



# The Effect of Population, Open Unemployment Rate and Poverty Rate on the Economic Growth of East Nusa Tenggara

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**Abstract:** The low rate of economic growth in East Nusa Tenggara (NTT), coupled with high levels of poverty, unemployment, and population growth, forms the main basis of this study. The objective is to examine the influence of population size, open unemployment rate, and poverty level on regional economic growth over the period 2004 to 2023. This research applies a quantitative approach utilizing multiple linear regression analysis. The data used are secondary data obtained from official publications of the Central Bureau of Statistics (BPS), including East Nusa Tenggara in Figures and socio-economic reports. The results indicate that population size and open unemployment significantly and negatively affect economic growth, while poverty level has a negative but statistically insignificant effect. These findings imply that population and unemployment growth, without being accompanied by improvements in employment opportunities and regional

development equity, tend to hinder economic performance. Hence, development policies need to be more focused on human resource enhancement, local economic sector strengthening, and employment expansion to achieve more inclusive and sustainable economic progress in NTT.

**Keywords:** Population, Open Unemployment, Poverty, Economic Growth, East Nusa Tenggara

## Introduction

Economic growth is the main indicator in measuring the success of a country's development (Elidawaty Purba & Manurung, 2023). A sustainable growing economy reflects an increase in production capacity, community welfare, and the effectiveness of the development policies implemented. However, not all regions in Indonesia experience even economic growth (Mara & Rambey, 2018). East Nusa Tenggara Province (NTT) is one of the provinces that experiences this inequality, with economic growth rates that tend to fluctuate and are still lagging behind other provinces. (Bernadette Nani Ariani & Archive Juliannisa, 2021).

According to data from the Central Statistics Agency (2023), the population of NTT continues to increase until it reaches 5.6 million people. On the other hand, the open unemployment rate (TPT) and poverty rate in this region are still relatively high. NTT's TPT in 2023 was above 3.6%, and the poverty rate reached 21.57%, far above the national average of only around 9.36%. This phenomenon shows the paradox of development, where population increase is not followed by an increase in people's welfare (Kusumawati et al.,

2021). Inequality in infrastructure distribution, low quality of human resources (Sukwika, 2018), and limited access to work are factors that contribute to exacerbating this situation (Son & São Paulo, 2021).

The endogenous growth theory explains that economic growth is greatly influenced by internal factors such as human capital accumulation, education level, and labor quality Lucas, 1988 in In the context of NTT, the low Human Development Index (HDI), the dominance of the informal sector, and dependence on the primary sector such as agriculture make it difficult for the regional economy to develop optimally (Revelation Nurlaili & Sugiharti, 2023).

With this background, this study aims to analyze how the influence of the population, open unemployment rate, and poverty level on economic growth in East Nusa Tenggara Province during the period 2004–2023. It is hoped that the results of this study can be a reference for the formulation of regional development policies that are more effective, inclusive, and sustainable.

### Research Method

This study is a quantitative research conducted systematically to analyze the relationship between the number of population, open unemployment rate, and poverty level to economic growth in East Nusa Tenggara Province. The quantitative method allows researchers to verify pre-formulated hypotheses using statistical analysis tools. According to, the quantitative approach is used to obtain empirical evidence that can corroborate or reject a theory, resulting in a measurable understanding of a phenomenon. It also emphasizes that this approach allows for objective measurement of the variables studied in a given time span (Ristika et al., 2021) (Hardani et al., 2020).

The data used in this study is secondary data obtained from the official publication of the Central Statistics Agency (BPS) of East Nusa Tenggara Province. The data includes the number of population (population), open unemployment rate (%), and poverty rate (%) from 2004 to 2023. Data collection techniques are carried out through documentation of sources such as literature, scientific articles, government documents, and BPS statistical records. The validity of the data is guaranteed because it is obtained from credible and verified official government institutions. The use of secondary data in the form of time series allows for the analysis of trends and long-term relationships between variables.

The analysis method used is multiple linear regression, which is a statistical technique used to determine the influence of more than one independent variable on one bound variable. This model is suitable for studies that want to measure the magnitude of the influence of each variable simultaneously and partially. The model formulation used is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon$$

with  $Y$  as economic growth, and  $X_1$ ,  $X_2$ ,  $X_3$  respectively as population, open unemployment rate, and poverty rate. According to, this regression analysis can help in predicting the value of bound variables based on the independent variables that affect them linearly (Gujarati & Porter, 2009).

## Results and Discussion

### A. Description of Research Object

This research was conducted in the East Nusa Tenggara (NTT) Province area, with a time span from 2004 to 2023. The selection of NTT as the object of research is based on its unique characteristics, especially related to the dynamics of the population, open unemployment rate, and relatively high poverty rate compared to the national average. Based on data from the Central Statistics Agency (BPS), the population of NTT continues to experience consistent growth, reaching around 5.6 million people in 2023.

While this reflects the great potential of the workforce, the main challenge facing the province is the limitations in creating jobs and reducing the poverty rate, which is still above 20%. The increase in population without being offset by commensurate economic growth results in pressure on the job market, especially in urban areas such as Kupang City.

**Table 1.** Economic Growth of East Nusa Tenggara Province in 2004 -2023

Year	Economic Growth East Nusa Tenggara (%)	Development (%)
2004	4,77	-
2005	3,42	-1,35
2006	5,08	1,66
2007	5,15	0,07
2008	4,81	-0,34
2009	4,29	-0,52
2010	5,13	0,84
2011	5,62	0,49
2012	5,41	-0,21
2013	5,56	0,15
2014	5,05	-0,51
2015	5,02	-0,03
2016	5,18	0,16
2017	5,16	-0,02
2018	5,11	-0,05
2019	5,20	0,09
2020	-0,83	-6,03
2021	2,51	3,34
2022	3,05	0,54
2023	3,52	0,47

A drastic decline occurred in 2020, where economic growth contracted to -0.83%. This can be directly attributed to the impact of the COVID-19 pandemic which disrupted all economic activities, including in NTT. The following year, 2021, showed recovery efforts with a growth of 2.51%, followed by a gradual upward trend until it reached 3.52% in 2023. Although it has not reached pre-pandemic levels, this trend indicates a slow economic recovery.

Overall, NTT's economic growth pattern over the past two decades shows dynamics that reflect the economy's dependence on primary sectors and the region's vulnerability to external pressures such as global crises and pandemics. Therefore, a stronger and more sustainable long-term development strategy is needed so that NTT's economic growth can be more stable and inclusive in the future.

**Table 2.** Number of Provincial Population East Nusa Tenggara in 2004 -2023

Year	Total Population (Soul)	Development (%)
2004	4.188.774	-
2005	4.127.000	-1,48
2006	4.355.121	5,53
2007	4.388.000	0,76
2008	4.448.873	1,39
2009	4.619.700	3,84
2010	4.683.827	1,39
2011	4.788.618	2,24
2012	4.871.227	1,73
2013	4.953.967	1,7
2014	5.036.897	1,67
2015	5.120.061	1,64
2016	5.203.514	1,63
2017	5.287.302	1,61
2018	5.371.519	1,59
2019	5.456.203	1,58
2020	5.541.394	1,56
2021	5.394.380	-2,65
2022	5.481.790	1,62
2023	5.569.068	1,59

Overall, the trend of population growth in NTT Province shows a consistent positive direction, although there are still certain years that have experienced disruptions. This is important for local governments to pay attention to in formulating development policies, especially in the provision of public facilities, employment, and social services, in order to adjust to the dynamics of the population that continues to develop.

**Table 3.** Open Unemployment Rate East Nusa Tenggara Province in 2004 -2023

Year	Open Unemployment Rate (Soul)	Development (%)
2004	4,48	-
2005	5,46	0,98
2006	3,65	-1,81
2007	3,72	0,07
2008	3,73	0,01
2009	3,97	0,24
2010	3,34	-0,63
2011	2,69	-0,65
2012	2,89	0,20
2013	3,29	0,40
2014	3,26	-0,03
2015	3,83	0,57
2016	3,25	-0,58
2017	3,27	0,02
2018	3,01	-0,26
2019	3,35	0,34
2020	4,28	0,93
2021	3,77	-0,51
2022	3,54	-0,23
2023	3,14	-0,40

In general, the open unemployment rate in NTT shows an unstable but controllable pattern in the past decade. These fluctuations show that despite the government's efforts to create jobs, it has not entirely succeeded in addressing structural problems in the labor market, especially in the informal sector and rural areas. Therefore, the strategy of improving the quality of the workforce and expanding employment opportunities remains an important agenda in regional economic development policies.

**Table 4.** Provincial Poverty Rate East Nusa Tenggara in 2004 -2023

Year	Poverty Rate (%)	Development (%)
2004	27,86	-
2005	20,23	-7,63
2006	29,34	9,11
2007	27,51	-1,83
2008	25,68	-1,83
2009	23,41	-2,27
2010	21,77	-1,64
2011	20,48	-1,29
2012	20,41	-0,07
2013	20,41	0,00
2014	19,6	-0,81

Year	Poverty Rate (%)	Development (%)
2015	22,61	3,01
2016	22,19	-0,42
2017	21,85	-0,34
2018	21,35	-0,50
2019	21,09	-0,26
2020	20,9	-0,19
2021	20,99	0,09
2022	20,05	-0,94
2023	19,96	-0,09

Overall, although the poverty rate in NTT shows a decreasing trend in the long term, an integrated medium- and long-term strategy is still needed, including economic empowerment, improving public services, and strengthening the locally-based productive sector so that poverty reduction can take place sustainably and evenly throughout the province.

## B. Data Analysis Results

### 1. Multiple Linear Regression

The multiple linear regression analysis in this study aims to determine the simultaneous and partial influence of independent variables, namely the number of population, open unemployment rate, and poverty level on economic growth in East Nusa Tenggara Province (NTT). Based on the results of data processing using SPSS software, the following regression equation model was obtained:

$$\text{Economic Growth} = 24,389 - 2,467E06X1 - 1,958X2 - 0,033X3$$

Information:

Y = Economic Growth (dependent variable)

X1 = Total Population

X2 = Open Unemployment Rate

X3 = Poverty Level

**Table 5.** Multiple Linear Regression Analysis Results  
Coefficient

Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24,389	5,725		4,260	0,001
	Population	-2,467E-06	0,000	-0,773	-3,610	0,002
	Open Unemployment Rate	-1,958	0,413	-0,810	-4,746	0,000
	Poverty Rate	-0,033	0,102	-0,063	-0,324	0,750

a. Dependent Variable: Economic Growth

This variable has a significance value of 0.002 ( $<0.05$ ), which means that it has a significant negative effect on economic growth. Furthermore, the coefficient for the open unemployment rate is -1.958 with a significance value of 0.000 ( $<0.05$ ), indicating that the higher the open unemployment rate, the greater the decline in economic growth. This confirms that TPT in NTT has a significant negative influence and is a very dominant factor. As for the poverty rate, the coefficient value is -0.033 with a significance value of 0.750 ( $>0.05$ ), indicating that its effect on economic growth is not significant. Thus, the poverty variable does not have a significant influence on the variation in economic growth changes in this model.

## 2. Classical Assumption Test

### a. Normality Test

**Table 6.** Normality Test Results

	Unstandardized Residual
Asymp. Sig. (2-tailed)	.200 <sup>c,d</sup>

Based on the SPSS output, the significance value of Kolmogorov-Smirnov is 0.200. Since this value is greater than the significance level of 0.05, it can be concluded that the residual of the regression model is normally distributed. In addition, the spread pattern on the histogram graph and the normal P-P of the residual plot also show a spread that resembles a normal curve and data points that are close to the diagonal line. These results further reinforce that the normality assumptions have been met, making the model feasible to proceed to the next stage of analysis.

## b. Autocorrelation Test

**Table 7.** Autocorrelation Test Results

Durbin Watson	Test Results	Information
1,713	$dU < \text{Durbin Watson} < 4 - dU$ $1,676 < 1,713 < 2,324$	No Autocorrelation symptoms occur

Based on the results of the analysis, the Durbin-Watson value was obtained as 1.713. With 20 observations and 3 independent variables, this value is in the range between  $dU$  and  $4 - dU$  based on the Durbin-Watson critical table. Therefore, it can be concluded that there is no autocorrelation in the linear regression model used.

## c. Multicollinearity Test

**Table 8.** Multicollinearity Test Results

Type	Coefficient	
	Tolerance	VIVID
1 Population	0,496	2,018
Open Unemployment Rate	0,779	1,284
Poverty Rate	0,593	1,686

a. Dependent Variable: Economic Growth

In this test, the indicators used are the Tolerance and Variance Inflation Factor (VIF) values. A model is said to be free from multicollinearity if the tolerance value is  $> 0.10$  and the VIF value is  $< 10$ . The results of the multicollinearity test in this study showed that all independent variables had a tolerance value above 0.10 and a VIF value below 10. Thus, it can be concluded that there are no symptoms of multicollinearity in the multiple linear regression model used. This means that all independent variables in this study can be used simultaneously without causing disruption to the model estimation.

## d. Heterokedasticity Test

**Table 9.** Heterokedasticity Test Results

Type	Sig.
1 (Constant)	0,224
Population	0,187
Open Unemployment Rate	0,442
Poverty Rate	0,801

In this study, the results of the Glejser test showed that all significance values of the three independent variables were greater than 0.05. This shows that the regression model meets the assumption of homocedasticity. In addition, the residual scatterplot graph also shows a random scatter pattern and does not form a specific pattern, which corroborates that heteroscedasticity does not occur.

### 3. Hypothesis testing

#### a. Determination Coefficient Test

**Table 10.** Determination Coefficient Test Results

#### Model Summary<sup>b</sup>

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.798a	0,637	0,569	0,99187

The determination coefficient is used to measure how much variation from a dependent variable can be explained by an independent variable. Based on the results of the regression output in the Model Summary table, an R Square value of 0.720 was obtained. This means that 72.0% variation in economic growth can be explained by three independent variables, namely the number of population, the open unemployment rate, and the poverty rate. While the remaining 28.0% is explained by other factors that are not included in this regression model. This fairly high R Square value shows that the regression model used has good clarity, although there are still external variables that need to be considered in further research.

#### b. Simultaneous Test (F Test)

**Table 11.** Simultaneous Test Results (F)

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Type	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	27,605	3	9,202	9,353	.001b
Residual	15,741	16	0,984		
Total	43,346	19			

The F test is used to find out whether independent variables together (simultaneously) have a significant effect on the dependent variables. Based on the regression output in the ANOVA table, an F value of 13.470 was obtained with a significance value of 0.000. Because the significance value is less than 0.05, it can be concluded that the variables of population, open unemployment rate, and poverty rate simultaneously have a significant effect on

economic growth in East Nusa Tenggara Province. In other words, the multiple linear regression model used in this study is overall feasible and can explain the influence of the three independent variables on economic growth together.

### c. Partial Test (t-test)

**Table 12.** Partial Test Results (t)

Type		t	Sig.
1	(Constant)	4,260	0,001
	Population	-3,610	0,002
	Open Unemployment Rate	-4,746	0,000
	Poverty Rate	-0,324	0,750

The t-test was performed to determine the influence of each independent variable partially on the dependent variable. Based on the results of the t-test:

- 1) The population variable has a significance value of 0.002 ( $< 0.05$ ), which means that the population has a partial significant effect on economic growth. The regression coefficient has a negative value, which shows that the increase in population has a negative impact on economic growth.
- 2) The variable of open unemployment rate has a significance value of 0.000 ( $< 0.05$ ). This shows that the open unemployment rate has a significant and negative effect on economic growth. The higher the unemployment rate, the lower the economic growth achieved.
- 3) The poverty level variable has a significance value of 0.750 ( $> 0.05$ ), which means that this variable does not have a significant effect on economic growth. Thus, poverty levels are not the dominant factor in explaining the variation in economic growth in this model.

## Discussion

The results of this study show that economic growth in NTT Province is significantly influenced by the factors of population and open unemployment rate. The large population without being balanced by improving quality and competitiveness is a burden on regional development (Amar et al., 2022). This is in line with classical population theory and findings that emphasize the importance of the quality of human resources in supporting economic growth. Meanwhile, the high open unemployment rate reflects the low absorption of labor, thereby slowing down the pace of economic growth (Darma & Wulansari, 2021). Based on the results of the F test, a significance value of 0.000 was obtained, which means that simultaneously the three independent variables (population, open unemployment rate, and poverty rate) have a significant effect on economic growth. This means that demographic

and social aspects need to be considered thoroughly in designing economic development policies in the regions.

The t-test shows that the number of people and the open unemployment rate have a partially significant negative influence on economic growth, while the poverty rate, although it has a negative direction, is not statistically significant. A coefficient of determination value ( $R^2$ ) of 0.720 indicates that 72% of the variation in economic growth can be explained by these three variables, while the rest is influenced by other factors such as investment, government spending, and infrastructure (Suryani, 2023). Therefore, a strategy is needed to strengthen the quality of human resources and expand employment, especially considering that the informal sector still dominates the workforce structure in NTT (Cristiani & Projo, 2022). Although poverty has not been proven to be statistically significant in the short term, it remains crucial in the long term to create inclusive and equitable growth (Noviatamara et al., 2019). This is in line with the view on the importance of innovation and inclusion in regional development policies (Siregar & Hermawan, 2020).

### Conclusion

Based on the results of research on the influence of the number of population, open unemployment rate, and poverty level on economic growth in East Nusa Tenggara Province, it can be concluded that partially the number of people has a negative and significant effect on economic growth. This shows that the increase in the population has not been accompanied by an improvement in the quality of education, productivity, and the availability of adequate employment, so that it becomes a burden on regional development. The open unemployment rate has also been shown to have a negative and significant effect, indicating that low labor absorption is one of the main causes of weak economic growth in the region. Meanwhile, the poverty rate shows a negative but not statistically significant relationship, meaning that in the short term, poverty has not had a direct impact on the pace of economic growth, although it remains a strategic issue that needs to be addressed in an ongoing manner.

Based on the results of the study, it is suggested that local governments develop strategies to control the rate of population growth through family planning programs, population counseling, and increased access to education and health as a long-term investment in human resource development. To reduce the open unemployment rate, the government needs to create new jobs that match local potential such as the agriculture, livestock, fisheries, and creative industries sectors, accompanied by the expansion of competency-based skills training programs and entrepreneurship. Although not statistically significant, poverty still needs to be the focus of policy, through poor empowerment programs, micro-enterprise development, and improvement of basic

infrastructure and inter-regional connectivity to encourage the active participation of the poor in economic activities. Further research is also recommended to add other variables such as investment, government spending, human development index (HDI), and other quantitative data to obtain a more comprehensive picture of the factors affecting economic growth in East Nusa Tenggara Province.

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