

Poverty level analysis in East Nusa Tenggara Province

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Abstract

East Nusa Tenggara Province is one of the poorest provinces in Indonesia and various government policy packages are being intensified to address this. Therefore, the aim of this research is to find out the dominant factors that influence the high number of poor people in East Nusa Tenggara Province. In an effort to answer the research problem, the analytical tool used is Panel Data analysis where the number of analysis units or cross section data are all districts/cities in NTT Province as many as 22 districts while for Time Series data starting from 2018-2021. The results of data analysis show that either partially or simultaneously each independent variable, namely economic growth,

Key words: Human development index; total population; number of poor people; economic growth

INTRODUCTION

As a developing country, Indonesia should learn from developed countries in an effort to realize sustainable development goals. The main target in carrying out development is the achievement of the welfare and prosperity of the people. Therefore, the strategy taken by the government is not only oriented towards economic growth but also must pay attention to the aspect of equitable development so that it can be enjoyed by all levels of society (Karisma & Soejoto, 2010).

According to M. Nasir (in Nasmiwati & Triani, 2019), The main agenda of every government is poverty alleviation. This is because all the complexities of the problems that exist in it are multidimensional and require a variety of approaches and a comprehensive policy touch to touch various aspects of life so that the problem of poverty can be handled properly. Since the implementation of the regional autonomy policy in 2001 which was ratified through the legal umbrella of Law no. 32 of 2004, each regional government carries out development based on considerations of needs and has a wide autonomous area to manage and regulate based on the interests of the people in the area (Solikatun et al., 2014).

From a total of thirty-four (34) provinces in Indonesia, one of which is NTT Province, which administratively has 22 regencies/cities. However, based on the data released by the Central Statistics Agency (2022), NTT Province is one of the poorest provinces in Indonesia after Papua and West Papua Provinces with a percentage of 22.39%. Geographically, NTT Province is located in a tropical climate, this causes a long dry season to have an impact on reducing food production and other social problems (Hasan, 2016).

The following is the data presented in Figure 1 regarding the number of poor people in Regencies/Cities in East Nusa Tenggara Province in 2018-2021:

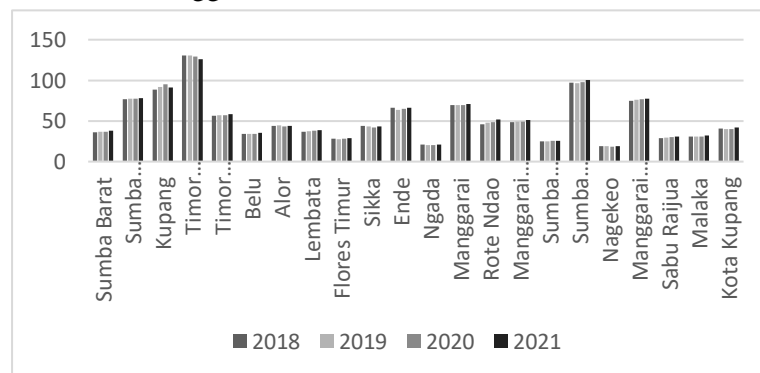


Figure 1.
 Number of Poor Population by Regency/City
 in East Nusa Tenggara Province in 2018-2021 (Soul).

Based on Figure 1 above, the highest poverty of all regencies/cities in NTT Province is Timor Tengah Selatan Regency with a total poverty rate in 2018 of 130,630 people, and experiencing a significant decline in 2021 by 125,680 people. South Central Timor Regency is the area that has the largest poor population, this is because topographically this area is quite wide with a mountainous topography so that access between cities and villages is very difficult to reach (Lutfi, 2016).

The solutions used in alleviating the problem of poverty are: spur economic activity that has real implications for regional economic growth. Economic activities that have an impact on increasing income, in aggregate from a macroeconomic perspective, have real implications for increasing per capita income. The high poverty rate has caused the district/municipality economic growth in NTT Province to have not been maximized. Many areas with high poverty rates lead to low community welfare, thus triggering low economic growth as well. Therefore, it is hoped that the regional economic growth will be able to increase the income of the surrounding community and reduce poverty (Normanda and Rahmawati, 2013).

According to Sukirno (in Rofii & Ardyan, 2017) The term economic growth can be interpreted as an increase in output or an increase in aggregate national income within a certain period of time, for example one year. The term economic growth is actually more related to the amount of production of goods and services represented by the size of the Gross Domestic Product for the national scale or the

value of the Gross Regional Domestic Product for the Regional scale which has increased compared to the previous year.

Purnama (2010), in his research revealed that there is a negative or inverse relationship between economic growth and poverty. This means that if economic growth increases or increases, poverty will decrease or decrease. The following is presented data in Figure 2 of Regency/City economic growth in East Nusa Tenggara Province in 2018-2021.

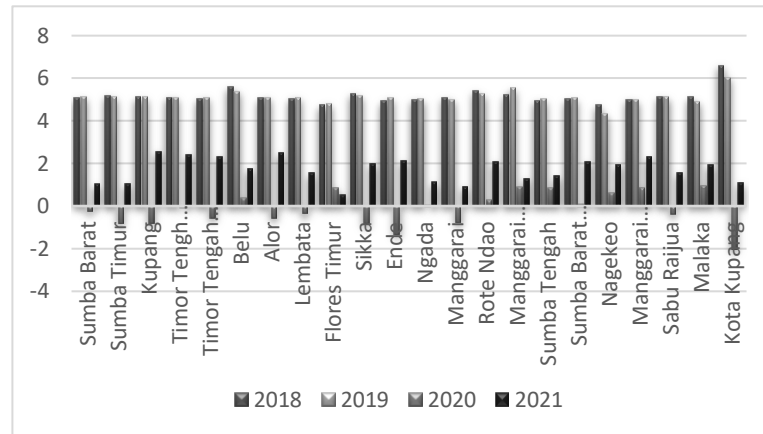


Figure 2.
 Regency/City Economic Growth in East Nusa Tenggara Province in 2018-2021.

Based on Figure 2 above, it shows that the highest economic growth of all regencies/cities in NTT Province is in Kupang City, with a percentage of 6.59% in 2018, slightly decreased in 2019 with a growth value of 6.03 and when the world experiencing the COVID-19 pandemic, the value of economic growth in NTT Province also contracted by -2.05 in 2020 and by 1.10 in 2021.

Apart from economic growth, another important factor that is thought to have influenced the poverty rate is the Human Development Index. There are three basic components that are used to measure the value of the Human Development Index in an area, including the components of Education, Health and also the cumulative income of the community.

The HDI measure also describes the quality of life of the people in a particular area. There is a kind of chain effect that can be caused by the low number of the Human Development Index. The condition of a low HDI reflects the low quality of human resources and results in low productivity so that in the end it also has implications for the loss of job opportunities and income. If people's income is lost, it will make it difficult for people to get out of the poverty circle. This is like a vicious cycle of poverty that is difficult to avoid. The following is the data in Figure 3 regarding the Regency/City Human Development Index (IPM) in Nusa Tenggara Province in 2018-2021.

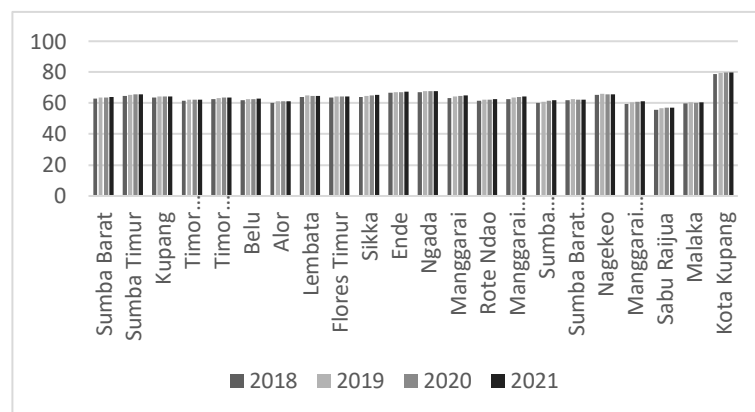


Figure 3.
 Human Development Index per Regency/City in East Nusa Tenggara Province in 2018-2021

Based on Figure 3, it can be seen that the human development index of all regencies/cities in East Nusa Tenggara Province for the period 2018-2021 has increased. It can also be seen that the highest HDI of all districts/cities in NTT Province is Kupang City, namely in 2018 with a percentage of 78.84%,

in 2019 with a percentage of 79.55%, in 2020 with a percentage of 79.71%, and in 2021 with a percentage of 79.74%. This is understandable because Kupang City is the center of the capital city of NTT Province so that all government activities, health education, banking services, trade and others are closer to the beneficiary community (Rosyadah, 2021). On the other hand, the lowest HDI value is Sabu Raijua Regency, with a percentage of 52.51%-55.22% during the observation period.

In addition to economic growth and HDI, which is thought to affect poverty, is the population variable. The rapid rate of population growth and not accompanied by the availability of sufficient job opportunities will have an impact on the high unemployment rate so that poverty cannot be avoided. The results of research conducted by Didu & Fauzi (2016) revealed that there is a significant positive effect between population and poverty levels in Lebak Regency. This means that the higher the population growth rate, the higher the number of poor people. This is more due to the increase in the number of people not accompanied by the quality of the human resources in it.

The following shows the data in Figure 4 on the population of Regencies/Cities in NTT Province in 2018-2021.

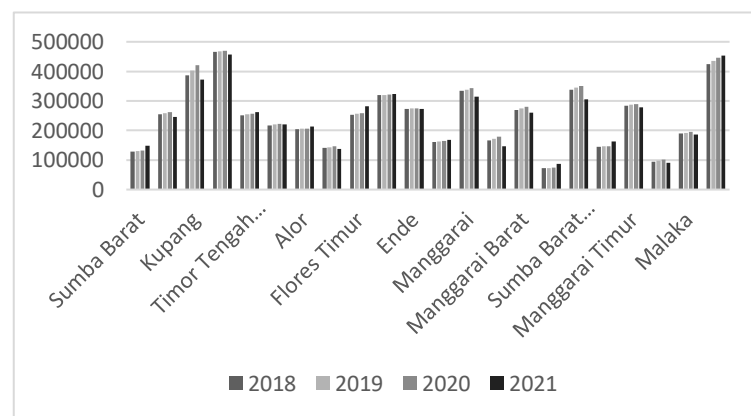


Figure 4.

Number of Regency/City population in East Nusa Tenggara Province in 2018-2021.

Based on Figure 4, it can be seen that the population by Regency/City in NTT Province has increased every year. The highest population of NTT Province by Regency/City is in Timor Tengah Selatan Regency with a population in 2018 of 456,970 thousand people and will continue to increase until 2021 with a population of 467,990 thousand people.

Research conducted by Suhandi et al., (2018) revealed that the rapid rate of population growth in an area can be a driving factor but on the other hand it can also be an inhibiting factor for regional development. Categorized as a driving factor because First; The higher the population of productive age, so it has the opportunity to increase regional income. Second; more open market access for goods and services because in demand theory the ideal equilibrium point is formed if supply and demand meet at the maximum utility value and this can happen if it is supported by a high population with adequate community income. Therefore, good economic development is if population growth is smaller than economic growth (Agustina et al., 2019).

Furthermore, it is explained that one of the crucial issues is the population problem, namely the high birth rate and high death rate, but the birth rate is still large. One of the causes of high births is the early age of marriage and lack of knowledge about family planning. Therefore, the population also has an effect on the level of poverty (Triningsih, 2013).

Based on the description of the problem and the theoretical study above, the main objective of this research is to determine the partial and simultaneous effect of the variables of Economic Growth, Human Development Index and Population on Poverty Levels in NTT Province.

METHOD

This research was conducted in East Nusa Tenggara Province and was carried out for six months starting from July to December 2021. The main source of data used was secondary data, which was by collecting data related to the observed variables, which included Economic Growth data, Human

Development Index, Total Population and also data on the Number of Poor Populations from all regencies/cities in NTT Province, totaling 22 regencies/cities.

Statistical analysis used in this study is the regression method using panel data. Panel data (panel pooled data) is a combination of cross section data and time series data (Saputra & Budiarti, 2017). Panel data is used to overcome the problem of limited cross section and time series data by producing more efficient estimates through increasing the number of observations which has implications for increasing the degree of freedom. The time series data used is from 2018 to 2021.

In panel data, observations made on several subjects were analyzed from time to time. The equation of the model using cross section data is Gujarati (in Hidayat et al., 2018):

$$Y_i = a + 1X_i + i ; i = 1, 2, \dots, N$$

Where "N" is the number of cross section data. While the equation of the model using time series data is (Suardin et al., 2020):

$$Y_t = a + 1X_t + t ; t = 1, 2, \dots, T$$

Where "T" is the number of time series data. So that the panel data equation which is a combination of cross section and time series data, the model can be written as follows (Munandar, 2017):

$$Y_{it} = a + 1X_{it} + it$$

$$i = 1, 2, \dots, N ; t = 1, 2, \dots, T$$

In this model, Y is the dependent variable while X is the independent variable. N indicates the number of observations while T indicates the amount of time analyzed, because the equation of the panel data which is a combination of cross section and time series data so that the variables in this study are applied in a model as follows:

$$Y_{it} = a + 1X_{1it} + 2X_{2it} + 3X_{3it} + it$$

Where:

Y = Number of Poor Population (Thousand People)

X1 = Economic growth

X2 = Human Development Index

X3 = Total population

a = Constant

β_1 & β_2 = Regression coefficient

i = cross section data (total 22 regencies/cities in NTT Province)

t = time series data (years 2018-2021)

In regression using panel data, there are three techniques that can be used in estimating the regression model, namely Common Effect (CEM), Fixed Effect (FEM) and Random Effect (REM). Meanwhile, to determine the right model in panel data analysis, Chow Test and Hausman Test are used.

RESULTS AND DISCUSSION

Results

In the regression using panel data, there are three models that can be used in the regression, namely the common effect model, the fixed effect model, and the random effect model. As for choosing which model is right to use, it must be tested first, namely by using the Chow test and the Hausman test. The results of the model selection test are as follows:

Chow test

This test is carried out to choose which model is the best between the common effects model and the fixed effect model by testing the following hypotheses:

H0 : choose to use the estimation of the common effect model.

Ha : choose to use fixed effect model estimation.

The provisions are, if the probability of Chi-square cross-section > 0.05 then H0 is accepted, but if the probability of Chi-square cross-section is < 0.05 then H0 is rejected and Ha is accepted.

The following are the results of the chow test carried out using the Eviews 9 application.

Table 1.
 Chow Test Results

Effects Test	Statistics	df	Prob.
Cross-section F	2553.791627	(21.63)	0.0000
Cross-section Chi-square	593.814865	21	0.0000

Based on the Chow test above, it shows that the probability value of the Chi-square cross-section is below <0.05 , which means that the relevant model of the common effects model and the fixed effect model is the fixed effect model.

Hausman test

This test is used to select the best estimation model between fixed effect and random effect estimation models. The hypothesis test is as follows:

H0 : choose to use random effect estimation model

Ha : choose to use the fixed effect estimation model

The provisions are, if the probability of a random cross-section >0.05 then H0 is accepted, but if the probability is a random cross-section <0.05 then H0 is rejected and Ha is accepted.

Table 2.
 Hausman test results

Test Summary	Chi-Sq. Statistics	Chi-Sq. df	Prob.
Random cross-section	0.821613	3	0.8443

Based on the results of the Hausman test above, it shows that the probability (0.8443) is of significance > 0.05 , which means that the selection of the model used is a random effect estimation model.

Estimated Random Effect

Random effect estimation is an estimation technique to reveal differences in intercepts between variables but with the same time intercept. In addition, this model can also assume that the regression coefficient (slope) remains between variables and over time.

Table 3.

Recapitulation of the Results of Regression Analysis of the Effect of Economic Growth, HDI, and Total Population on the Number of Poor People in Regencies/Cities in NTT Province

Variable	Coefficient	Std. Error	t-Statistics	Prob.
Constanta	12.61068	21.76156	0.579493	0.5643
PE	-0.062185	0.063462	-0.979874	0.3309
HDI	0.625411	0.338840	1.845742	0.0696
JP	3.051006	2.85E-06	1.068774	0.2892
R-squared	0.998835			
Adjusted R-squared	0.998391			
F-statistics	2250.035			
Prob (F-statistic)	0.000000			

From the results of the Random Effect model above, it is known that the regression equation is as follows:

$$Y_{it} = 12.61068 - 0.062185PE + 0.625411IPM + 3.051006JP + \epsilon_{it}$$

From the processed research data listed above, it can be explained that the value of $\beta_0 = 12.61068$. This means that if there is no change in the variables of economic growth (X1), HDI (X2) and population (X3), the number of poor people in Regencies/Cities in NTT Province is reduced by 12.61068 people.

Next, the value of the regression coefficient of the economic growth variable is -0.062. This means that for every 1 (one) increase in economic growth (X1), the number of poor people (Y) in the Regency/City will also decrease by -0.062 assuming the value of the other independent variables is constant.

The value of the regression coefficient of the human development index variable is 0.625411 shows the meaning that for every 1 (one) increase in the human development index number, the number of poor people (Y) in the Regency/City will also increase by 1 (one) unit. 0.625411 assuming the value of the other independent variables is constant.

The value of the regression coefficient of the population variable is 3.051006. This means that for every 1 (one) increase in the number of residents, the number of poor people (Y) in the Regency/City will also increase by 1 (one) unit. 3.051006 assuming the value of the other independent variables is constant.

**Hypothesis test
 t test**

The t-test was conducted to determine how far the influence of one independent variable on the dependent variable by assuming the other independent variables constant (Ghozali, 2013).

The Effect of Economic Growth (X1) on the Number of Poor People (Y)

This analysis was conducted to determine the partial effect of the variable economic growth (X1) on the number of poor people (Y) in the Province of NTT. The results of the analysis using the help of the E-Views 9 Application can be seen in the following table.

Table 4.
 Recapitulation of Regression Analysis Results
 of the Effect of Economic Growth Variables on the Number of Poor People in NTT Province

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	52.80877	6.124363	8.622736	0.0000
PE	-0.136703	0.052068	-2.625451	0.0102

Based on the Fixed effect variable test (X1), namely economic growth has a regression coefficient value of -0.136703 while the probability $0.0102 < 0.05$ which means that the variable of economic growth has a significant effect on the number of poor people. Realizing this, the NTT provincial government should pay attention to all forms of potential for the economic sector to be developed in order to suppress the increase in the number of poor people.

The influence of the Human Development Index (X2) variable on the Number of Poor People (Y) in NTT Province.

This analysis was conducted to determine the partial effect of the variable Human Development Index (X2) on the number of poor people (Y) in the Province of NTT. The results of the analysis using the help of the E-Views 9 Application can be seen in the following table.

Table 5.
 Recapitulation of Regression Analysis Results of the Effect
 of Human Development Index Variables on the Number of Poor People in NTT Province

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	1.336422	18.24012	0.073268	0.9418
HDI	0.799235	0.268832	2.972992	0.0038

Based on the Fixed effect variable test (X2), the human development index has a regression coefficient value of -0.799235 while the probability $0.0038 < 0.05$, which means that the human development index variable has a significant effect on the number of poor people.

One of the crucial issues in NTT Province is the low quality of human resources and also the case of malnutrition. The results of this study also explain that poor health services, low levels of education have real implications for the income of the community and also result in poverty. Realizing this, the NTT Provincial Government needs to improve various educational facilities and infrastructure, access to health services because it is alleged that poverty is caused by the dominant influence of the low Human Development Index variable.

The influence of the variable population (X3) on the number of poor people (Y) in the province of NTT.

This analysis was conducted to determine the partial effect of the variable population (X3) on the number of poor people (Y) in NTT Province. The results of the analysis using the help of the E-Views 9 Application can be seen in the following table.

Table 6.
 Recapitulation of Regression Analysis Results of the Effect of Population Variables on the Number of Poor
 People in NTT Province

Variable	Coefficient	Std. Error	t-Statistics	Prob.
C	52.38328	6.131475	8.543342	0.0000
JP	388.106	3.01E-06	1.291698	0.0019

Based on the variable fixed effect test (X3), the Total Population has a coefficient value of 388.106 while the probability is $0.0019 < 0.05$, which means that the population variable has a significant effect on the number of poor people, with a value of R-Squared of 0.981453.

F Uji test

The F test is basically used to find out whether all the independent variables included in the model have a joint or simultaneous effect on the dependent variable (Ghozali, 2013). The basis for decision making is based on the probability value: If the probability is < 0.05 , it can be concluded that all independent variables have a simultaneous influence on the dependent variable.

Table 7.
F Test Results

R-square	0.998835
Adjusted R-square	0.998391
SE of regression	1.111702
F-statistics	225,035
Prob (F-statistic)	0.000000

Based on Table 7 it can be explained that the F-statistic of 225,035 with Prob (F-statistic) 0.000000 < 0.05 , so it can be concluded that the independent variables, namely economic growth, human development index and population, simultaneously significantly affect the dependent variable on the number of poor people in NTT Province.

The F test is basically used to find out whether all the independent variables included in the model have a joint or simultaneous effect on the dependent variable (Ghozali, 2013). The basis for decision making is based on the probability value: If the probability is < 0.05 , it can be concluded that all independent variables have a joint influence on the dependent variable.

Determination Test (R2)

The coefficient of determination (R2) is used to measure how much the model's ability to explain the variation of the dependent variable (goodness of fit test). The small value of R2 indicates that the ability of the independent variables in explaining the dependent variable is very limited. The value of R2 starts from 0 to 1. A value close to one means that the independent variables provide almost all the information needed to predict the independent variables.

Table 8.
Test of Determination

R-square	0.981840
Adjusted R-square	0.974810
SE of regression	4.481045
F-statistics	139.6694
Prob (F-statistic)	0.000000

Based on table 8, it can be explained that the value of $R^2 = 0.981840$ which means that as much as 98.18% of variations or changes in the poverty variable can be explained by variations in economic growth, HDI, and population while the remaining 1.82% is explained by other variables outside the model.

Discussion

Based on the results of data analysis, it can be seen that either partially or simultaneously each independent variable, namely economic growth, the human development index and also the population has a significant influence on the dependent variable on the number of poor people in NTT Province. The variable economic growth has a positive and significant effect on the number of poor people. This shows that if economic growth increases, it will also have an impact on increasing poverty rates, and vice versa. This condition should not occur because if there is an increase in economic growth it will reduce the number of poor people. The results of this study are in line with the research Renggo (2017), which reveals that there is a positive linearity between economic growth and poverty in NTT Province. It must be admitted that one of the problems of poverty that is difficult to solve is because geographically this province is an archipelagic area which makes it difficult for the government to develop supporting infrastructure in boosting the economic activities of the community. (Tersally Djese, 2016). In addition,

other factors that also influence regional development disparities and poverty are due to the different ownership of economic resources between one region and another. (Renggo, 2017).

Realizing the importance of regional economic growth as one of the efforts to solve the problem of poverty in NTT Province, what needs to be done first is the synergy of development programs between the provincial government and district/city governments so that these poverty nodes can be cut off. Regional development should not only be oriented to growth alone, but also have to think about how to achieve equitable development (Farid, 2019). Sectoral and spatial approaches in exploring, finding and utilizing leading sectors to boost regional income must be carried out with pro-people programs, not pro-budget alone (Fitriyah, 2016). Most of the people in NTT Province work as farmers, this is evident from the value of the formation of the largest Gross Regional Domestic Product even touching the figure of 60% coming from the agricultural sector, but the largest poverty is also in the agricultural sector (Nalle, 2018). Therefore, one of the biggest homeworks of the NTT Provincial Government is how to increase the value added of the agricultural sector as a leading and reliable sector as well as a locomotive for regional economic development (Isaac, 2013). This can be done by integrating the management of agricultural sector resources from upstream to downstream which are integrated with each other and in direct contact with the concepts of agribusiness and agro-industry (Turniasih & Dewi, 2016).

In other analysis results, it is known that the Human Development Index variable has a significant negative linearity effect on the variable level of poverty in NTT Province. This means that if there is an increase in the HDI rate, it will have an impact on decreasing the number of poor people in NTT Province. The results of this study are in line with research conducted by Anggoro (2018), which reveals that there is a negative linearity relationship between poverty and the Human Development Index in NTT Province. One of the fundamental problems in the formation of the quality of human resources in order to increase the HDI figure is due to the availability of supporting infrastructure for the education sector which is still relatively minimal. Not infrequently we encounter the condition of schools in remote areas, which when viewed from the physical building are very apprehensive and far from worthy of being used as a vehicle for learning. Not to mention the problem of teaching staff at the elementary school to high school levels, who on average are still contract workers and are far from the welfare level. These various problems in the education sector have unconsciously contributed to the formation of the Human Development Index in the NTT Province. The same thing was said by Emilia Kristina Kiha, Sirilius Seran (2021) in their research revealed that the percentage value of the Human Development Index for the Province of NTT is among the lowest or worst in Indonesia. This position emphasizes that every regional head both at the provincial and district levels must have the same vision and mission in an effort to increase the human development index number through superior programs in the fields of Education, Health and also a productive economy.

Furthermore, on the population variable from the results of data analysis, it is known that there is a significant negative effect on the number of poor people in NTT Province. This means that if the population increases, the number of poor people will also decrease. This indicates that cumulatively, the rapid rate of population growth in NTT Province actually adds to the dependency ratio, which is also getting better where the dependence of the non-productive age population on the productive age population is decreasing. In addition, this study also illustrates that the increase in population is also in line with the availability of job opportunities so that people's access to jobs to support the family economy is getting better. The results of this study are in line with research conducted by Usman & Diramita (2018) who said that the population had a negative effect on the poverty rate in the Riau Archipelago. However, in contrast to the research conducted by Agustina et al., (2019) which reveals that population has a significant positive effect on poverty levels in Aceh Province.

CONCLUSION

The results of data analysis prove that the variable partial economic growth has a significant effect on the number of poor people in the province of NTT. Furthermore, partially the human development index variable has a significant negative effect on the number of poor people in NTT Province. Furthermore, it is also known that simultaneously the variables of economic growth, human development index and population have a significant effect on the number of poor people in NTT Province..

Based on these observations, what I can recommend to the regional government of NTT Provinceshould begin to look at the potential economic sectors that can be used as a driving force for regional economic growth. Improvement of educational facilities, access to health services and controlling population explosion through various related technical agencies is absolutely necessary and used as a regional strategic program, because this study implies that the variables of economic growth, human development index and population have a significant influence on poverty levels.

The limitations of this study are that the data used are still very limited from 2018-2021 and alternative solutions have not been explored comprehensively in controlling the variables raised in this study. Therefore, the author really hopes that there will be further research that reviews in detail about alternative strategies in overcoming the problem of economic growth, low human development index and also studies on demographic and population aspects that can trigger high poverty rates.

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