The Effect of Government Revenue and Population on Capital Expenditure and Its Impact on Economic Growth in North Sumatera Province

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Abstract: Developing countries depend on expanding fiscal policies to increase economic growth. Fiscal policy affects the economy of a country through government revenues and expenditures. This study aims to analyze the effect of local revenue, balancing funds and population to capital expenditure and analyze the effect of capital expenditure on economic growth of districts / cities in North Sumatra Province. This study uses economic growth rate, capital expenditure, local revenue, balancing fund and population of 33 districts / cities in North Sumatera Province for the period from 2011 to 2016 in percent. This study analyzes the data by applying pooled dataanalysis with random effect model. The result indicates that local revenue, balancing fund and total population together significantly influence capital expenditure in regencies / cities in North Sumatera Province. Partially population has no effect on the allocation of capital expenditure. Capital expenditure has a positive and significant impact on economic growth. However, the development should be based on the concept of environmentally sustainable development in economic, social and environmental aspects to meet current needs without sacrifice fulfillment the needs of future generations.

1 INTRODUCTION

Economic growth becomes an important discourse in a country because it is an indicator of economic achievement and performance of a country. According to Musgrave, in order to achieve the goal of economic development, government as a development facilitator uses various economic policies to create a conducive climate for the productive activities of society. In the history of its development, developing countries use the expansion of fiscal policy to reach an economic growth (Maipita *et al*., 2010). Fiscal policy influence the economy with government revenues and expenditures. Government trying to direct the economy to a better condition by using fiscal policy (Rahmadana and Naibaho, 2015). Governments need to perform various functions in political, social and economic activities to maximize social and economic welfare. Government revenues impact economic growth through the fulfillment of various government needs (Muriithi, 2013).

Government spending becomes one of the fiscal policy instruments that governments use to influence the economy. The relationship between government spending and economic growth is debated by researchers. Some researchers argue that increased government spending on socio-economic and physical infrastructure increases economic growth (Nannan and Jianing, 2012). Government spending on infrastructure such as roads, communications, etc., can reduce production costs, increase private sector investment and corporate profitability, ultimately will increase economic growth. However, some researchers argue otherwise and state that higher government spending may reduce economic performance (Olulu *et al.,* 2014). To fund its spending, government can increase taxes or loans (Chude & Chude, 2013). Higher taxes will increase production costs and can reduce private sector investment. Government sometimes increases their expenditures and investments in unproductive projects. sometimes governments fail to allocate resources and reduce economic growth (Ermasova *et al*., 2014).

In regional government system, economic growth is indicated by the increase of goods and service production measured through Gross Regional Domestic Product (GRDP). North Sumatra province is one of the provinces in Indonesia which

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has a higher rate of economic growth than Indonesia's economic growth rate. However, between 25 districts and 5 cities in North Sumatera Province there are some districts / cities that have lower economic growth rate than the economic growth rate of North Sumatra Province and Indonesia's economic growth rate.

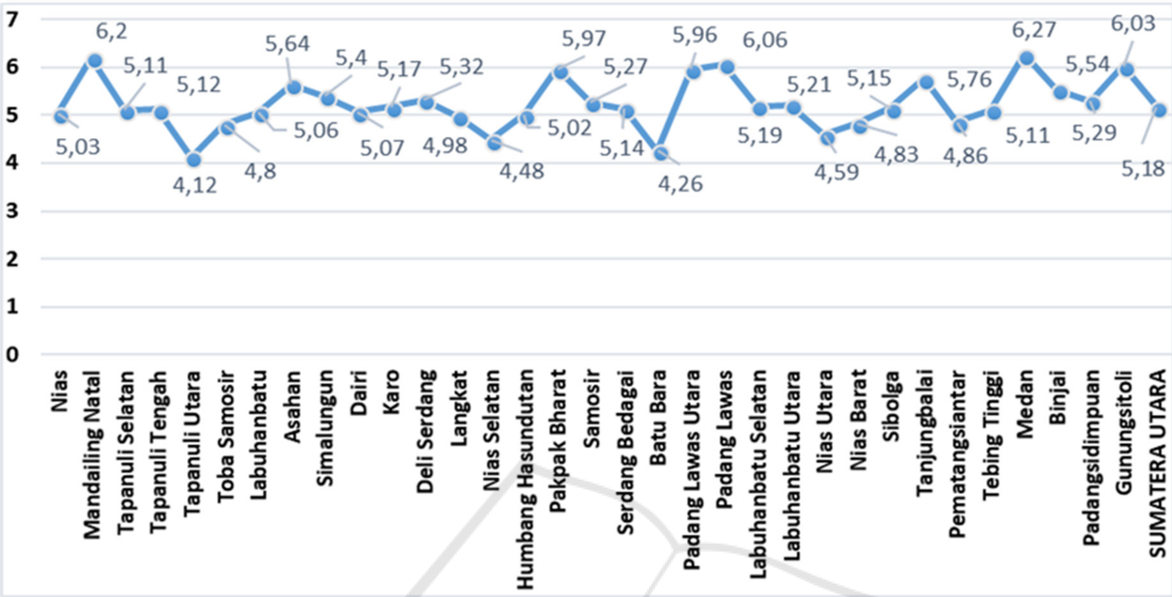

Figure 1: Economic Growth Rate of Districts / City in North Sumatra Province Year 2016

In 2016 the rate of economic growth in some districts / cities is higher than the economic growth rate of North Sumatra Province. However, in some districts / cities have lower economic growth rate than the economic growth rate of North Sumatra Province. This means that in the implementation of regional autonomy which gives authority to regional governments to regulate the regional economy, some local governments in districts / cities are still unable to improve their regional economies.

The implementation of regional autonomy has created a fiscal decentralization with a principled money follows function which means the delegation of government authority brings the consequences on the budget required to implement the authority (Briando, 2017). Indicators of successful implementation of regional autonomy can be seen from various things such as the ability of local governments in preparing the direction and policies in finance, improvement of local revenue, construction of various public service facilities for local communities. Keynesian theory states that local revenue (PAD) becomes a source of capital for economic activities. Increased PAD will increase local funds that can increase capital spending for development.

Local governments should be able to finance their every need including providing public service facilities with funds sourced from PAD. But in reality the largest source of revenue comes from government transfers (balancing funds). Government transfers become one of the main funds of local governments to finance their regional expenditures. This allocation is intended to achieve two goals, efficiency and equality (Salami, 2011). with a balance fund there should be no difference in the rate of economic growth between districts / cities in North Sumatra Province. According to law No. 33 of 2004 there are 3 (three) types of balancing funds : General Allocation Fund (DAU), Revenue Sharing Fund (DBH), and Special Allocation Fund (DAK) which differ in their allocations. DAU for an area is allocated on the basis of fiscal gap and basic allocation. The fiscal gap is the difference between fiscal needs and fiscal capacity. Fiscal capacity can be regarded as the ability of a region in implementing all its mandatory authority in the implementation of government and regional development. fiscal need is a regional need to finance all its expenditures in order to carry out the functions and authorities of the regions providing public services. Fiscal needs are measured by population, area, Construction Cost Index, Gross

Regional Domestic Product per capita, and Human Development Index.

According to Robert Malthus, an increase in population will increase demand for foodstuffs (Winsdel *et al*., 2015). Not only food needs, large populations also need more infrastructure and public infrastructure facilities. North Sumatra Province is ranked fourth in the province which has the largest population in Indonesia. Growing population will affect government spending, the more population growth the more budget will be needed. Increasing population requires an increase in public facilities and infrastructure, in quantity and quality through the allocation of capital expenditure. Local governments with larger populations should allocate more revenue to finance their regional capital expenditures.

The purpose of fiscal policy is that public goods spending can provide stable economic growth. Government spending has played an important role in shaping physical and human capital. Appropriate public spending can be effective in promoting economic growth, even in the short run (Cakerri *et al*., 2014). Theory Harrod Domar considers the formation of capital as an expenditure that will increase the ability of an economy to produce goods or expenditures that will increase the effective demand of the whole society. When a certain amount of capital formation is established, the economy will have a greater ability to produce goods in the future. Each economy should be able to save a certain share of its revenues to replace depleted or damaged capital goods such as buildings, equipment and other materials (Ullah, 2016). This is in accordance with the theory of Malthus, for the economic development required an increase in the amount of capital for continuous investment in the productive sector. The amount of commitment of local governments in providing public services through expenditure is evident from the allocation of government expenditures, particularly capital expenditures.

Research on the relationship between local revenue, balancing funds and the number of people with economic growth has been done by many researchers. However, studies have shown inconsistent results. Abdillah and Mursinto's studies show that local revenue variables have a positive and significant effect on local spending (Abdillah and Mursinto, 2016). Amrozi et al study found different results that local revenue negatively affected Capital Expenditure and the General Allocation Fund also negatively affected Capital Expenditure in 400 districts / cities in Indonesia (Amrozi *et al*., 2013). Mutiah and Mappanyuki's research shows that local revenue and Special Allocation Fund have a positive effect on Capital Expenditure and General Allocation Fund negatively affect capital expenditure (Mutiah and Mappanyuki, 2015). Gorahe et al's research shows that GRDP and population have a positive effect on regional expenditure, the area of the region has no effect on regional expenditure (Gorahe et al, 2014). Iulia Roşoiu's research found that capital spending had a positive effect on economic growth in Romania (Roşoiu, 2015). Okafor's research, Onwumere and Ibe obtained results that capital spending has no effect on economic growth in Nigeria (Okafor *et al*., 2012).

2 LITERATURE REVIEW

The Government of Republic Indonesia formally declared the implementation of regional autonomy on 1 January 2001 through MPR Decree No.XV / MPR / 1998 which has created a new dimensionof decentralization.Fiscal decentralization makes the regions have the authority to manage their own financial resources, so that the regions have more opportunities to manage their households. In the implementation of its authority, local government must have financial resources in order to be able to provide services and welfare to the people in the region.

According to Friedman, the increase in tax revenues will increase government spending. Government revenues and expenditures have a direct and linear causality relationship starting from tax revenue to government spending (Al-Qudair, 2005). Zimmermannova *et al*'s research shows that local tax revenues can be a source of information about regional economic activity in policy-making decisions at government or regional level (Zimmermannova *et al*., 2016). Local revenue as a source of regional financing should be able to create new economic activities in the society through Capital Expenditure. With increasing local revenue, local governments will be more flexible in planning and allocating expenditures that will impact on improving regional development, especially infrastructure development.

Balancing funds are instruments that solve the horizontal problems of imbalance allocated between regions whose use is determined by the regions. Balancing funds are used to fulfill the financial needs of local governments that can not be filled by local revenue. The allocation of balancing funds is the authority of regional governments that can be allocated through capital expenditures in the form of economic facilities and infrastructure. Funds from the central government require local governments to build and prosper their people through the management of local wealth and build sustainable infrastructure.

The classical economists consider that the population is a potential input that can be used as a production factor to increase production. the more the population will be the more the number of workers. However, the growing population growth requires additional investment and facilities to support the welfare of the people such as education, health, economy and so on. If the growth of this population is not supported by the addition of investment and facilities it will have an adverse effect on the income of the population and workmanship.

According to Rostow and Musgrave, government capital spending in the early stages of economic development is characterized by the large percentage of government investment in total investment. Because the government must provide infrastructure for education, health, and transportation. It is expected that the increase in capital expenditure can encourage the emergence of new investments in production activities in the regions that ultimately can increase regional economic growth. Harrod-Domar's theory explains the role of capital growth in creating economic growth. a period of capital formation, then in the future the economy has the ability to produce more goods and services. Local governments have a responsibility to provide good public services to the society in the form of adequate infrastructure to facilitate the economic activities of society. The development of efficient, reliable, and affordable infrastructure is essential for economic growth (Badalyan et al, 2014). Increased productivity of society is expected to become higher and will increase economic growth.

3 METHODOLOGY

The data used in this research are growth ratio of local revenue, growth ratio of balancing funds, population growth ratio, growth rate of capital expenditure and growth rate of PDRB 33 Districts / City in North Sumatera Province in percent. The data used in this research is in the form of time series data for the period from 2011 to 2016 and cross section consisting of 25 districts and 8 cities in North Sumatera Province. The data analysis method used in this research is quantitative with the following data panel analysis model:

$BM_{it} = \beta 0+\beta 1PAD_{it} +\beta 2D\,P_{it} +\beta 3\ JP_{it} + \varepsilon_{it}$ ... (1)

$PE_{it} = \beta 0+\beta 4BM_{it} +\varepsilon_{it}$.................................. (2)

Information:

PE_{it}	=	Regional Economic Growth i period t
PAD_{it}	=	Revenue Growth Ratio OriginalArea i period t
$D\,P_{it}$	=	Growth Ratio Funds balancing region i period t
JP_{it}	=	PopulationGrowth Ratio region i period t
BM_{it}	=	Capital Expenditure Growth Ratio i period t
β_0	=	Intercept
$\beta_1, \beta_2, \beta_3$	=	The coefficient of independent variables
i	=	Districts / City in North Sumatera Province
t	=	Time
ε_{it}	=	Interference Variable / *Error Correction Term*

4 EMPIRICAL RESULTS

In the data panel processing method should select estimation model between Common Effect model, Fixed Effect model and Random Effect model. To choose between the three estimation models there are 3 tests that must be done. Chow test is performed to determine the most appropriate model used between Common Effect model or Fixed Effect model. Hausman test is used to select the model that will be used between the model Fixed Effect or Random Effect model. If we get different result from Chow test and Hausman test, then proceed with Lagrange Multiplier Test.

Table 1: Data Panel Model Validity Test

Chow Test			
	Effects Test	Statistic	Prob
Equation 1	Cross-section F	0.528409	0.9821
Equation 2	Cross-section F	2.246951	0.0005
Hausman Test			
	Test Summary	Chi-Sq. Statistic	Prob
Equation 1	Cross-section random	3.063575	0.3819
Equation 2	Cross-section random	0.179059	0.6722
Lagrange Multiplier Test			
		Cross-section	
Equation 1	Breusch-Pagan	0.0411	
Equation 2	Breusch-Pagan	0.0002	

After chow test with α = 5% in equation 1 obtained probability 0.9821, so the right model used is model estimation of Common Effect Model. The result of chow test on equation 2 obtained probability 0.0005, so the right model used is Fixed Effect Model estimation model. The result of hausman test in equation 1 obtained probability 0.3819 then the panel data model used in equation 1 is the Random Effect Model. The result of hausman test on equation 2 obtained probability 0.6722 then the panel data model used in equation 2 is the Random Effect Model. The results of Chow Test and Hausman Test on equation 1 and equation 2 are obtained different results, should be continued with Lagrange Multiplier Test. The result of Lagrange Multiplier Test in equation 1 shows that the value of Prob. Cross-section Breusch-Pagan 0.0411 so the estimation model that should be used in equation 1 is the Random Effect Model. The result of Lagrange Multiplier Test in equation 2 shows that the value of Prob. Cross-section Breusch-Pagan 0.0002 so the estimation model that should be used in equation 2 is the Random Effect Model estimation model

Table 2: Estimation of Panel Data Equation

	Coefficient	Prob
Equation 1		
C	-9.210742	0.2225
PAD	0.074363	0.0485
DP	2.606277	0.0000
JP	-3.386183	0.0961
R-Squared = 0.440079		
F-Stat = 50.82583		
Sig = 0.000000		
Equation 2		
C	5.620256	0.0000
BM	0.001815	0.0433
R-Squared = 0.013014		

The result of t-statistic test on equation 1 obtained local revenue variable probability value 0.0485, so this can prove that local revenue have significant effect to capital expenditure of Districts / City in North Sumatera Province. Variable balancing fund probability value 0.0000, so this proves that balancing fund have significant effect to capital expenditure of Districts / City in North Sumatera Province. Variable population has probability value 0.0961, then this can prove that variable of population do not have significant effect to capital expenditure of Districts / City in North Sumatera Province. F-statistic test results obtained probability value 0.000000, it can be concluded that together - the local revenue variables, balancing funds and population have significant effect on capital expenditure in the District / City of North Sumatra Province period of 2011-2016. In Table 2 obtained value of coefficient of determination 0.440079. This means that 44 percent of capital expenditures in 33 districts / municipalities of North Sumatra Province for the period of 2011-2016 can be explained by local revenue variable, balancing fund and population. Table 2 shows the result of t-statistic test of equation 2, capital expenditure variable probability value 0.0433, so this can prove that variable of capital expenditure have significant influence to economic growth of Districts / City in North Sumatera Province. Determined coefficient value of 0.013014. This means that 1.3 percent economic growth in 33 districts / municipalities of North Sumatra Province for the period of 2011-2016 can be explained by the variable of capital expenditure.

Local revenue and balancing funds have a positive relationship with capital expenditure, which means that increasing local revenue and balancing funds will increase the allocation of capital expenditure. Local revenue of Districts / City in North Sumatra Province is smaller than total regional revenue used to finance Districts / City government expenditure in North Sumatra Province. Local governments have an additional source of income in providing their public services from central government transfers in the form of equalization funds. The number of transfers from the center to the regions increases each year as demand for public services such as education, health, transport and police services has grown rapidly. Dominate of transfers in regional income is expected to make the region able to allocate to productive sectors that can encourage an increase in investment that impact on improving public services, thereby increasing the contribution of local revenue (PAD) in financing the needs of the region.

Large population with good quality will push economic growth. In contrast the large population with low quality levels, making the population as a burden for development. The low level of society productivity will lead to an increasing number of poor people requiring subsidy spending and social assistance included in indirect spending posts in local government expenditures. The more subsidized spending and social assistance the amount of government revenue that can be allocated for capital expenditure will be less.

Capital expenditure has a positive relationship with economic growth, which means that increasing capital expenditure allocation will increase the rate of economic growth. After fiscal decentralization, local governments will increasingly concentrate on strategizing and prioritizing regional economic development to push economic growth. Local governments have a responsibility to provide public goods that can not be provided by the private sector such as roads, hospitals, schools and so on. This development should be directed to improving the productivity of society through improving the quality of the population and access to capital and marketing of products that will ultimately promote economic growth. However, local governments have not been able to properly allocate their expenditures. Local government should carry out development in accordance with the potential of the area, so that development can increase the productivity of people in the region.

Every development and change always has derivative activities such as preparing infrastructure, education and training and other activities related to regional economic development. With the development of facilities and infrastructure is expected to be able to increase private investment that will ultimately drive the rate of economic growth. However, the development should be based on the concept of sustainable development that is environmentally oriented covering the economic, social and environmental aspects to fulfill current needs without sacrifice future generations. According to UUPLH 1982 clause 3, Environmental management is based on the preservation of harmonious, balanced environmental capability to support sustainable development for the improvement of human welfare. Therefore, the development should pay more attention to the impacts on the environment and the exploitation of natural resources should be done in accordance with the prevailing rules and do not damage the ecosystem.

5 CONCLUSION

The results show that local revenue andbalance funds have a positive and significant effect on capital expenditure in regencies / cities in North Sumatera Province. These results indicate that increasing local revenue and balancing funds will increase capital expenditure in regencies / cities in North Sumatra Province. The regression coefficient of balanced fund variable is bigger than the regression coefficient of local revenue variable, which means that the districts / city capital expenditure in North Sumatra Province is more obtained from the balance fund.

Population does not affect the capital expenditure of districts / city in North Sumatra Province. This shows that the allocation of balance fund, which is a source of funding for capital expenditure, no longer focuses on the population. Capital expenditure has a positive and significant impact on the economic growth of regencies / cities in North Sumatra Province. These results indicate that increased capital expenditure will increase the rate of economic growth.In order to accelerate regional development in all fields, the government needs large capital to fund its expenditure. Government needs private investment to get more funds for regional development.

The development should be based on the concept of sustainable development that is environmentally sound on the economic, social and environmental aspects to meet current needs without sacrifice future generations. Governments should pay more attention to the impact of development on the environment and the exploitation of natural resources should be done according to the rules and do not damage the ecosystem. Infrastructure development will be useless if it is not offset by an increase in population quality.

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