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The Effect of Investment, Human Development Index and Infrastructure Development on Economic Growth of Districts/Cities in Lombok Island 2019-2025

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ABSTRACT

This study aims to analyze the influence of Domestic Direct Investment (PMDN), Foreign Direct Investment (PMA), Human Development Index (HDI), and road, electricity, and water infrastructure partially and simultaneously on the economic growth of districts/cities on Lombok Island for the period 2019–2025. This type of research is associative quantitative using secondary panel data from the Central Statistics Agency (BPS) of West Nusa Tenggara Province covering 5 districts/cities for 7 years (35 observations). The estimation method chosen based on the model specification test is the Common Effect Model (CEM) processed using EViews 14. The results of the study indicate that partially, PMDN, FDI, HDI, road infrastructure, and electricity infrastructure have a positive and significant effect on economic growth. Conversely, water infrastructure has a negative and insignificant effect. Simultaneously, all independent variables have a significant effect on economic growth with an Adjusted R2 value [of] 0.5803 (58.03%).

INTRODUCTION

Economic growth is a process of increasing national income and long-term per capita output that reflects the success of a region's development (S. I. Sari & Sari, 2021). Based on Solow's Theory, this growth is influenced by the accumulation of capital, labor, and technological progress (Santian et al., 2019). One of the things included in capital is investment, both from within and outside the country. Domestic Investment (PMDN) is investment originating from domestic economic actors, while Foreign Investment (PMA) comes from foreign investors. The existence of PMDN and PMA can be a source of additional capital for production activities and business development in the region, thus potentially driving economic growth (Sari et al., 2025). For this investment to run effectively, it requires support from the quality of human resources as reflected in the Human Development Index (HDI) to increase labor productivity (Febriana & Charles, 2026). In

addition, the availability of basic infrastructure such as road networks and adequate drinking water is crucial for the smooth distribution and economic activities of the community (Arga et al., 2022;). Variations and fluctuations in all these supporting factors ultimately cause differences in economic growth rates in various districts/cities on Lombok Island during the 2019–2025 period.

Table 1. Gross Domestic Product (GRDP) Growth Rate at Constant 2010 Prices by Regency/City on Lombok Island 2019-2025 (percent)

Year	GRDP at Constant Prices (%)				
	Regency/City				
	West Lombok Regency	Loteng Regency	East Lombok Regency	KLU	Mataram City
2019	3.84	4.04	4.70	5.86	5.58
2020	-7.03	-6.67	-3.12	-7.46	-5.52
2021	3.40	4.03	3.12	1.38	3.27
2022	1.82	1.59	1.41	1.95	2.57
2023	3.42	3.81	2.57	3.58	3.57
2024	1.48	1.47	2.50	2.80	3.22
2025	3.24	3.01	3.25	2.74	4.55

Source: Central Statistics Agency of West Nusa Tenggara Province

Based on 2010 ADHK GRDP data for the 2019–2025 period, economic growth on Lombok Island fluctuates. In 2019, all regencies/cities recorded positive growth, but in 2020 there was an economic contraction due to the Covid-19 pandemic. The economy began to recover in 2021 and returned to positive growth, although it experienced a slowdown in 2022 and 2024. In 2025, all regions again showed increased economic growth, with Mataram City recording the highest growth of 4.55 percent. The fluctuations in economic growth that occurred on Lombok Island indicate that various factors influence regional economic performance, one of which is the availability of infrastructure. Adequate infrastructure, such as roads, electricity, and water, plays a crucial role in supporting economic activity, increasing productivity, and driving regional economic growth. Therefore, the development of road, electricity, and water infrastructure on Lombok Island needs to be studied to determine its contribution to the dynamics of economic growth.

Apart from the problem of fluctuations in economic growth and development dynamics in the field, an important factor in conducting this research is based on the inconsistency of results (*research gap*) from previous studies that examined the influence of investment, human resources, and infrastructure on economic growth.

On the investment variable, research conducted byBondan & Putra, 2025 in West Nusa Tenggara Province found that Domestic Investment and Foreign Investment had a positive and significant effect on economic growth, while research conducted byAzmi & Salmah,

2025 in Mataram City found that PMDN has a positive and significant influence on economic growth andSepriani & Hulu, 2021 in Indonesia found that Foreign Investment did not have a significant effect on economic growth.

In the Human Development Index (HDI) variable, research conducted Rahman et al., 2025in West Sumatra Province found that the HDI had no effect on economic growth, whereas research conducted byFebriana & Charles, 2026 in North Sumatra Province found that the HDI has an influence on economic growth.

Regarding the infrastructure variable, research conducted Sani et al., 2025in West Nusa Tenggara province found that road and electricity infrastructure had a positive and significant impact on economic growth, while water infrastructure had a negative and insignificant impact. However, research conducted byFahrudin & Aulia, 2023 A study in Probolinggo Regency found that road infrastructure, electricity infrastructure, and water infrastructure had a negative and insignificant impact on economic growth. Research conducted Afriyana et al., 2023in West Nusa Tenggara Province found that water infrastructure had a positive and significant impact on economic growth. None of these studies have simultaneously examined the influence of investment, the human development index, and infrastructure on economic growth. Therefore, this study was conducted to determine the influence of investment, the human development index , and infrastructure on economic growth in regencies/cities on Lombok Island from 2019 to 2025.

RESEARCH METHODS

This study uses an associative quantitative approach to explain the relationship between variables in 5 districts/cities on Lombok Island during the period 2019–2025, with the research implementation in 2026. The data used are secondary data from the NTB Province BPS collected through online documentation study techniques. The dependent variable in this study is Economic Growth (GRDP ADHK Growth Rate), while the independent variables include Domestic Investment (PMDN), Foreign Investment (PMA), Human Development Index (HDI), and three infrastructure indicators, namely roads (road length in km), electricity (% of households with PLN electricity), and water (% of households with access to improved water).

Data analysis was conducted through a panel data regression approach combining *cross-section* and *time series data* with the help of EViews 14 software. The selection of the best estimation model among *the Common Effect Model* (CEM), *Fixed Effect Model* (FEM), and *Random Effect Model* (REM) was determined through the Chow Test, Hausman Test, and *Lagrange Multiplier Test* . The feasibility of the regression model was ensured through classical assumption testing which included normality tests (Jarque-Bera), multicollinearity (VIF), heteroscedasticity, and autocorrelation (*Breusch-Godfrey*). Furthermore, hypothesis testing was evaluated through the t-test to measure partial effects, the F-test to see

simultaneous effects, and the coefficient of determination (R^2) to measure the model's ability to explain variations in economic growth variables.

RESULTS AND DISCUSSION

Data Analysis Results

Panel Data Regression Model Selection

From the results of panel data regression calculations with model specification testing stages such as the Chow test, which is to determine the best model between the Common Effect Model (CEM) and the Fixed Effect Model (FEM), the Hausman test, which is to determine the best model between the Fixed Effect Model (FEM) and the Random Effect Model (REM), and the Lagrange multiplier (LM) test, which is to determine the best model between the Common Effect Model (CEM) and the Random Effect Model (REM). The test results can be seen in the following table:

Table 2. Chow Test Results

***Chow* Test**	
Cross-section Chi-Square	0.7245
Decision	>0.05
Selected Model	CEM

Source: Eviews14 Processing Results

Based on the model specification test, the Chow Test produced a cross-section chi-square value of 0.7245 (> 0.05) so that the Common Effect Model (CEM) was selected compared to the Fixed Effect Model (FEM). Because the selected model was CEM, the Hausman Test was not necessary. Furthermore, the LM Test to compare CEM and the Random Effect Model (REM) could not be carried out because the REM estimation was constrained by the number of cross-section units being fewer than the number of estimated coefficients (N < K). Thus, it can be concluded that the best model in this study is the Common Effect Model (CEM).

Table 3. Panel Data Regression Results Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.09058	200.4636	-0.802668	0.4289
X1	1.113083	7.630549	2.889104	0.0274
X2	1.753998	1.750612	3.409154	0.0324
X3	0.238125	0.222574	4.576463	0.0148
X4	0.001715	0.002339	3.572377	0.0030
X5	1.769824	2.074174	5.326754	0.0467
X6	-0.017331	0.292222	-0.059310	0.9531

Source: Eviews14 Processing Results

Regression Equation Analysis

Y = -16.09058 + 1.113083*(X1) + 1.753998*(X2) + 0.238125*(X3) +0.001715*(X4) + 1.769824*(X5) - 0.017331*(X6)

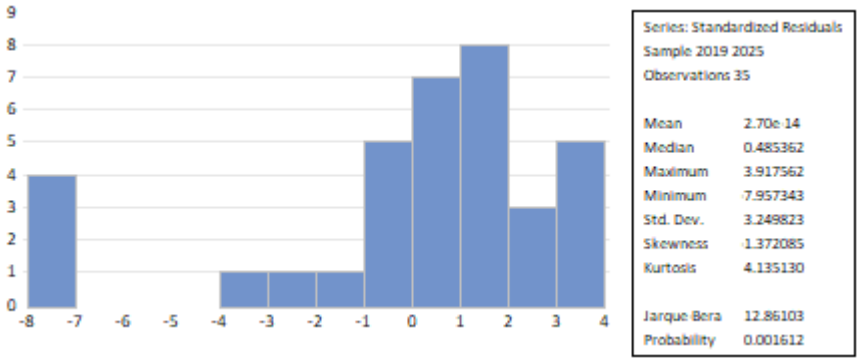
Classical Assumption Test

The panel data regression model used in this study is the Common Effect Model, estimated using Ordinary Least Squares (OLS). Because the OLS approach is used, a comprehensive classical assumption test is necessary to ensure the validity of the panel data regression model .

a. Normality Test

A normality test is performed to determine whether the collected data originates from a normally distributed population, considering that an optimal regression model must have a normal distribution. The results of the normality test are as follows:

Table 4. Normality Test Results



Source: Results of Eviews 14 Processing

The results of the Normality Test based on the results of the Normality Test can be analyzed through the Jarque-Bera P-Value or Probability value. In this study, the value was recorded at 0.001612, which is less than 0.05, indicating that the data does not follow a normal distribution. Although the probability value indicates that the data is not normally distributed, the normality assumption is still considered fulfilled because the number of research samples exceeds 30. This refers to the Central Limit Theorem, which states that the distribution of data with a large sample size, especially more than 30, will tend to approach a normal distribution (Pranadipta & Natsir, 2023).

b. Multicollinearity Test

A multicollinearity test is performed to determine whether there is a strong correlation between the independent variables in a regression model. A good regression model is one that has no correlation between the independent variables, or in other words, the model is free from multicollinearity problems (Ghozali, 2021). The results of the multicollinearity test can be seen in the following table:

Table 5. Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	40185.67	109672.9	NA
X1	5.82E-25	3.269006	1.602463
X2	3.06E-24	2.698251	1.488543
X3	0.049539	688.5048	3.682352
X4	5.47E-06	11.69530	1.502405
X5	4.302199	116660.2	1.530858
X6	0.085394	2083.011	2.856070

Source: Results of Eviews 14 Processing

Based on the results of the multicollinearity test above, the centered VIF value shows that the results of the values of each independent variable are less than 10 (<10), which means there are no symptoms of multicollinearity.

c. Autocorrelation Test

The autocorrelation test is used to determine whether there is a relationship between the error (residual) in period t and the error in period t-1 in a linear regression model. The autocorrelation test can be performed using the LM test. The results of the autocorrelation test can be seen in the following table:

Table 6. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	6.128160	Prob. F(2,26)	0.0066
Obs*R-squared	11.21308	Prob. Chi-Square(2)	0.3673

Source: Results of Eviews 14 Processing

Based on the test results data above, autocorrelation analysis can be carried out by referring to the Chi-Square Probability value found in Obs*R-squared of 0.3673. with the dependent variable RESID. A value greater than 0.05 (>0.05) is obtained, which indicates that there is no autocorrelation.

d. Heteroscedasticity Test

The heteroscedasticity test aims to determine whether there are differences in residual variance between one observation and another in a regression model. A suitable regression model is one that does not exhibit heteroscedasticity. The results of the heteroscedasticity test are seen from the Chi-Square Prob. value, which indicates that the regression model tested does not exhibit heteroscedasticity. The results of the heteroscedasticity test can be seen in the following table:

Table 7

Heteroscedasticity Test Results

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.681794	Prob. F(6,28)	0.6656
Obs*R-squared	4.461619	Prob. Chi-Square(6)	0.6145
Scaled explained SS	4.476082	Prob. Chi-Square(6)	0.6125

Source: Results of Eviews 14 Processing

Based on the results of the heteroscedasticity test conducted using the Breusch-Pagan-Godfrey test, the Chi-Square Probability value for Obs*R-squared of 0.6145 is greater than 0.05 (>0.05). This indicates that there is no heteroscedasticity in the analyzed data.

Hypothesis Testing

Hypothesis testing is conducted to determine whether the independent variable has a partial and simultaneous influence on the dependent variable. The test consists of a t-test, an F-test, and a coefficient of determination:

T-test

The t-test is used to measure the significant influence of each independent variable on the dependent variable. The results of the t-test statistic can be seen in the following table:

Table 8. T-Statistic Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-16.09058	200.4636	-0.802668	0.4289
X1	1.113083	7.630549	2.889104	0.0274
X2	1.753998	1.750612	3.409154	0.0324
X3	0.238125	0.222574	4.576463	0.0148
X4	0.001715	0.002339	3.572377	0.0030
X5	1.769824	2.074174	5.326754	0.0467
X6	-0.017331	0.292222	-0.059310	0.9531

Source: Results of Eviews 14 Processing

The t-statistic test table above presents the calculated t-value and probability value for each independent variable. In this study, a one-way hypothesis test interpretation was used with a significance level of 0.05 or 5%, where the t-table value is 1.69913 and the degrees of freedom (df) value is 29 (with Df = nk). Therefore, the hypothesis can be proven as explained below:

1. The probability value for the Domestic Investment variable (X1) is recorded at 0.0274, less than 0.05 with a coefficient value of 1.113083. In addition, the calculated t value of 2.889104 is also greater than the t table which is 1.69913. Thus, it can be concluded that the Domestic Investment variable has a positive and significant partial effect on the economic growth rate variable (Y).

2. The probability value for the Foreign Investment variable (X2) is recorded at 0.0324, less than 0.05 with a coefficient value of 1.753998. In addition, the calculated t value of 3.409154 is also greater than the t table which is 1.69913. Thus, it can be concluded that the Foreign Investment variable has a positive and significant partial effect on the economic growth rate variable (Y).
3. The probability value for the Human Development Index variable (X3) is recorded at 0.0148, smaller than 0.05 with a coefficient value of 0.238125. In addition, the calculated t value is 4.576463 which is greater than the t table which is 1.69913. Thus, it can be concluded that the Human Development Index variable has a positive and significant partial influence on the economic growth rate variable (Y).
4. The probability value for the Road Infrastructure variable (X4) is recorded at 0.0030, smaller than 0.05 with a coefficient value of 0.001715. In addition, the calculated t value of 5.572377 is greater than the t table value of 1.69913. Thus , it can be concluded that the Road Infrastructure variable has a positive and significant partial influence on the economic growth rate variable (Y).
5. The probability value for the Electricity Infrastructure variable (X5) is recorded at 0.0467, smaller than 0.05 with a coefficient value of 1.769824. In addition, the calculated t value of 5.326754 is greater than the t table value of 1.69913. Thus, it can be concluded that the Electricity Infrastructure variable has a positive and significant partial influence on the economic growth rate variable (Y).
6. The probability value for the Water Infrastructure variable (X6) is recorded at 0.9531, greater than 0.05 with a coefficient value of -0.017331. In addition, the calculated t value of -0.059310 is smaller than the t table value of 1.69913. Thus, it can be concluded that the Water Infrastructure variable has a negative and partially insignificant influence on the economic growth rate variable (Y).

F test

The F-test is used to identify the extent to which independent variables simultaneously influence the dependent variable. In the context of this study, the interpretation of the results is seen in the F-statistic probability value obtained from the regression analysis using the Common Effect Model method (Alawi et al., 2025). The results of the F-statistic test can be seen in the following table:

Table 9. F Statistical Test Results

R-squared	0.757378	Mean dependent var	1.816285
Adjusted R-squared	0.580326	S.D. dependent var	3.448211
S.E. of regression	3.581129	Akaike info criterion	5.566090
Sum squared resid	359.0857	Schwarz criterion	5.877159
Log likelihood	-90.40658	Hannan-Quinn criter.	5.673471
F-statistic	5.871531	Durbin-Watson stat	3.148875
Prob(F-statistic)	0.037613		

Source: Results of Eviews 14 Processing

Based on data analysis, the Probability value (F-statistic) is 0.037613, which indicates that the value is smaller than 0.05, or in other words, the calculated F value is greater than the F table (5.87 > 2.45). This shows that the independent variables including Domestic Investment (X1), Foreign Investment (X2), Human Development Index (X3), Road Infrastructure (X4), Electricity Infrastructure (X5), and Water Infrastructure (X6), simultaneously affect the rate of economic growth (Y).

Determination Coefficient (R^2)

The coefficient of determination (R2) is used to assess the extent to which a model can explain variation in the dependent variable. The results of the coefficient of determination (R2) analysis in this study can be seen in the following table:

Table 10. Results of the Determination Coefficient Test

R-squared	0.757378	Mean dependent var	1.816285
Adjusted R-squared	0.580326	S.D. dependent var	3.448211
S.E. of regression	3.581129	Akaike info criterion	5.566090
Sum squared resid	359.0857	Schwarz criterion	5.877159
Log likelihood	-90.40658	Hannan-Quinn criter.	5.673471
F-statistic	5.871531	Durbin-Watson stat	3.148875
Prob(F-statistic)	0.037613		

Source: Results of Eviews 14 Processing

Based on the data contained in the table, the coefficient of determination or R^2 value obtained from the regression analysis using the Common Effect Model shows the Adjusted R-squared value. In this study, which involves more than one independent variable, namely 6 variables, the value was recorded at 0.580326. This indicates that the variables of Domestic Investment (X1), Foreign Investment (X2), Human Development Index (X3), Road Infrastructure (X4), Electricity Infrastructure (X5), and Water Infrastructure (X6), contribute to the economic growth rate variable (Y) by 0.580326 or 58.03 percent. so that there is 41.97 percent that is not explained in this regression model.

Discussion

The Impact of Domestic Investment on Economic Growth

The results of the hypothesis testing in this study indicate that the domestic investment variable has a coefficient of 1.113083 with a t-statistic value of 2.889104 and a probability of 0.0274. This probability value is smaller than the 0.05 significance level, so it can be concluded that PMDN has a positive and significant effect on the economic growth of districts/cities on Lombok Island during the 2019–2025 period. This means that an increase in PMDN tends to be followed by an increase in economic growth.

These results demonstrate that increased investment from domestic economic actors can contribute to increased regional economic activity. Domestic investment (PMDN) can increase the capital stock used to develop businesses, increase production capacity, and

expand economic activity. Increased investment activity can also create job opportunities and boost community incomes, thereby increasing regional economic activity.

The results of this study align with the Harrod-Domar theory, which explains that investment is a crucial factor in economic growth because it can increase capital stock and production capacity. With additional capital, an economy's ability to produce goods and services increases, thereby driving increased output and economic growth.

Domestic Direct Investment (PMDN) in Lombok Island during the 2019–2025 period shows fluctuating and different developments between regions. West Lombok Regency experienced a decline in PMDN from approximately IDR 1.68 trillion in 2019 to IDR 252.99 billion in 2022, then increased again to approximately IDR 1.04 trillion in 2025. Central Lombok Regency experienced significant changes, namely from approximately IDR 995.01 billion in 2019 to IDR 3.37 trillion in 2021 and reaching approximately IDR 5.11 trillion in 2025. These developments indicate that changes in domestic investment can be one of the factors related to the dynamics of economic activity in the Lombok Island region.

The results of this study are also in line with research by Bondan, & Putra, DP (2025) in West Nusa Tenggara Province, which found that PMDN had a significant effect on economic growth. Furthermore, this studySepriani & Hulu, (2021) also found that domestic investment (PMDN) significantly impacted gross domestic product. Thus, this study's findings reinforce the finding that domestic investment is a factor that can support economic growth by increasing production capacity and regional economic activity.

The Impact of Foreign Investment on Economic Growth

The results of the hypothesis testing in this study indicate that the foreign investment variable has a coefficient of 1.753998 with a t-statistic value of 3.409154 and a probability of 0.0324. This probability value is smaller than 0.05, so that FDI has a positive and significant effect on the economic growth of districts/cities on Lombok Island during the 2019–2025 period. These results indicate that an increase in FDI tends to be followed by an increase in economic growth.

The positive impact of FDI on economic growth can occur because capital inflows from foreign investors can increase production capacity and support the development of business activities in the region. In addition to additional capital, foreign investment has the potential to bring technology, knowledge, and management skills, as well as open access to broader markets . These developments can increase the productivity of economic activity and ultimately boost regional output.

The results of this study are in line with research Sari et al., (2025)which found that PMA has a significant influence on economic growth.

The Influence of the Human Development Index on Economic Growth

The results of the hypothesis testing in this study indicate that the Human Development Index (HDI) variable has a coefficient of 0.238125 with a t-statistic value of 4.576463 and a

probability of 0.0148. This probability value is smaller than 0.05, so the HDI has a positive and significant effect on the economic growth of districts/cities on Lombok Island during the 2019–2025 period. Thus, an increase in the HDI tends to be followed by an increase in economic growth.

The positive impact of the HDI indicates that improving the quality of human resources can support increased community productivity. The HDI reflects human development achievements through the dimensions of health, education, and living standards. When the quality of a community's health and education improves, its ability to engage in productive activities also increases. This can boost labor productivity and support increased economic output.

The results of this study align with Human Capital Theory, which explains that education and health are forms of investment in human capital. Improving the quality of human capital can enhance knowledge, skills, abilities, and workforce productivity. Furthermore, Amartya Sen's capability approach also explains that improving education, health, and living standards can expand people's ability to participate in economic activities.
The Human Development Index (HDI) on Lombok Island showed improvement during the study period, although regional differences persist. Mataram City had the highest HDI, while North Lombok Regency had a lower HDI. This difference in human development quality indicates differences in human resource capabilities across regions, which can impact the community's capacity to engage in economic activity.

The results of this study are in line with researchKurniadi et al., (2025) which found that the HDI has a positive and significant effect on economic growth. These results are also consistent with research Febriana & Charles, (2026)in North Sumatra Province, which found a positive and significant effect of the HDI on economic growth. However, the results of this study differ from those of the previous study.Rahman et al., (2025) in West Sumatra Province which found that the HDI had no effect on economic growth.

The differences in these research results indicate that the influence of human development on economic growth can vary depending on regional characteristics and the research period. In this study, an increase in the Human Development Index (HDI) was shown to have a positive and significant relationship, making human resource quality a factor supporting economic growth in districts/cities on Lombok Island.

The Impact of Road Infrastructure on Economic Growth

The results of the hypothesis testing in this study indicate that the Road Infrastructure variable has a positive and significant effect on the economic growth of districts/cities on Lombok Island during the 2019–2025 period. These results indicate that the longer the available road network, the greater the support for regional economic activity. Roads have a crucial function in connecting production areas with markets and centers of economic activity. The availability of a road network can facilitate community mobility and the distribution of goods and services. This condition can reduce transportation barriers and expand economic actors'

access to markets, so that production and distribution activities can run more smoothly. These results are in accordance with the Solow-Swan theory, which views infrastructure as part of public capital that can increase the productivity of production factors. Road infrastructure can support labor mobility, distribution of goods, and reduce transportation costs. In addition, Aschauer's theory also explains that public infrastructure can increase private sector productivity by increasing the efficiency of economic activities.

The length of roads on Lombok Island shows differences between regions. In 2025, East Lombok Regency had the largest road length at 1,436 km, followed by Central Lombok Regency at 1,039 km and West Lombok Regency at 938 km. Meanwhile, North Lombok Regency had 541 km and Mataram City at 515 km. These differences in road networks indicate differences in connectivity capacity between regions. The results of this study align with researchSani et al., (2025) in West Nusa Tenggara Province, which found that road infrastructure had a positive and significant impact on economic growth. These results also support researchHalomoan et al., (2025) which shows that improving the quality, capacity and connectivity of roads has a positive impact on local economic growth.

The Impact of Electricity Infrastructure on Economic Growth

The results of the hypothesis testing indicate that electricity infrastructure has a positive and significant influence on the economic growth of districts/cities on Lombok Island during the 2019–2025 period. The coefficient value of 1.769824 indicates a positive relationship between increasing household access to PLN electric lighting and economic growth. Electricity is a crucial need in various economic activities, including production, trade, services, and household activities. The availability of electricity allows businesses to use equipment and technology in the production process, enabling economic activities to proceed more effectively. For the community, electricity access also supports education, communication, and various other productive activities.

These results align with the Solow-Swan theory and public infrastructure theory, which explain that infrastructure can increase the productivity of production factors. Electrical infrastructure provides the energy needed for production processes, thereby increasing efficiency and production capacity. Aschauer also explains that public infrastructure, including energy, can increase private sector productivity.

Based on research data, access to PLN electricity in districts/cities on Lombok Island has been relatively high throughout the 2019–2025 period. Despite this relatively high level of access, regression results indicate that this variable still has a significant impact on economic growth. This indicates that the availability of electricity access remains a crucial factor in supporting economic activity in the study area.

The results of this study are in line with research Afriyana et al., (2023)in NTB Province which found that electricity infrastructure has a positive and significant impact on economic growth.

The Impact of Water Infrastructure on Economic Growth

The results of the hypothesis testing in this study indicate that the Water Infrastructure variable has a regression coefficient value of -0.017331 with a t-statistic value of -0.059310 and a probability of 0.9531. Because the probability value is much greater than the significance level 0,05, the hypothesis that predicts that water infrastructure development has a significant effect on economic growth in Lombok Island is rejected. This indicates that the Water Infrastructure variable has a negative and partially insignificant effect on the rate of economic growth of districts/cities in Lombok Island during the 2019–2025 period.

This negative and insignificant relationship indicates that increasing the percentage of households with access to safe drinking water has not been able to provide a direct tangible impact on increasing the growth rate of the regional Gross Regional Domestic Product (GRDP). Contextually, the fulfillment of clean water availability in regencies/cities throughout Lombok Island during the 2019–2025 period has been in the relatively very high category, namely an average of above 88% to approaching 100% (such as Mataram City which reached 99.82% and East Lombok Regency at 97.27% in 2025). This high level of basic coverage causes variations or increases in the level of access to safe drinking water between regions to no longer be the main differentiating factor that triggers the dynamics of fluctuations in GRDP. In addition, safe drinking water infrastructure is basically a basic *public service that fulfills basic social needs* , the impact of which on economic productivity is long-term (*lagged effect*) and does not directly drive the main production sectors.

This finding is in line with and strengthens previous research conducted byTriyatni et al., (2024) in Mataram City, and Fahrudin & Aulia (2023) in Probolinggo Regency, all of which concluded that the availability of/access to clean drinking water infrastructure had a negative and insignificant effect on economic growth. On the other hand, the results of this study differ from the findings ofPutri & Azhar, 2024 which found that water infrastructure has a positive and significant influence, which can be caused by differences in regional coverage, observation period range, or differences in the variable indicators used.

The Simultaneous Effect of Investment, Human Development Index (HDI) and Infrastructure on Economic Growth

Based on the results of the F (simultaneous) test where the Prob (F-Statistic) value is less than 0.05, it can be said that domestic investment, foreign investment, human development index, road infrastructure, electricity and water have a significant simultaneous influence on economic growth.

CONCLUSION AND SUGGESTIONS

CONCLUSION

Based on the research results, PMDN, PMA, HDI, road infrastructure, and electricity infrastructure have a positive and significant effect on the economic growth of districts/cities

on Lombok Island in 2019–2025, while water infrastructure has a negative and insignificant effect. Simultaneously, all variables have a significant effect on economic growth with an Adjusted R^2 value of 58.03%. This research contains links to SDG 8 on Decent Work and Economic Growth through discussions of investment and economic growth, SDG 9 on Industry, Innovation and Infrastructure through the development of roads, electricity, and water, SDG 3 on Healthy and Prosperous Life and SDG 4 on Quality Education through the health and education dimensions in the HDI, and SDG 6 on Clean Water and Adequate Sanitation through discussions of water infrastructure.

SUGGESTION

Based on the findings, local governments on Lombok Island are expected to prioritize improving and equitable distribution of basic infrastructure, particularly roads and PLN electricity supply, which are the main pillars of production activities and regional connectivity. Local governments also need to optimize the influx of investment (domestic and foreign) by improving the business climate and simplifying licensing processes so that incoming investment can expand employment and boost economic output. In line with the positive impact of the Human Development Index (HDI), funding allocations for the education and health sectors must continue to be strengthened to improve the capabilities and productivity of the local workforce. Meanwhile, for water infrastructure, which already has a very high level of access but does not yet directly impact GRDP, the focus of its management can be directed towards more productive and commercial utilization for leading sectors.

For further research, researchers are advised to add other relevant independent variables, such as government capital expenditure, unemployment, inflation, or digital infrastructure, given that 41.97% of the variation in economic growth is influenced by factors outside the model. Future researchers are also advised to expand the scope of observation and use analytical methods that can account for the long-term (*lagged*) effects of infrastructure development on regional economic dynamics.

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