Area is also an area that runs its economic wheels by utilizing the wealth of the sea or so-called the community. The potential that can be developed from this maritime area needs to be supported by adequate infrastructure. Therefore it is very important for government investment in infrastructure to support the economic wheel rotation in each region and between regions in the Tomini Bay Area so that it can directly reduce poverty. Infrastructure development can be felt by the community in the long run. Utilization of infrastructure in the 20-30 years to run the economy wheel is certainly one of the things that must be preceded by the government. Therefore the government annually increases spending to boost existing infrastructure.

6. Conclusion and Suggestions

Conclusion

Government spending on the education sector has a positive and significant effect on poverty in the Tomini Bay Area. The results of this study prove that each 1% type of government expenditure in the education sector actually has a direct effect on poverty of 0.256302. This happens because the realization of education is not precisely targeted in helping the poor to gain access to appropriate education. Although the realization of the education sector government expenditure is pursued more, it will be improved. Health sector government spending has a positive but insignificant effect on poverty in the Tomini Bay Area. any 1% increase The increase in government spending in the health sector has no direct effect on poverty in the Tomini Bay Area. High levels of public health can encourage community productivity so as to increase community income which can actually reduce poverty. Government spending on the infrastructure sector has a negative and significant effect on poverty in the Tomini Bay Area. That is, any 1% increase in government spending on the infrastructure sector can reduce poverty by 0.1722132 in the Tomini Bay Area. Government spending allocated to build infrastructure has a high economic impact so as to reduce poverty

Suggestions

To be able to maximize the performance of spending in the education sector, the government is expected to create new policies so that the education sector can be well absorbed so as to increase the level of community education.

Good health services will affect poverty through community productivity. by that karna, it is expected for the government to further increase the proportion of the budget for the health sector so that the community is guaranteed health. In addition the government must provide access to easy and affordable harm services for maysarakat especially the poor.

Infrastructure sector expenditure needs to be increased so that infrastructure in each region is increasingly met. The better the infrastructure in an area, the level of population welfare will be guaranteed, which means the poverty level will decrease. It is therefore expected for local governments to utilize the infrastructure sector budget as targeted, namely to build and conduct infrastructure for supporting the economy of the area.

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References

- Mardiana, M. T., & Utary, R. A. (2017). *Analysis of Local Government Expenditures in the Education and Health Sector and Infrastructure against Unemployment Levels As well as Poverty Levels.*
- Arham, M. A., & Naue, T. F. (2015). Effects of Public Shopping in Education, Health and Infrastructure on Psych city in Gorontalo Province. *Economic Journal of Emerging Markets*, 7(2), 107-119
- Central Statistics Agency (2010-2019). *Gorontalo Province Psychic Data*
- Central Statistics Agency (2010-2019). *Central Sulawesi Province Psychic Data*
- Central Statistics Agency (2010-2019). *Discipleship Data of North Sulawesi Province*
- Fithri, N., & Kaluge, D. (2017). Analysis of the Effect of Government Expenditures on the Education and Health Sector on Poverty in East Java. *Journal of Development Economics*, 15 (2), 129-136.
- Hartina, L., Irawan, E., & Cita, F. P. (2019). Effect of Government Expenditures in the Education, Health and Agriculture sector on Sumbawa District Poverty Rates 2003-2017. *Journal of Economics*, 1 (01), 44-54.
- Pasaribu, Y., & Hendarto, R. M. (2016). *Analysis of the Effect of Government Expenditures on Educational, Health, Social Protection and Infrastructure Functions on Poverty in Indonesia 2010-2013 (Case Study 33 of Provinces in Indonesia)* (Doctoral dissertation, Faculty of Economics and Business).
- Kinanti, R. (2019). Effect of Government Expenditures in Health and Government Expenditures in Education against Poverty in South Kalimantan Province. *JIEP: Journal of Economics and Development*, 1 (2).