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Analysis of the Influence of Capital and Labor Expenditure on Economic Growth in Regencies/Cities of Southeast Sulawesi Province

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ABSTRACT

This study aims to find out and analyze the influence of capital expenditure and labor on the economic growth of districts/cities in Southeast Sulawesi Province. The data used are secondary data from 2017 to 2025. The analysis tool used is a double linear regression analysis with the help of the Eviews 12 Program Study. The results of this study show that capital expenditure has a positive and significant influence on economic growth. This means that an increase in capital expenditure will have an impact on economic growth, the higher the increase in capital expenditure, the higher the increase in capital expenditure, on the other hand a decrease in capital expenditure will have an impact on declining economic growth. Labor has a positive and significant effect on economic growth. This means that the increase in labor will have an impact on increasing economic growth, the higher the increase in the workforce, economic growth will also increase, on the other hand, if the labor force decreases, economic growth will also decrease.

Keywords: Capital Expenditure; Labor; Economic Growth

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INTRODUCTION

Economic growth is one of the key indicators in evaluating the success of a region's development because it reflects the development of production capacity and economic activity in producing goods and services. Sustainable economic growth is related to the creation of job opportunities, increased incomes, and strengthening regional economic capacity. In the neoclassical growth perspective, output development is influenced by the accumulation of capital, labor, and technological advances. The Solow-Swan framework places capital and labor as the main inputs in the production process, while increased productivity is an important factor in determining output growth in the long term (Timbuleng et al., 2024).

In the context of regional development, capital accumulation does not only come from private sector investment, but can also be supported through public investment by local governments. Capital expenditure is a fiscal instrument used by governments to acquire or build assets that have benefits over more than one budget period. Public infrastructure built through capital expenditure can improve connectivity, facilitate the mobility of factors of production, reduce economic costs, and create conditions that support production and investment activities. The Ministry of Finance also places improving the quality of productive expenditure and targeting capital expenditure as part of a strategy to strengthen regional economic growth (Ministry of Finance of the Republic of Indonesia, 2025). Public infrastructure is seen as having a function in supporting economic activities, job opportunities, and equitable distribution of services between regions (Priambodo, 2015).

In addition to capital, labor is a factor of production that directly plays a role in the process of output creation. An increase in the number of available labor can expand the production capacity of a region, especially if labor is absorbed into productive economic sectors. In the Solow-Swan framework, labor is one of the fundamental inputs in the joint production function of capital and technology. Thus, changes in the number of workers can theoretically affect the ability of a region to produce economic output (Naufal et al., 2025).

Southeast Sulawesi Province is one of the regions that has quite strong economic dynamics, but its economic development is inseparable from the differences in characteristics between districts/cities. In 2025, Southeast Sulawesi's economy will grow by 5.79 percent, an increase compared to 2024's growth of 5.40 percent. In the same year, GDP based on constant prices in 2010 reached Rp120.59 trillion. In terms of production, the processing industry sector recorded the highest growth of 14.91 percent, while the agriculture, forestry, and fisheries sectors still contributed the largest to the GDP structure, which was 23.79 percent (Central Statistics Agency of Southeast Sulawesi Province, 2026).

Although the provincial economy shows positive growth, it does not reflect the uniformity of economic development at the district/city level. Differences in fiscal capacity, infrastructure availability, number of workers, economic structure, and the ability of each region to optimize resources cause different levels of economic activity between regions. This condition is important because large capital expenditures do not automatically produce the same economic output if the quality, accuracy of targets, and productivity of use are different. The World Bank, through the development of long-term growth models, also emphasizes that the impact of public investment on growth is influenced by the quality of public capital and the efficiency of available infrastructure.

Differences in empirical results were also found in previous research. Sari et al. (2016) using South Sulawesi data for the period 2001–2013, found that capital expenditure and labor have a significant effect on economic growth. Similar results were found by Rasjid et al. (2021) in North Sulawesi, which show that government and labor expenditure have a positive and significant effect on economic growth. Prasasti (2022) also found that labor and government expenditure have a positive and significant effect on the economic growth of districts/cities in South Sulawesi with a panel data approach. However, Agustia and Digdowiseiso (2023) found that capital expenditure has a positive but insignificant effect on the economic growth of districts/cities in Riau Province. The differences in findings show that the relationship between capital expenditure, labor, and economic growth can differ according to regional characteristics, observation periods, economic structure, and the effectiveness of the use of factors of production.

Based on these conditions, there is still empirical space to examine the relationship between capital expenditure and labor to economic performance at the district/city level in Southeast Sulawesi Province. This study uses panel data from 17 districts/cities during the period 2017–2025 so that the analysis can consider variations between regions and changes between times. Capital expenditure is represented through the realization of capital expenditure, while labor is represented through the number of working population. Regional economic performance is represented through Gross Regional Domestic Product (GDP) on a constant price basis (ADHK).

The use of ADHK GDP is intended to describe the value of real economic output by eliminating the influence of price changes, so that it can be used to compare the development of economic production capacity between regions and between periods. Furthermore, logarithmic transformations are used in the model to obtain an interpretation of the relationship in the form of elasticity. With this approach, this study is directed to obtain empirical evidence on the extent to which capital expenditure and labor are related to the increase in economic output of districts/cities in Southeast Sulawesi Province.

Based on this description, this study aims to analyze the influence of capital expenditure on economic growth, analyze the influence of labor on economic growth, and analyze the simultaneous influence of capital and labor expenditure on the economic growth of districts/cities in Southeast Sulawesi Province. This research is expected to enrich empirical evidence regarding production factors and regional fiscal policies in the context of regional economic development, as well as provide information for the formulation of development policies that consider the characteristics and needs of each district/city.

LITERATURE REVIEW

Economic Growth Theory

According to Sukirno, economic growth is the development of activities in the economy that causes the goods and services produced in the community to increase and the prosperity of the community to increase. The problem of economic growth can be seen as a macroeconomic problem in the long term. The development of the ability to produce goods and services as a result of an increase in production factors in general is not always followed by an increase in the production of goods and services that is equally large. Economic growth is a quantitative measure that describes the development of an economy in a given year when compared to the previous year (Priambodo, 2015).

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Solow-Swan Growth Theory

The neoclassical growth model developed by Solow and Swan describes output through capital, labor, and technological advancement. Simplified production functions can be expressed as:

$$Y = f(A) \quad (1)$$

where it represents output, capital, labor, and technology.$YKLA$

This framework implies that an increase in productive capital and labor can increase production capacity, while technological advances affect the efficiency of the use of factors of production.

In this study, capital expenditure represents the public sector component associated with capital formation, while labor represents the number of people employed and economic growth represents regional economic output (Timbuleng et al., 2024).

Capital Expenditure

Capital expenditure is a government expenditure directed towards the procurement or development of fixed assets that provide benefits over more than one accounting period.

From an economic perspective, productive capital expenditure can increase regional productive capacity. Infrastructure can facilitate mobility, improve access to markets, reduce transportation costs, and support private sector activities.

Warianto (2024) found that capital expenditure is positively related to economic growth in Indonesia. Agustia and Digdowiseiso (2023) also reported a positive and significant relationship between capital expenditure and regional economic growth.

Workforce

Labor is a direct factor of production. The number of people working indicates the number of human labor currently involved in economic activities.

Increased employment can contribute to increased output when labor is absorbed into productive sectors. However, the influence of labor is also related to education, skills, technology, productivity, and the structure of regional economic activities.

Prasasti (2022) reports that there is a significant relationship between labor and economic growth in South Sulawesi. Safri et al. (2021) also examined the relationship between labor, education, and investment and economic growth through employment opportunities in Jambi.

Previous Research

Previous empirical studies relevant to this research are summarized in Table 1.

Table 1. Previous Studies Relating to Capital Expenditure, Labor, and Economic Growth

NO.	Author and Year	Research Focus	Method	Key Findings
1	Warianto (2024)	Capital expenditure and economic growth in Indonesia	Regresi panel	Capital expenditure has a positive and significant influence.
2	Prasasti (2022)	Employment and economic growth in South Sulawesi	Regresi panel	Labor has a positive and significant influence.

3	Agustia & Digdowiseiso (2023)	Capital expenditure and economic growth in Riau	Regresi panel	Capital expenditure has a positive and significant influence.
4	Rasjid et al. (2021)	Government capital expenditure, labor, domestic and foreign investment, and growth in North Sulawesi.	Regresi panel	Capital and labor expenditures are related to regional economic growth.
5	Safri et al. (2021)	Labor, education, investment, and economic growth in Jambi	Panel analysis	Labor and other production-related variables contribute to economic growth.
6	Kusuma et al. (2024)	Capital expenditure, labour, and economic growth in Indonesia, 2015–2022	Regresi panel	Capital expenditure and labor are examined as determining factors for economic growth.
7	Timbuleng et al. (2024)	Investment, labor, government spending, and economic growth in Manado	Retro analysis	Variables related to labor and government are related to economic growth.

Previous studies provide empirical support to examine capital and labor expenditures simultaneously. The study differs mainly in its regional focus, covering all 17 districts/cities in Southeast Sulawesi and using panel observations from 2017–2025.

RESEARCH METHOD

Data and Variables

This study uses secondary panel data covering 17 districts/cities in Southeast Sulawesi Province for the period 2017–2025. The balanced panel consists of 153 observations.

Economic growth and labor data are obtained from the Central Statistics Agency (BPS), while capital expenditure data is obtained from government financial data managed by the Directorate General of Financial Balance (DJPK).

Table 2. Variable Operational Definitions

Variabel	Symbols	Measurement
Economic Growth	Y	GDP at constant prices in 2010, Rp billion
Capital Expenditure	X1	Realized capital expenditure, IDR billion
Workforce	X2	Number of people working

Model Econometric

The panel regression model is formulated in logarithmic form as follows:

$$LnPDRB_{it} = \alpha + \beta_1 LnBM_{it} + \beta_2 LnTK_{it} + \varepsilon_{it} \quad (2)$$

Where:
$LnPDRB_{it}$= the natural logarithm of the real GDP of the region in the year ;it
$LnBM_{it}$= natural logarithm of capital expenditure;
$LnTK_{it}$= natural logarithm of labor;
α= konstanta;
β_1, β_2= regression coefficient; and
ε_{it}= term error.
Since these variables are expressed in logarithmic form, their coefficients can be interpreted as elasticity.

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Panel Model Selection

Three panel estimation approaches were considered: the General Effects Model (CEM), the Fixed Effects Model (FEM), and the Random Effects Model (REM).

The Chow test is used to determine whether CEM or FEM is more precise, while the Hausman test is used to differentiate between FEM and REM. The results of the model selection procedure lead to the use of the Fixed Effect Model.

The fixed-effects approach is appropriate for the design of this study because each district/city may have characteristics that do not change over time that distinguish it from other regions.

RESULTS

Descriptive Statistics

Descriptive statistics were employed to examine the characteristics of capital expenditure, workforce, and real Gross Regional Domestic Product (GRDP) across 153 observations. The results indicate considerable variation among regions and observation periods, as presented in Table 3.

Table 3. Descriptive Statistics

Variable	Mean	Median	Maximum	Minimum	Standard Deviation
Capital Expenditure	2,221,592	2,043,100	7,764,900	313,500	1,050,638
Workforce	76,426.1242	71,765.0000	193,948.0000	10,145.0000	45,579.8543
Real GRDP	5,924.4512	3,638.8800	22,946.5800	913.5500*	5,273.7308

Source: EViews 12 output, processed by the authors.

The average capital expenditure was IDR 222.1592 billion, with a minimum of IDR 31.35 billion and a maximum of IDR 776.49 billion. The relatively large standard deviation indicates considerable variation in capital expenditure across observations.

The workforce had an average of approximately 76,426 workers, with a minimum of 10,145 and a maximum of 193,948 workers. These figures indicate substantial differences in workforce size across regions and observation periods.

Meanwhile, real GRDP recorded an average value of IDR 5,924.4512 billion and a maximum value of IDR 22,946.58 billion. The variation in real GRDP reflects differences in economic output across regencies and cities in Southeast Sulawesi Province.

Fixed Effect Regression Results

The Fixed Effect Model (FEM) was employed to estimate the effects of capital expenditure and labor on regional economic growth while controlling for individual regional effects. The estimation results are presented in Table 4.

Table 4. Fixed Effect Model Estimation Results

Variable	Coefficient	Probability	Result
Capital Expenditure	0.261642	0.0001	Positive and significant
Labor	1.065427	0.0000	Positive and significant
Model Statistics			

Adjusted R-squared	0.818617		
F-statistic	344.0017		
Prob. (F-statistic)	0.000000		
Number of Observations	153		

Note. Statistical significance is determined at the 5% significance level.
Source: EViews 12 output, processed by the authors.

The regression results indicate that capital expenditure has a positive coefficient of 0.261642 and a probability value of 0.0001, demonstrating a statistically significant relationship with economic growth. Similarly, labor has a positive coefficient of 1.065427 and a probability value of 0.0000, indicating a statistically significant relationship with economic growth.

The model produced an F-statistic of 344.0017 with a probability value of 0.000000, indicating that the overall regression model is statistically significant. Furthermore, the adjusted R-squared value of 0.818617 indicates that approximately 81.86% of the variation in the dependent variable is accounted for by the estimated model, including individual regional effects, while the remaining 18.14% is not explained by the model.

DISCUSSION

The Effect of Capital Expenditure on Economic Growth

The findings demonstrate that capital expenditure has a positive and statistically significant relationship with economic growth, with a regression coefficient of 0.261642 and a probability value of 0.0001. Given the logarithmic specification of the model, a 1% increase in capital expenditure is associated with an approximately 0.26% increase in regional economic output, assuming labor remains constant.

These findings are consistent with the Solow–Swan framework, which identifies capital as an essential factor of production. At the regional level, public capital expenditure contributes to the development of productive infrastructure that supports both private and public economic activities.

Regional data further illustrate this relationship. Kendari City recorded an average capital expenditure of IDR 419.96 billion and an average real GRDP of IDR 17,961.89 billion, whereas Konawe Islands recorded an average capital expenditure of IDR 158.35 billion and an average real GRDP of IDR 1,115.68 billion.

However, higher capital expenditure does not necessarily result in proportionately higher economic output. In 2025, North Konawe recorded capital expenditure of IDR 247.97 billion and real GRDP of IDR 3,600.96 billion, while Kendari City recorded slightly higher capital expenditure of IDR 254.06 billion but substantially higher real GRDP of IDR 20,504.96 billion. These differences suggest that the economic contribution of public capital expenditure depends on infrastructure characteristics, asset productivity, regional economic structure, and the capacity to utilize public assets effectively.

These findings are consistent with Warianto (2024) and Agustia and Digdowiseiso (2023), who reported a positive relationship between capital expenditure and economic growth.

The Effect of Labor on Economic Growth

Labor has a positive and statistically significant relationship with economic growth, as indicated by a regression coefficient of 1.065427 and a probability value of 0.0000. Under the log-log model specification, a 1% increase in labor is associated with an

approximately 1.07% increase in regional economic output, assuming capital expenditure remains constant.

These findings support the production function perspective, which recognizes labor as a fundamental production input. An increase in the number of employed individuals can contribute to higher economic output when workers are absorbed into productive economic activities.

Regional data demonstrate considerable differences in workforce size and economic output. Kendari City recorded an average workforce of 180,810.40 workers and an average real GRDP of IDR 17,961.89 billion. South Konawe recorded an average workforce of 162,642 workers and an average real GRDP of IDR 9,172.97 billion, whereas Konawe Islands recorded an average workforce of 18,344.20 workers and an average real GRDP of IDR 1,115.68 billion.

Nevertheless, economic output is not determined solely by workforce size. Labor productivity also depends on education, skills, technology, sectoral composition, and employment opportunities. Therefore, increasing workforce participation should be accompanied by improvements in labor quality and productive employment opportunities.

Furthermore, the labor coefficient is greater than the capital expenditure coefficient, indicating that regional economic output is more responsive to changes in labor than to changes in capital expenditure within the estimated model and sample.

The relationship between labor and economic growth has also been examined by Priambodo (2015), who investigated regional original income, capital expenditure, and labor as determinants of economic growth.

The Combined Effect of Capital Expenditure and Labor on Economic Growth

The regression results produced an F-statistic of 344.0017 with a probability value of 0.000000, indicating that the overall model is statistically significant. The adjusted R-squared value of 0.818617 further demonstrates that the estimated model, including individual regional effects, accounts for approximately 81.86% of the variation in regional economic output.

These findings are consistent with the Solow–Swan framework, which recognizes capital and labor as fundamental production inputs. Capital expenditure supports public capital formation and infrastructure development, while labor contributes directly to productive economic activities.

The findings highlight the importance of integrating public investment and workforce development to support regional economic growth. Effective allocation of capital expenditure, accompanied by productive labor utilization, can contribute to improved regional economic performance.

These findings are also generally consistent with Rasjid et al. (2021), who examined capital expenditure and labor as determinants of regional economic growth in North Sulawesi.

CONCLUSION

This study examined the relationship between capital expenditure, labor, and economic growth across 17 regencies and cities in Southeast Sulawesi Province during 2017–2025, using 153 panel observations. The Fixed Effect Model results indicate that capital

expenditure and labor have positive and statistically significant relationships with regional economic growth. Capital expenditure contributes to regional economic capacity through the provision of infrastructure and facilities that support production and community economic activities. Similarly, labor plays an essential role in increasing the production capacity of goods and services and supporting regional economic activities. The overall regression model is statistically significant, with an adjusted R-squared value of 0.818617, indicating that approximately 81.86% of the variation in regional economic output is explained by the estimated model. These findings emphasize that regional economic performance depends not only on the amount of capital expenditure allocated by local governments but also on the availability and productive utilization of labor.

Based on these findings, local governments are encouraged to prioritize capital expenditure on productive assets and infrastructure that provide long-term economic benefits, considering the effectiveness, quality, and economic characteristics of each region. Regions with developing economic activities should strengthen production infrastructure and connectivity, while regions with relatively low economic capacity should prioritize basic infrastructure and facilities that improve access to production and markets. Furthermore, local governments should enhance workforce quality and productivity through education, skills training, competency development, and the expansion of productive employment opportunities. Future research is recommended to incorporate additional variables, considering that approximately 18.14% of the variation in regional economic output remains unexplained by the model. These variables may include investment, labor productivity, human resource quality, infrastructure, technology, and regional economic structure to provide a more comprehensive understanding of the determinants of regional economic growth.

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DECLARATION OF CONFLICTING INTERESTS
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REFERENCES

Agustia, D., & Digdowiseiso, K. (2023). The effect of capital expenditure, investment, and general allocation funds on the rate of economic growth in regencies and cities in Riau Province, 2016–2020. *Jurnal Ekonomi, 12*(2). http://ejournal.seaninstitute.or.id/index.php/Ekonomi

Central Statistics Agency of Southeast Sulawesi Province. (2026). *Southeast Sulawesi Province in 2026 figures*.

Kusuma, R., Maharani, R., Sari, S. N., & Kurniawan, M. (2024). Analysis of the influence of capital and labor expenditure on economic growth in Indonesia for the period 2015–2022. *Monetary: Journal of Economics and Finance, 2*(3), 18–31. https://doi.org/10.61132/moneter.v2i3.618

Ministry of Finance of the Republic of Indonesia. (2025). *Data on the realization of the regional revenue and expenditure budget (APBD) of districts/cities in Southeast Sulawesi Province in 2017–2025* [Data set]. Directorate General of Fiscal Balance.

Naufal, H. A., Lastuti, Y., & A. K. (2025). The influence of labor, capital, and technology on Indonesia's economic growth. *Scientific MEA (Management, Economics, and Accounting), 9*(2), 3067–3079.

Prasasti, D. (2022). The influence of investment, labor, and government expenditure on economic growth in South Sulawesi regency and city. *Journal of Economics (JIE), 6*(3), 478–490.

Priambodo, A. (2015). Analysis of the influence of regional original income, capital expenditure, and labor on economic growth. *Economics Development Analysis Journal, 4*(1), 1–9.

Rasjid, F., Masinambow, V. A. J., & Niode, A. O. (2021). Analysis of the influence of government capital expenditure, labor, domestic investment, and foreign investment on economic growth in North Sulawesi. *9*(1), 1175–1185.

Safri, M., Fahrizal, & Zamzami. (2021). Analysis of the influence of the number of workers, education level, and investment on economic growth through employment opportunities in Jambi Province. *Journal of Economic Paradigm, 16*(1), 167–190.

Sari, M., Syechalad, M. N., & Majid, S. A. (2016). Pengaruh investasi, tenaga kerja dan pengeluaran pemerintah terhadap pertumbuhan ekonomi di Indonesia. *Jurnal Ekonomi dan Kebijakan Publik Indonesia, 3*(2), 109–115. https://jurnal.usk.ac.id/EKaPI/article/view/5606

Timbuleng, G., Rotinsulu, T. O., & Siwu, H. F. D. (2024). Analysis of the influence of investment, labor, and government expenditure on economic growth in Manado City. *Journal of Scientific Periodical Efficiency, 24*(5), 1–14.

Warianto, P. (2024). The effect of capital expenditure on economic growth in Indonesia. *2*, 306–312.

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