

The Effect of Own-Source Revenue, Population, and Population Density on the Capital Expenditure of City and District Governments on Java Island

Dimas Swara Dwipa Sumarsono and Sri Ningsih

*Department of Accounting, Faculty of Economics and Business, Universitas Airlangga, Indonesia
dimasswaradwipa@gmail.com, sri.ningsih@feb.unair.ac.id*

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Abstract: This study aims to describe and analyze the effects of own-source revenue, population, and population density on the capital expenditure of city and district governments on Java Island. Population for this study are 119 city and district governments in Java. The final samples consist of 12 city and district governments. Hypotheses were tested using panel data regression. The results of this research are: (1) own-source revenue has a positive effect on capital expenditure; (2) population has a negative effect on capital expenditure; (3) population density has no effect on capital expenditure.

1 INTRODUCTION

According to Article 167 Indonesian Law no. 33 of 2004 about Financial Balance between Central and Local Government, regional expenditure should be prioritized in order to protect and improve the quality of societies' standard of living. This objective can be achieved by means of various improvements to basic services, such as improving the quality of education and healthcare, building public infrastructure, and improving social security for the community.

Capital expenditure is an important part of improving public services through the improvement of facilities and infrastructure such as roads, equipment, and buildings. Good infrastructure and facilities will facilitate and accelerate the performance of local governments in providing services to the community. Unfortunately, according to audit results of Indonesian Audit Board (BPK), the Local Government Financial Report in the first semester of 2016 show that the problem of noncompliance resulting in regional losses caused 2,407 problems to occur in 506 separate local governments. In general, the findings show that regional losses occur due to weaknesses in the management of capital expenditure accounts, goods and services spending and personnel expenditure.

In order to allocate optimum capital expenditure, local governments should optimize their local

revenue. Regional revenue is made up of Own-Source Revenue, Transfer Income, and other Legal Revenue. The main source of revenue that determines a local government's level of independence in term of Budget is the Own-Source Revenue (PAD). According to Law no. 33 of 2004, PAD is a source of revenue generated from the local area to be used as a basis of capital for local government for financing development and regional businesses, in order to minimize dependence on funds from the central government.

The high value of PAD cannot be separated from the contribution of the people who pay taxes to the local government. An explanatory passage from Law No. 33 of 2004 states that the population can be used to measure the need for funding in order to carry out the function of basic public service. According to Devita et al. (2014), local government planners see the total population as both the basic capital for development and a burden for local governments. Large populations can be a good source of basic capital development if they have good skills and high quality that could have a positive impact on production. However, large populations can become a burden if the distribution and quality is uneven, resulting in high demand for social services along with low production levels.

Based on Population Projection for 2010-2035 issued by Indonesian Central Bureau of Statistics (BPS), the Indonesian population has increased over

the past five years. In 2011 the total population of Indonesia reached 241.99 million people and continued to increase to 255.46 million people in 2015. Increased population will cause the emergence of various problems in the field of population. One of these is the problem of uneven population spread resulting in an increasing population density. Referring to Central Bureau of Statistics data, most of Indonesia's population (about 57 percent) is located on the island of Java, while the rest are distributed outside of Java. In 2015, the population density of Indonesia as a whole reached 134 people per km². In Java, however, the population density reached 1,121 people per km²; meanwhile, the population density outside of Java Island is under 120 people per km², decreasing to as low as 14 people per km² in Maluku and Papua. Increased population also causes there to be more and more things to consider when making policies related to the provision of various facilities and infrastructure, or public facilities to ensure the welfare of the population is guaranteed.

High population numbers also lead to high levels of population density. According to Huda (2015), the population density describes the ratio of population to the area. Population density often causes problems in spatial planning due to the large population pressure on the land (Setyorini, 2012). Increasing numbers of urban residents lead to high provision of living necessities; this includes physical needs, such as housing, facilities and infrastructure, as well as non-physical needs, such as education and economic factors. It is therefore necessary to devise the right treatment to manage population and population density in order to avoid a range of problems.

This study aims to analyze the factors affecting capital expenditures, taking both financial and non-financial factors into account. The financial factor to be studied is PAD, because PAD is the main source of revenue, which is also an indicator for the independence of local government. Non-financial factors included are population and population density, because any increase in population has the consequence of increasing the need for public facilities and infrastructure.

2 LITERATURE REVIEW AND HYPOTHESES

2.1 Stakeholder Theory

Stakeholders are various parties who are jointly or partially related to, or have an interest in an entity. The various parties may consist of publics in general, communities, groups, and individuals. Various parties can be considered stakeholders if the party in question has interests, legitimacy, or power over the entity (Budimanta et al., 2008).

Stakeholder theory describes that an entity must be able to provide benefits for the various parties that have links with the entity, not only perform activities in the interests of the entity itself (Lindawati and Marsella, 2015). According to Ghozali and Chariri (2007: 409), the existence and sustainability of an entity is strongly influenced by the support provided by stakeholders to the entity.

Stakeholder theory applies not only to private companies but also to the public sector, especially government. The government as an entity must be able to provide good services to the community and improve the quality and level of community welfare. According to Handayani (2012), the public is mainly concerned with how their government manages their money and funding. The government is required to practice good and clean financial governance, which enables them to maintain the trust of the people/society and achieve the government's goal of improving the welfare of the community, as they are the main stakeholder of the government entity.

2.2 Theory of Government Spending

Mangkoesubroto (2008: 169) states that the policies carried out by the government require government expenditure. If the government has established a policy to make purchases of goods or services, for example, then government spending is the cost to implement the policies that have been set. There are three groups of theories put forward by economists regarding the development of government in macro theory, namely:

1. Rostow Theory

Rostow's theory explains the relationship between the stage of economic development and the development of government spending. In the early stages of economic development, the percentage of government investment to total investment is large, because it is at this stage that the government must provide infrastructure. In

the intermediate stages, government investment is still needed to avoid market failures caused by increasing private investment. At a further economic level, government activity shifts to the form of expenditure on social activities (Mangkoesobroto, 2008: 170).

2. Wagner Theory

The theory put forward by Wagner explains that government spending will increase as per-capita income increases in an economy. According to Sanggelorang et al. (2015), this theory emphasizes the development of an increasing percentage of government spending on the Gross National Product (GNP). Wagner's theory states that the government is required to be able to regulate the relationships that arise in society, education, law and so on, which leads to a greater role being played by government (Mangkoesobroto, 2008: 179).

3. Theory of Peacock and Wiseman

The Peacock and Wiseman theory outlines the basic view that governments will always try to increase spending, while people generally do not like to pay bigger taxes to finance the growing government spending. Peacock and Wiseman explain that collection of taxes from society will increase due to economic development even if there is no change in tax rates. An increase in tax revenues will thus lead to an increase in government spending. This theory also contends that an increase in GNP leads to an increase in government revenues, which has an impact on increasing government spending (Mangkoesobroto, 2008: 173).

2.3 Development of Hypotheses

Based on the theory of government spending that states the government will increase spending, or expenditure, in line with increased revenue or income. PAD is derived from direct contributions from the public, such as taxes and charges. PAD is a very important component of local revenue to support development in the regions. PAD is used as capital for local expenditure funding, and is also an indicator for measuring the region's success in being an independent region in accordance with the concept of decentralization. Accordingly, the higher PAD should be followed by higher capital expenditure. Purbarini and Gregorius (2015) and Sholikhah and Wahyudin (2014) show that PAD has a positive and significant impact on capital expenditure. The relationship between PAD and capital expenditure can be hypothesized as follows:

H₁: PAD has a positive effect on Capital Expenditure.

Law no. 33 of 2004 states that one indicator of government fiscal financing is population. As explained by the theory of government spending, taxes derived from the population also have a contribution to government spending as it is one of the main sources of income for the government. A large number of people in a region should be utilized by the local government to obtain more optimal tax revenue, which will therefore have an impact on optimal spending as well. On the other hand, any increase in population has the consequence of increasing the need for public facilities and infrastructure. Shelton (2007) states that increased population has a positive influence on all local government spending. Ayodele (2014) further argues that increased population has a positive influence on all government spending. The relationship between population size and capital expenditure can be hypothesized as follows:

H₂: Number (i.e. size) of Population has a positive effect on Capital Expenditure.

Population density often creates problems in spatial planning due to the resulting large population pressure on the land. More densely populated areas require more infrastructure when compared to areas with lower population density. Based on stakeholder theory, the government should be able to provide good services for the community to improve that community's welfare. The higher the population density, the more infrastructure will be needed. Nurlis (2016) states that there is a significant positive influence of population density on capital expenditure allocation. Holcombe and De Edgra (2008) argue that a relatively high population density has an influence on local government spending. The relationship between population density and capital expenditure can be hypothesized as follows:

H₃: Population Density has a positive effect on Capital Expenditure.

3 METHOD AND ANALYSIS

3.1 Research Approach and Data Source

This research uses a quantitative approach with an explanatory method (Hasan, 2002). The author uses an explanatory method to explain the relationship between variables in order to provide specific

information about the effects of PAD, population, and population density on capital expenditure.

This study uses secondary data from the Budget Realization Report published by the Director General of Fiscal Balance through the official website of Indonesia’s Directorate General of Fiscal Balance (www.djpk.kemenkeu.go.id). Data on population and population density, as published by the Central Bureau of Statistics from every province of Java, were obtained through the official website of the Central Bureau of Statistics (BPS).

3.2 Operational Definition and Variable Measurement

According to Indonesian Government Regulation No. 71 of 2010 about Governmental Accounting Standard, capital expenditure defined as local government expenditures with benefits exceeding one fiscal year and that will add regional assets or wealth and subsequently increase routine expenditures, such as maintenance costs, in public administration expenditure groups. Capital expenditures consist of Capital Expenditures of Land, Capital Expenditures of Equipment and Machinery, Capital Expenditure of Buildings and Constructions, Capital Expenditures for Roads, Irrigation and Networks, and Other Physical Capital Expenditures. The unit measurement of capital expenditure is rupiah. Capital Expenditure is measured by the following formula:

$$\begin{aligned} \text{Capital Expenditure} = & \text{Land Capital Expenditure} \\ & + \text{Equipment and Machinery Capital Expenditures} \\ & + \text{Buildings and Constructions Capital Expenditure} \\ & + \text{Roads, Irrigation and Other Capital Expenditure} \\ & + \text{Other Physical Capital Expenditures (1)} \end{aligned}$$

According to Law no. 33 of 2004, Own-Source Revenue (PAD) is a source of local revenue generated from the local area to be used as a basis of capital for local government for financing development and regional businesses in order to minimize dependence on funds from the central government. PAD consists of local taxes, regional levies, the result of separated regional wealth management, and other legitimate regional revenue. The unit measurement of PAD is rupiah. The Own-Source Revenue measured by the following formula:

$$\begin{aligned} \text{Own-Source Revenue} = & \text{Local Taxes} + \text{Regional} \\ & \text{Levies} + \text{result of separated regional wealth} \\ & \text{management} + \text{other legitimate regional revenue (2)} \end{aligned}$$

According to the Central Bureau of Statistics, the Population refers to the number of people domiciled in the geographical area of the Republic of Indonesia for 6 months or more, and/or those who are domiciled for less than 6 months but have the intention to settle. The unit measurement of population is person. Population is measured using the following formula:

$$\begin{aligned} \text{Number of Population} = & \text{Male Population} + \text{Female} \\ & \text{Population (3)} \end{aligned}$$

According to the Central Bureau of Statistics, Population Density refers to the number of inhabitants for every square kilometer of area. The unit measurement of population density is the person per square kilometer. Population Density is measured by the following formula:

$$\begin{aligned} \text{Population Density} = & \text{Number of Population/Area} \\ & \text{(4)} \end{aligned}$$

3.3 Data Analysis Technique

The data for this study are secondary data derived from the website of General Directorate of Fiscal Balance (www.djpk.kemenkeu.go.id) and the website of Central Bureau of Statistics, from 2011 to 2015.

This study uses panel data regression, a regression that combines cross-section data and time-series data (Ghozali, 2013). This research analyzes the influence of three independent variables (own-source revenue (PAD), population, and population density) on Capital Expenditure, which is the dependent variable.

According to Widarjono (2007), the panel data regression method incorporates three kinds of estimation model that can be used in regression analysis: Common Effects Model (Pool Least Square), Fix Effect Model (FEM), and Random Effect Model (REM).

4 RESULTS AND DISCUSSION

4.1 Research Results

In choosing the most suitable model to use in this study, several tests are required. A Chow test was used to determine the more suitable choice between FEM and PLS, a Hausman test used to choose the most suitable option from REM and FEM, and an LM Breusch-Pagan test used to determine which of

PLS and REM was more appropriate to use. All tests were run using EVIEWS 9. The results of the Chow test are presented in Table 1.

Table 1: Results of Chow Test.

Effects Test	Prob.
Cross-section F	0.0000

The value used in the Chow test is the probability value of the cross-section F. The following hypotheses are used in the Chow test:

H0: using PLS

H1: using FEM

If the probability value of cross-section F does not exceed the 5% significance level, then H1 is accepted. Table 4.1 shows that the probability value of cross-section F is 0.0000. Accordingly, the more appropriate panel data model between FEM and PLS is FEM.

After the Chow test provides the conclusion that FEM should be selected, the next test is the Hausman test, which selects the more suitable model out of REM and FEM. The results of the Hausman test are presented in Table 2.

Table 2: Results of Hausman Test.

Test Summary	Prob.
Cross-section random	0.0000

The value used in Hausman test is the probability value of the cross-section random. Here is the hypothesis used in the Hausman test:

H0: using REM

H1: using FEM

If the probability value of cross-section random does not exceed the 5% significance level, then H1 is accepted. Table 4.2 shows the probability value of cross-section random is 0.0000. Accordingly, the more appropriate panel data model between REM and FEM is FEM. From both tests above, the most appropriate model to use in this research is FEM. Consequently, there is no longer any need to use the Breusch - Pagan LM Test. The results of panel data regression are presented in Table 3.

Table 3: Results of Panel Data Regression.

Independent Variable	Dependent Variable: Capital Expenditures					
	Common Effect		Fixed Effect		Random Effect	
	Coef.	p-value	Coef.	p-value	Coef.	p-value
Constants	14110.09	0.4496	2.14E+08	0.0000	15399.15	0.4118
Own-Source Revenue	0.372715	0.9114	40.45916	0.0000	0.66852	0.8396
Population	0.088734	0.9541	-226.2983	0.0000	-0.059998	0.9689
Population Density	-170.6375	0.5871	16502.5	0.0719	-186.2580	0.5542
R-squared	0.00067		0.306443		0.000617	
Adjusted R-squared	-0.004722		0.128768		-0.004775	
Prob. (F-Stat)	0.945769		0.000051		0.51619	

Based on Table 3, using the Fixed Effect Model (FEM), the hypothesis test is significant at 5% confidence level (0.05). The value of the determination coefficient (R^2) is 0.3064, meaning that 30.64 percent of variation in capital expenditure was explained by PAD, population, and population density. Own-Source Revenue (PAD) has a positive and significant effect on capital expenditure (p value 0.0000; coefficient 40.46). Population has a negative and significant effect on capital expenditure (p value 0.0000; coefficient -226.29). Population density has no effect on capital expenditure (p value 0.0719; coefficient 16502.5).

4.2 Discussion

The first hypothesis states that PAD has a positive effect on capital expenditure. The results of the statistical tests support this hypothesis, indicating that the higher the PAD of city and district governments on Java Island, the higher the capital expenditure. The results of this study are consistent

with the results of Purbarini and Gregorius (2015) and also Sholikhah and Wahyudin (2014), which found that PAD partially has a positive effect on capital expenditure. This indicates that the higher PAD received by the local government will have an impact on the increase of the local government capital expenditure.

The size of capital expenditure will be influenced by the PAD received by the local government. This is because the capability of capital expenditure in the regions will always need to consider the source of the local revenue and whether it will be sufficient to spend in the region or not. A local government with high PAD can contribute substantially to a region's capital expenditure, such that development programs designed by the government will be well implemented due to good financial support from the PAD. This is in line with the government expenditure theory, which states that an increase of government revenue will be in line with the increase in government spending.

The second hypothesis states that population size has a positive effect on capital expenditure. However, the results of the statistical test do not support the hypothesis; the results show that population size has a negative effect on capital expenditure. The results of this study thus contradict Shelton's (2007) study from the United States, which states that population size has a positive influence on all local government spending, as well as Ayodele's (2014) research from Nigeria stating that population size has a positive influence on all government spending. The differences in these research results may be caused by the different conditions between local governments in the United States and Nigeria and the conditions of local governments in Indonesia.

The results of this study are aligned with the results of Devita et al. (2014), which state that the number of residents negatively affects the direct spending of city government in Jambi province where capital expenditure is part of direct spending. Areas that have high populations are usually identical with regencies and municipalities that have better infrastructure when compared to areas with relatively low population. Good infrastructure will reduce capital expenditure, as capital expenditure is in part expended to support infrastructure in an area. The population in Java is relatively high compared to other areas outside of Java. According to Devita et al. (2014), the rising population actually reduces capital expenditure because of the proportion of income actually diverted to operational expenditure.

The third hypothesis states that population density has a positive effect on capital expenditure. However, the results of the statistical test differ from the hypothesis and state that population density has no effect on capital expenditure. The results of this study contradict the results of research conducted by Nurlis (2016), which found a positive relationship between population density and the allocation of capital expenditure. This result also does not support the findings of Huda (2015), which state that population density has a negative effect on the allocation of capital expenditure. However, the results of this study are in line with the research of Aziz and Wulandari (2014), which state that population density statistically has no significant effect on capital expenditure.

The results of this study indicate that in allocating capital expenditures, city/district governments in Java do not consider population density as a factor. According to Aziz and Wulandari (2015), population density has no effect on capital expenditure because of the unequal distribution of population density with the fiscal capacity of the local government's finances. In addition, it is possible that there were other programs that were deemed more urgent than infrastructure development at the time. However, population density remains one of the aspects that must be considered by local governments if they wish to achieve a good Human Development Index to improve the regional economy. If population density is not considered, in the long run this can lead to social problems that will in turn become problems for local governments.

5 CONCLUSIONS

The conclusions of this study are as follows:

1. Own-Source Revenue (PAD) has a positive effect on capital expenditure. An increase in PAD will increase the amount of capital expenditure of city and district governments in Java.
2. Population size negatively affects the capital expenditure of city and district governments in Java. Increasing the population size will actually decrease the amount of capital expenditure on the part of these governments.
3. Population density has no effect on capital expenditure. Any increase or decrease in population density does not change the amount of capital expenditure on the part of city and district governments in Java.

Based on the results of the present study, several suggestions present themselves for both the city/district governments and for further research, namely:

1. The local government should be expected to pay more attention to its demographic aspects if it is to avoid social problems caused by high population and population density.
2. Future research can explore other variables that affect capital expenditure, both financial and non-financial.

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