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The Effect of Regional Independence, Economic Growth, Total Population, Processing Industry, on the Capital Expenditure of the Sidoarjo Regional Government

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Abstract: This study examines the influence of regional independence, economic growth, population, and the processing industry on capital expenditures of the Sidoarjo Regency Government for the 2014–2024 period. Using a quantitative approach and multiple linear regression analysis, the results show that all variables simultaneously have a significant effect on capital expenditures. However, partially, only economic growth has no effect on capital expenditures in Sidoarjo Regency. Meanwhile, regional independence, population, and the processing industry have a significant effect on capital expenditures in Sidoarjo Regency.

Keywords: Regional Independence, Economic Growth, Population, Manufacturing Industry Sector, Capital Expenditure

Introduction

Capital expenditure is a key indicator of a local government's fiscal policy direction in supporting long-term economic development. Through capital expenditure, local governments finance infrastructure development, fixed asset acquisition, and investments that provide sustainable economic benefits. In this context, capital expenditure effectiveness is a key parameter for assessing a region's capacity to manage its budget productively. According to Mardiasmo (2009), capital expenditure reflects a long-term development vision because it is directly linked to improved public services and economic growth.

To support the explanation of the importance of capital expenditure in supporting long-term economic development, empirical data related to the variables influencing it are necessary in this research. The following figure presents the trend in capital expenditure realization from 2014 to 2024, providing a clear picture of the fluctuations and growth direction of capital expenditure realization in Sidoarjo Regency from year to year.

According to the Central Statistics Agency, capital expenditure in Sidoarjo Regency reflects quite sharp fluctuations. From IDR 691.16 billion in 2014, capital expenditure peaked at IDR 936.19 billion in 2015, but dropped substantially to IDR 519.25 billion in 2020 due to

the pandemic. A recovery occurred in 2021, but then declined again, reaching only IDR 668.08 billion in 2024. These fluctuations reflect the influence of various factors, both internal (such as regional fiscal capacity) and external (such as the pandemic and national policies). However, capital expenditure does not stand alone. It is strongly influenced by various economic and institutional factors, including the level of regional fiscal independence.

A high level of independence allows local governments flexibility in allocating and utilizing public funds to support development and community welfare. In the context of the regional economy, local governments play a strategic role in strengthening fiscal independence by optimizing local revenue, managing assets, and utilizing regional wealth productively. Efficient and sustainable financial resource management is key for regions to boost inter-regional competitiveness and achieve the goals of true regional autonomy (Galang & Handyani, 2019).

The aspect of regional independence, represented by the ratio of local revenue to total revenue, reflects a general upward trend. In 2014, the regional independence rate was recorded at 34.07%, increasing to 44.12% in 2024. Although there have been fluctuations in some years (for example, decreases in 2018 and 2019), the long-term trend reflects the Sidoarjo Regency Government's consistent efforts to boost local revenue and reduce dependence on central transfer funds.

Furthermore, a region's economic growth also determines the size and priority of capital expenditures. When a region experiences positive and sustainable economic growth, the potential for increased regional revenue increases. This has direct implications for the government's fiscal capacity to expand the capital expenditure base. As stated by Musgrave & Musgrave (1989), in a healthy fiscal system, economic growth and government spending form a mutually reinforcing two-way relationship. Economic growth in Sidoarjo Regency reflected relatively stable performance before the COVID-19 pandemic, hovering around 5–6%. The impact of the pandemic in 2020 caused a growth contraction of -3.69%. However, recovery was rapid, with growth reaching 7.53% in 2022, then stabilizing above 5% in 2023 and 2024. This level of economic growth reflects the region's capacity to create output, employment, and purchasing power, which ultimately boosts regional revenue and the need for capital expenditure, particularly in productive sectors.

Population is also an important variable in capital expenditure management. Data shows that the population of Sidoarjo Regency fluctuates relatively during the 2014–2024 period. The population was recorded at 2,127,043 in 2014 and increased to 2,027,874 in 2024, with some drastic declines in certain years, such as 2016 and 2022. These changes could be caused by migration, re-registration, or the impact of the pandemic. The larger the population that must be served by the local government, the greater the need for infrastructure and public services, which will ultimately be reflected in increased capital

expenditure.

The manufacturing industry, as a leading sector in Sidoarjo Regency, also makes a substantial contribution to the region's fiscal capacity and the direction of capital expenditures. With an economic structure supported by this sector, Sidoarjo has significant potential to boost regional revenue through industrial taxes and levies. The value-added of the manufacturing industry increased substantially from Rp 52.76 million in 2014 to Rp 88.21 million in 2024. This increase reflects the strong dynamics of the local industry and serves as a major driver of regional economic growth. With its significant contribution to GRDP, the manufacturing industry drives increased economic activity that requires capital expenditure support, such as the provision of infrastructure, production facilities, and logistics access.

Current conditions indicate that although Sidoarjo's regional revenue has shown an upward trend year over year, capital expenditure allocations have not consistently reflected a proportion within the regional budget. This fluctuation indicates the influence of external and internal factors on capital spending, such as regional fiscal conditions, economic activity, and the need for public services and infrastructure. This study aims to determine the influence of regional independence, economic growth, population, and the processing industry sector on the capital expenditure of the Sidoarjo regional government.

Research Method

This research is a quantitative descriptive study using statistical data analysis that aims to examine the causal relationship between the independent variables (regional independence, economic growth, population, and the manufacturing sector) and the dependent variable, namely the capital expenditure of the Sidoarjo regional government. Quantitative methods are used to conduct in-depth statistical analysis and produce objective conclusions based on numerical data.

The variables used in this study are Regional Independence, Economic Growth, Population, and the Manufacturing Industry Sector in relation to the Sidoarjo Regional Government's Capital Expenditure. This study uses a descriptive approach based on secondary data from the Statistics Indonesia for the 2014-2024 period. The power analysis technique used is multiple linear regression analysis.

The formula for multiple linear regression analysis can be seen from the following formula:

$$\mathbf{Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e}$$

Where:

Y : Government Capital Expenditure
X_1 : Regional Independence
X_2 : Economic growth
X_3 : Total Population
X_4 : Manufacturing Industry Sector
a : Permanent
b_1 : Regression coefficient of Regional Independence
b_2 : Economic Growth Regression Coefficient
b_3 : Population Regression Coefficient
b_3 : Regression coefficient of the Manufacturing Industry Sector
e : error term

Results and Discussion

In conducting data analysis Time Series conducted in a time series on related factors. The variable in this study is Government Capital Expenditure as a variable dependent, whereas Regional Independence, Economic Growth, Population, Manufacturing Industry Sectoras a variable Independent. The following are the results of multiple linear regression tests using SPSS:

Classical Assumption Test

A. Normality Test

Ghozali (2021) stated that the normality test aims to ensure that the residuals generated by the regression model are normally distributed. A regression model is considered good if its residuals are normally distributed. In this study, the Kolmogorov-Smirnov method was used to determine data normality. Conclusions were drawn through a process of comparing the Asymp. Sig. probability values (2-tailed) with a significance level of 0.05. If the probability value is below 0.05, the data is considered non-normally distributed; conversely, if it is above 0.05, the data can be declared normally distributed.

Table 1. Normality Test Results

One-Sample Kolmogorov-Smirnov Test	
	Unstandardized Residual
Asymp. Sig. (2-tailed)	.200[c,d]

Source: SPSS & processed by the author

It can be seen above that the Asymp. Sig. (2-tailed) value is 0.200 > 0.05, so it can be concluded that the regression data is normally distributed.

B. Multicollinearity Test

When a regression model indicates a "perfect" or definite linear relationship among some or all of the independent variables, this is known as multicollinearity. The VIF score can be used to assess whether multicollinearity is present. Multicollinearity is absent in a regression model equation when the VIF and tolerance values are less than 10.

Table 2. Multicollinearity Test Result

Variables	Tolerance	VIF	Provision	Information
Regional Independence (X1)	0.172	5.807	≤10	Multicollinearity Free
Economic Growth (X2)	0.739	1.353	≤10	Multicollinearity Free
Total Population (X3)	0.698	1.433	≤ 10	Multicollinearity Free
Manufacturing Industry Sector (X3)	0.159	6.277	≤ 10	Multicollinearity Free

Source: SPSS & processed by the author

C. Heteroscedasticity Test

The heteroscedasticity test determines whether the variances differ between observations in a regression model. A scatterplot is one method for passing the heteroscedasticity test.

Table 3. Heteroscedasticity Test Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-152.373	258.498		-.589	.577
	Regional Independence	5.420	8.368	.539	.648	.541
	Economic growth	5.085	3.428	.596	1.484	.188
	Total Population	11.013	94.146	.048	.117	.911
	Manufacturing Industry Sector	-1.061	1.882	-.487	-.564	.593

Source: SPSS & processed by the author

It can be seen that all variables have a probability value (sig) > 0.05, so it can be concluded that the equation model is free from heteroscedasticity.

D. Autocorrelation Test

The autocorrelation test ascertains the relationship between the barrier error in period t and the error in the previous period t-1. The Durbin-Watson method, which produces the statistical curve shown below, is used in this autocorrelation test.

The Durbin-Watson test results reflect a value of 2.548. This value falls between the limits of dU and 4–du, thus falling within the H0 acceptance range. Therefore, it can be definitively concluded that there is no indication of autocorrelation. To further confirm the presence of autocorrelation in the model, the authors conducted the following run test.

Table 4. Runs Test Results

Runs Test	
	Unstandardized Residual
Test Value[a]	-2.50342
Cases < Test Value	5
Cases >= Test Value	6
Total Cases	11
Number of Runs	7
WITH	.029
Asymp. Sig. (2-tailed)	.977

Source: SPSS 25 & processed by the author

From the output results above, the Asymp. Sig. (2-tailed) value is 0.977 > 0.05, which means there are no autocorrelation symptoms in the regression equation.

Hypothesis Testing

Hypothesis testing aims to see either simultaneously or partially the influence of variables. Independent to variables Dependent.

A. Partial t-test

The partial t-test aims to determine the significance of the independent variable on the dependent variable. The results of the partial t-test are as follows:

Table 5. T-Test Results

Model		t	Sig.
1	REGIONAL INDEPENDENCE	-2.558	.043
	ECONOMIC GROWTH	1.622	.156
	TOTAL POPULATION	2.819	.030
	PROCESSING INDUSTRY SECTOR	2.749	.033

Source: SPSS & processed by the author

The hypothesis is as follows:

1. Regional Independence

   H1: Regional Independence influences Capital Expenditure

   The calculated t-value is -2.558 with a significance level of 0.043 (<0.05), resulting in H1 being accepted, reflecting that the Regional Independence variable has a substantial effect on Capital Expenditure. The negative sign on the regression coefficient indicates that increasing Regional Independence tends to decrease Capital Expenditure. On the other hand, the t-value for this variable is -2.558, which is higher than the t-table value of 2.447, with a t-value of -2.558. We can conclude that H1 is accepted.

2. Economic growth

   H2: Economic Growth has no effect on Capital Expenditure

   The calculated t-value is 1.622 with a significance of 0.156 (> 0.05), resulting in H2 being rejected, reflecting that this variable has no substantial effect on Capital Expenditure, resulting in changes in Economic Growth not being significantly explained by this regression model. On the other hand, the t-value for this variable is 1.622, which is lower than the t-table value of 2.447, with a t-value of 1.622. We can conclude that H2 is rejected.

3. Total Population

   H3: Population Number Influences Capital Expenditure

   The calculated t-value is 2.819 with a significance level of 0.030 (<0.05), resulting in H3 being accepted, reflecting that the Population variable has a substantial influence on Capital Expenditure. The positive direction of the coefficient indicates that a larger population tends to boost Capital Expenditure. On the other hand, the t-value for this variable is 2.819, which is higher than the t-table value of 2.447, with a t-value of 2.819. We can conclude that H3 is accepted.

4. Manufacturing Industry Sector

   H4: The Manufacturing Industry Sector has an impact on Capital Expenditure

   The calculated t-value is 2.749 with a significance level of 0.033 (<0.05), resulting in H4 being accepted, reflecting that the Manufacturing Industry Sector variable has a substantial influence on Capital Expenditure. A positive coefficient indicates that increased activity in the manufacturing industry sector tends to drive an increase in Capital Expenditure. On the other hand, the t-value for this variable is 2.749, which is higher than the t-table value of 2.447, with a t-value of 2.749. We can conclude that H4 is accepted.

B. Simultaneous F Test

The impact of the four independent variables on the dependent variable will be tested simultaneously using the F test. The F test in this study produced the following findings:

Table 6. F test Results

ANOVA[a]		
Model	F	Sig.
Regression	5.503	.033[b]

Source: SPSS & processed by the author

The F-test results reflect a calculated F-value of 5.503 with a significance level of 0.033, which is smaller than the real level of 0.05. This means that simultaneously the variables of Regional Independence, Economic Growth, Population, and the Manufacturing Industry

Sector have a substantial influence on Capital Expenditure, resulting in the regression model used in this research being suitable to explain the relationship between variables.

C. Coefficient of Determination Test (R2)

The level of ability of the variables Regional Independence (X1), Economic Growth (X2), Population (X3), and Manufacturing Industry Sector (X4) in explaining the Capital Expenditure variable (Y) as indicated by the R-square value is determined using the coefficient of determination test. The coefficient of determination was tested in this study and the results are as follows:

Table 7. Results of the Coefficient of Determination Test (R2)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886[a]	.786	.643	55.73934

Source: SPSS & processed by the author

The R Square value of 0.786 reflects that the independent variable explains the variation in changes in Capital Expenditure by 78.6%, while the remaining 21.4% is explained by other factors outside this research model.

The Influence of Regional Independence on Capital Expenditure

The regression results show that regional independence has a negative influence on the capital expenditure of the Sidoarjo Regency Government. In this case, H1accepted. This finding indicates that while the contribution of Local Government Revenue increases, the allocation for capital expenditure actually decreases. This situation illustrates that increasin Local Government Revenue does not automatically encourage local governments to increase public investment; instead, it tends to be diverted to other types of operational or administrative spending.

This phenomenon may occur for several reasons. First, Sidoarjo's regional revenue primarily consists of routine taxes and levies, so its use is focused on meeting operational spending needs rather than long-term investment. Second, when Local Government Revenue increases, the burden of personnel and other routine expenditures also increases, narrowing the fiscal space for capital expenditure. Third, capital expenditure contributions during the study period appear to be more influenced by central transfers than local revenues, so Local Government Revenue increases are not directly related to public investment expansion.

When viewed through the perspective of Fiscal Federalism theory, these results deviate from theoretical predictions. Fiscal federalism theory emphasizes that the greater a region's fiscal autonomy, reflected in increased local revenue, the greater its ability to provide public services and undertake productive investments, including capital expenditures. Strong fiscal autonomy should increase the flexibility of regional governments in designing development policies tailored to local needs.

However, findings in Sidoarjo Regency show the opposite. Despite an increase in fiscal independence, the local government did not direct the increase in local revenue toward capital expenditure. This indicates that the mechanisms outlined in the Fiscal Federalism theory are not yet functioning optimally. Increased local revenue has not been utilized as a strategic instrument to increase public investment, thus suboptimal fiscal decentralization's effectiveness in improving development quality.

The results of this study align with research conducted by Nindita and Rahayu (2018), which explains that capital expenditure does not always increase regional independence, but can also decrease it due to higher expenditures on capital expenditure compared to general allocation funds, and indications that many abandoned fixed assets cannot boost regional original income. This contradicts research conducted by Galang and Handayani (2019), which concluded a positive relationship between regional independence and capital expenditure. This difference reflects specific local factors in Sidoarjo, where increased fiscal independence is not necessarily followed by increased public investment.

The Effect of Economic Growth on Capital Expenditure

The results of the analysis show that economic growth does not have a substantial effect on capital expenditure in Sidoarjo Regency. In this case, H2rejected. This means that although economic growth in Sidoarjo has increased, this has not impacted capital expenditure because increased economic activity in Sidoarjo is not always accompanied by an expansion of the local government's fiscal capacity. This indicates that increased regional economic activity does not directly drive an increase in budget allocation for capital expenditure. Within the framework of economic development theory, economic growth should broaden the regional fiscal base by increasing tax revenues and local revenue. However, these results underscore that the transmission mechanism from economic growth to capital expenditure is not functioning optimally.

From a fiscal federalism perspective, this illustrates that decentralization mechanisms are not yet optimal, and increased economic activity has not yet fully delivered proportional fiscal contributions to the regions. This condition can be explained by the fact that economic growth is largely influenced by private sector activities such as manufacturing, trade, and services, which do not always align with regional government capital expenditure

allocations. In other words, even if economic growth increases, this does not automatically drive increased capital expenditures because the regional budget structure is more influenced by regional original revenue, central transfer funds, and government fiscal policy priorities.

Despite the relatively high economic growth of Sidoarjo Regency, supported by the manufacturing sector, the additional contribution from this sector has not yet fully flowed into the regional budget. This is due to the limited fiscal authority of the region to collect taxes from large-scale industrial activities, the majority of which falls under the jurisdiction of the central government. Consequently, increased economic growth does not automatically boost regional fiscal capacity to expand capital spending. Furthermore, capital spending is often more influenced by other factors such as regional development priorities, the availability of transfer funds, and the efficiency of budget management.

The results of this study align with research conducted by Galang and Handayani (2019), which stated that although economic growth has positive results, it has no effect on capital expenditure due to the presence of production factors originating from abroad and the increasing import activity compared to export activity. This contradicts research conducted by Rahman (2017), which found that there was apositive relationship between economic growth and capital expenditure.

The Effect of Population on Capital Expenditure

Based on the results of statistical tests, population size has been shown to have a substantial influence on capital expenditure in Sidoarjo Regency. This result is in line with the hypothesis, meaning H3Accepted. This means that the increasing population is pushing the Sidoarjo regional government to expand the capacity of public services such as infrastructure, healthcare, education, and transportation. This increased demand requires long-term investment, requiring the government to allocate more of its budget to capital expenditures. Therefore, the larger the population, the greater the government's tendency to increase capital expenditures to meet the need for public facilities and support community economic activity.

The increasing population in Sidoarjo Regency has created greater demand for public facilities, such as roads, schools, hospitals, and transportation. This requires the local government to allocate capital expenditures more proportionally to meet community needs. The demographic transition theory asserts that long-term population growth will accompany socioeconomic development, making investment in capital expenditures crucial to maintaining this balance.

Increased capital spending due to population growth also reflects the local government's strategy to maintain economic competitiveness and the community's quality

of life. Sidoarjo Regency, with its relatively high population density, faces serious challenges in transportation, housing, and the availability of public facilities. Therefore, capital spending is prioritized as a fiscal policy instrument to address these issues and promote sustainable development.

The results of this study are in line with research conducted by Galang Samudra and Nur Handayani (2019) which reflects that population has a positive effect on capital expenditure in the Gerbangkertasusila area, including Sidoarjo Regency.

The Influence of the Manufacturing Industry Sector on Capital Expenditure

The partial test results reflect that the manufacturing industry sector has a substantial influence on capital expenditure in Sidoarjo Regency. This finding means H4This means that the development of the manufacturing sector increases the need for infrastructure and public services, thus encouraging local governments to increase capital spending. In other words, the greater the industrial activity, the higher the tendency for capital spending to increase.

This aligns with the function of fiscal federalism in encouraging regional governments to support local productive sectors through fiscal policy. The growth of the manufacturing industry in Sidoarjo increases economic activity, attracts labor, and drives increased infrastructure needs such as road access, logistics networks, sanitation, and energy. Within the framework of fiscal federalism, regional governments have an incentive to increase capital spending to maintain the competitiveness and sustainability of these leading sectors.

These findings emphasize that the greater the development of the manufacturing sector, the greater the demand for local governments to provide supporting infrastructure. Therefore, capital expenditure is integral to optimizing the economic benefits of the industrial sector by increasing fiscal capacity and providing adequate public services.

Increased capital expenditure in response to the growth of the processing industry is also in line with the region's long-term development goals. Sidoarjo is not only striving to maintain its position as a buffer zone for Surabaya but also to optimize local economic potential to provide multiplier effect Government investment in the form of capital expenditures, both for physical infrastructure and other supporting facilities, will strengthen Sidoarjo's attractiveness as a strategic location for processing industry development.

The results of this study are in line with research conducted by Kuncoro (2012) which states that the development of the industrial sector is closely related to the increase in regional government capital expenditure.

Conclusion

Based on the background and discussion of this study, it is concluded that Regional Independence has a significant impact on capital expenditure, reflecting that the increase in Local Government Revenue is more directed towards routine expenditure than productive capital expenditure. Economic growth does not have a substantial impact on capital expenditure, as economic activity in the private sector does not fully boost regional fiscal capacity due to limited regional tax authority. Population size has a substantial and positive impact on capital expenditure, indicating that population growth encourages the government to expand capital expenditure in the provision of public infrastructure. The Manufacturing Industry sector has a substantial and positive impact on capital expenditure, as industrial development boosts infrastructure needs and attracts investment, which must be accommodated by regional governments.

This study emphasizes the need for a strategy to intensify and extend regional taxes and levies to broaden the fiscal base, resulting in greater economic growth within the regional budget. Population growth can be anticipated through measurable capital expenditure planning, particularly for the provision of basic infrastructure, education, health, and other public facilities.Capital expenditure must be directed towards strategic programs oriented towards sustainable development, in order to provide a multiplier effect for the Sidoarjo economy.

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