

The Influence Of Labor And Population Growth On Economic Growth In North Luwu Regency

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Abstract

This research aims to determine: (1) The influence of labor on economic growth in North Luwu Regency. (2) The influence of population growth on economic growth in North Luwu Regency. (3) The influence of Labor and Population Growth together on Economic Growth in North Luwu Regency. This type of research is quantitative. The data type is secondary data. This research uses time series data issued by the Central Statistics Agency (BPS) of North Luwu Regency on the basis of 2010 constant prices, data collected for the last 10 years. The results of this research show that: (1) Labor has a positive and significant effect on economic growth in North Luwu Regency. (2) Population growth has a positive and significant effect on economic growth in North Luwu Regency. (3) Labor force and population growth together influence economic growth in North Luwu Regency.

Keywords: Labor; Population Growth; Economic Growth

1. Introduction

Economic growth is the development of activities in the economy which results in increasing goods and services produced by society and increasing society's prosperity. The problem of economic growth can be viewed as a long-term macroeconomic problem. Economic growth is an indicator of sustainable economic development in a region or country [1]. Economic development is an important issue for a country's economy which has become an agenda every year.

North Luwu Regency is one of the regions in South Sulawesi Province, Indonesia. Like other regions in Indonesia, North Luwu also faces various economic challenges that need to be overcome to achieve sustainable economic growth. Economic growth is an important indicator of societal welfare. Economic growth in North Luwu is driven by an increase in goods and services produced in the economy. To find out the real level of economic growth in a region, it can be seen from the GDP growth at constant prices. Real Economic Growth can be seen from the GDP value at Constant Prices, which is positive, indicating that there is an increase in the economy in North Luwu, or vice versa, if it is negative, it will indicate that the economy in North Luwu is declining.

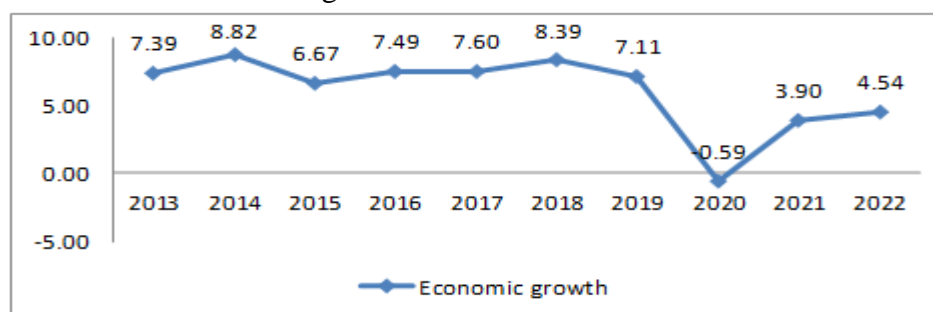


Figure 1 The Graph of Economic Growth of North Luwu Regency
Source: BPS South Sulawesi 2023

Figure 1, shows that in 2022 economic growth in North Luwu Regency will increase. This growth was influenced by increased production in all business fields which were free from the influence of inflation. The GRDP value based on constant prices in 2010, North Luwu reached 8.88 trillion rupiah. So this figure has increased from 8.49 trillion rupiah in 2021. So this shows that during 2022 there will be an increase in economic growth of 4.54 percent, so it is higher compared to economic growth in the previous year which reached 3.90 percent. With the recovery of conditions after the Covid-19 pandemic and the flood disaster, economic growth has resulted in increased production in the agricultural sector and several infrastructure developments sufficient to help restore economic growth in North Luwu Regency in 2022. Among these activities is the completion of highway and bridge repairs around areas affected by flooding. Apart from that, increasing production of food crops such as corn and rice has a positive impact on North Luwu's economic growth. Several other activities also contribute to accelerated economic growth.

There are several factors that influence economic growth, the first factor is labor. According to Republic of Indonesia Law No. 13 of 2003 Chapter I Article 1 Paragraph 2, it is stated that labor is every person who is able to do work to produce goods and services both to meet their own needs and those of the community. The greater the population, the greater the potential for economic growth, because the greater the population, the greater the potential for economic growth.

In Sri Wahyuni Mustafa's research (2019), apart from natural resources, capital and technology, labor is a very important production component. When viewed as a whole, labor refers to individuals who have the ability to work to produce goods or services and have economic value that can be used to meet society's needs [2]. [3]Age is a measure of physical ability to work. In other words, people of working age are considered to have the ability to work. Population can determine the size of the available labor force and therefore can be used as a potential driver of economic growth. Having a large workforce is a profitable thing if it is accompanied by the ability to create as many jobs as possible. If the number of workers including workers increases, then production (output) can increase. Increased production (output) occurs by making the best use of the existing workforce (Jingan in Saham, 2022). [4]Labor force growth is traditionally considered to be one of the positive factors that stimulate economic growth, more labor means higher production levels (I. U. Sari & Saputra, 2020).

[5]The second factor is population growth. In general, population growth in developing countries is very high and large. The problem of population growth is not just a matter of numbers, but also has implications for development and welfare needs. Views on population are divided, and some see it as a driver of development. In research Bado et al., (2023) According to Todaro and Smith, a larger population is actually a potential market, providing a source of demand for various goods and services, driving various economic activities to create economies of scale in production, and a source of cheap labor or Population is the driving force of development because it creates supplies. The amount obtained is sufficient, which leads to an increase in overall output or output. Ultimately, this is expected to improve general welfare and reduce poverty rates [5].

The results of this research Astuti et al., (2017) show that labor does not have a significant effect on economic growth, which means that if labor increases by 1 percent, economic growth will increase, so it is stated that labor has a positive and significant relationship with economic growth. Meanwhile, population growth has a significant effect on economic growth, which means that if population growth increases by 1 person, economic growth will decrease, so it is stated that population growth has a negative effect on economic growth[6]. Meanwhile, research results Hidayat et al., (2011) say that if there is an increase in the number of workers by 1 person, there will be an increase in economic growth. From the results of his research, labor has a positive effect on economic growth[7].

Based on the description of the background above, it is hoped that researchers can help see the influence of these two factors on economic growth. Workers can contribute to economic growth by getting jobs and working productively. Meanwhile, population growth shows that a larger domestic market size will increase economic growth. From this presentation, researchers are interested in conducting research entitled the influence of labor and population growth on economic growth in North Luwu Regency.

Based on the background above, the aim of this research is to:

1. Knowing the influence of labor on economic growth in North Luwu Regency.
2. Knowing the effect of economic growth on economic growth in North Luwu Regency.
3. Knowing that labor and population growth together influence economic growth in North Luwu Regency.

2. Methodology

The type of research applied in this research is quantitative research. The type of data used in this research is secondary data and time series obtained through the publication of data issued by the Central Statistics Agency (BPS) of North Luwu Regency on the basis of 2010 constant prices. The data collected is the last 10 years published by the Central Statistics Agency. Variable Operational Definition:

- a) Labor (X1) is the working age population (15 years and over) who have the ability to produce goods and services if there is demand for them and they want to engage in activities.
- b) Population Growth (X2) is the rate of population change during one period in North Luwu Regency
- c) Economic Growth (Y), namely changes in the level of economic activity that take place from year to year which are caused by an increase in society's production output.

The data analysis method used in this research is Multiple Linear Regression. This analysis is used to determine the direction of the relationship between the independent variable and the dependent variable, whether each independent variable is positively or negatively related and to predict the value of the dependent variable if the value of the dependent variable increases or decreases. The variable relationship model will be analyzed according to the regression equation, namely with the following formula:

$$Y = a + b_1X_1 + b_2X_2 + e$$

Where:

Y = Economic Growth

- a = Constant
- b_1, b_2 = Coefficient of Determination
- X_1 = Labor
- X_2 = Population Growth
- e = Error

Significance Test of Regression Coefficients

1. Partial Coefficient Test

The t test is used to partially test the influence of independent variables on the dependent variable, namely the influence of each independent variable. Testing was carried out using one-way testing with the following hypothesis:

- a. $H_0 = \beta_i = 0$, meaning that there is no significant influence of the independent variables (labor and population growth) on the dependent variable (economic growth)
- b. $H_a = \beta_i > 0$, meaning that there is a significant influence of the independent variables (labor and population growth) on the dependent variable (economic growth)
- c. Significance level = 0.05 (5%) Test criteria: If $t_{count} > t_{table}$, then H_0 is rejected and H_a is accepted. If $t_{count} < t_{table}$, then H_0 is accepted and H_a is rejected

2. F test (simultaneous test)

The F test is used to test the influence of independent variables together on the dependent variable, namely the influence of all independent variables. Testing was carried out using one-way testing with the following hypothesis:

- a. $H_0 = \beta_i = 0$, meaning that there is no joint significant influence of the independent variables (labor and population growth) on the dependent variable (economic growth)
- b. $H_a = \beta_i > 0$, meaning that there is a joint significant influence of the independent variables (labor and population growth) on the dependent variable (economic growth)
- c. Significance level = 0.05 (5%) Test criteria: If $F_{count} > F_{table}$, then H_0 is rejected and H_a is accepted. If $F_{count} < F_{table}$, then H_0 is accepted and H_a is rejected

3. Coefficient of Determination

The coefficient of determination (R^2) from multiple regression results shows how much the dependent variable can be explained by the independent variables. The coefficient of determination is 0 to 1. The closer it is to zero, the smaller the influence of all independent variables on the value of the dependent variable (in other words, the smaller the model's ability to explain changes in the value of the dependent variable). Meanwhile, if the coefficient of determination is close to 1, it can be said that the model is stronger in explaining variations in the independent variable on the dependent variable.

3. Result and Discussion

Description of Research Variables

1. Economic Growth (Y)

According to Hasbi et al., (2019) economic growth explains what factors determine the increase in output per capita in the long term and how these factors interact to produce a growth process. One macro indicator that can be used to measure real economic performance is economic growth [8]. Economic growth can be defined as an increase in the number of goods and services produced by all business fields of economic activity in a region over a period of one year. The rate of economic growth is calculated by calculating changes in GRDP on the basis of constant prices for the year in question compared to the previous year.

[9]According to current prices in 2022, North Luwu Regency's Gross Regional Domestic Product (GRDP) reached IDR 16.05 trillion, and at constant 2010 prices it reached IDR 8.88 trillion. Agriculture, Forestry and Fisheries Business Fields make the largest contribution to the GRDP of North Luwu Regency, with 49.97 percent of the total GRDP, followed by the Construction Business Field with 12.53 percent of the total GRDP. In terms of production, the Transportation and Warehousing Business Field experienced the highest growth of 11.31 percent (BPS North Luwu Regency, 2023).

2. Labor (X1)

According to the Central Statistics Agency (BPS), people of working age are those aged 15 years and over. The working age population is classified as a group that is working and looking for work, not a group consisting of people who go to school, take care of the household, and others. The population of North Luwu Regency aged 15 years and over who will work in 2022 will be 169,845. When compared to 2021, the total workforce is 146,770 people. North Luwu Regency workforce growth data can be seen in graph 2 as follows.

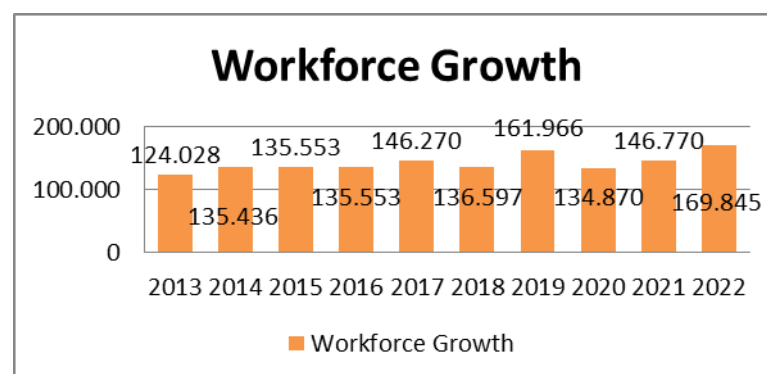


Figure 2. The Graph of North Luwu Regency Workforce Growth
Source: North Luwu BPS 2023

3. Pertumbuhan Penduduk (X2)

Based on the Central Statistics Agency (BPS), the population in North Luwu Regency in 2022 will be 327,820 people, with an annual population growth rate of 0.86 percent. According to gender, if we look at the working age population, men are more numerous than the female working age population. When compared with 2021, the population in North Luwu Regency is 325,052 people, with an annual population growth rate of 0.88 percent. Population growth data in North Luwu Regency can be seen in graphic image 3 below.

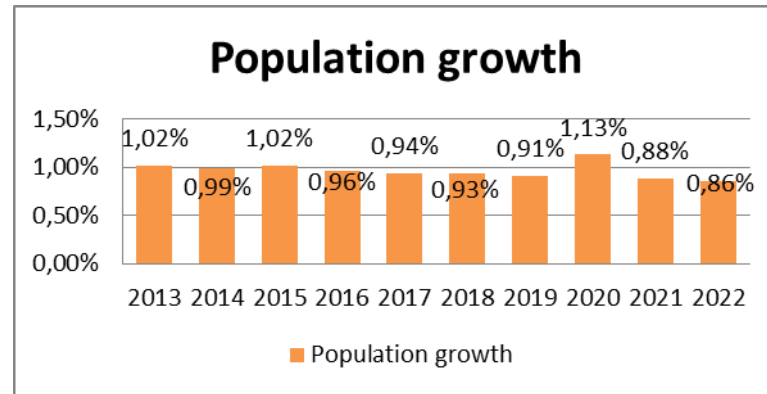


Figure 3. Population Growth of North Luwu Regency
 Source: North Luwu BPS 2023

3.1. Results

Regression Test Results

In analyzing the influence of labor and population growth on economic growth in North Luwu Regency in 2013-2022 with the independent variables being labor and population growth, multiple linear regression analysis was used to select this model because there are two independent variables.

Table.1 Results of Statistical Analysis

Model	Coefficients ^a			T	Sig.
	Unstandardized Coefficients		Standardized		
	B	Std. Error	Beta		
1 (Constant)	70.572	16.991		4.15	.004
Labor	.001	.000	.910	3.09	.018
Population Growth	.263	.069	1.129	3.83	.006

Source: 2024 SPSS data processing results

Based on the SPSS Statistics 22 calculation results in table 1, the following multiple linear regression equation is obtained:

$$Y = a + b_1X_1 + b_2X_2 + e$$

$$Y = 70.572 + 0.001X_1 + 0.263X_2 + e$$

The interpretation of the regression equation above is as follows:

- 1) From the multiple liner regression equation above, a constant value of 70.572 is obtained. This means that if the labor and population growth variables are equal to zero, then economic growth will be 70.572%
- 2) The regression coefficient for the labor variable is 0.001, indicating that economic growth is 0.001 for every one percent increase.
- 3) The regression coefficient for the population growth variable is 0.263, indicating that for every one percent increase, economic growth of 0.263% will occur.

Partial Regression Coefficient Significance Test (t-test)

Table.2 Partial Test

Variable	T count	T table
Labor	3.093	2.364
Population Growth	3.834	2.364

Source: SPSS 2024 Data Processing Results

Based on the calculation results in table 2, the significant partial regression coefficient test (t-test) above is:

1. The labor variable has a value of $t_{count} > t_{table}$ ($3.093 > 2.364$) with a significance level value of $0.018 < 0.05$, so it can be concluded that the labor variable has a positive and significant effect on economic growth in North Luwu Regency.
2. The population growth variable has a value of $t_{count} > t_{table}$ ($3.834 > 2.364$) with a significance level value of $0.006 < 0.05$, so it can be concluded that the population growth variable has a significant and influential effect on economic growth in North Luwu Regency.

Simultaneous Regression Significance Test (F-Test)

Table.3 F-test

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	49.068	2	24.534	7.537	.018 ^b
	Residual	22.785	7	3.255		
	Total	71.853	9			

Source: 2024 SPSS data processing results

Based on the table above, it is known that the significant value is $0.018 < 0.05$ and the Fcount value is $7.537 > F_{table} 4.737$. So it can be stated that the variables of labor and population growth simultaneously have an influence on economic growth in North Luwu Regency.

Coefficient of Determination (R²)

Table.4 Coefficient of Determination (R²)

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.826 ^a	.683	.592	1.80418

Source: 2024 SPSS data processing results

If you look at the table above, the R Square value is 0.683, meaning that 68.3% of the economic growth variable can be explained by labor and population growth, while the remaining 31.7% is explained by other variables outside this research model.

3.2. Discussion

The Influence of Labor on the Economic Growth of North Luwu Regency

From the results of the partial first hypothesis test (H1) which has been carried out between the labor variable on economic growth, it shows that the calculated t value is $3.093 > t$ table value 2.364 with a regression efficiency value of 0.001 and a significant value of $0.018 < 0.05$ so it can be concluded that the labor variable has a positive and significant effect on economic growth in North Luwu Regency. Based on the research results of M. Sari et al. (2016), it shows that labor partially influences economic growth in Indonesia[10]. In line with the results of research conducted by Hastin (2022), it shows that labor partially has a positive and significant influence on economic growth[11]. This is also in accordance with Solow's theory that population growth is also influenced by labor growth. Population growth can better explain sustainable economic growth because an increase in the number of workers will follow an increase in economic growth.

The Influence of Population Growth on the Economic Growth of North Luwu Regency

The results of the partial second hypothesis test (H2) which has been carried out between population growth variables and economic growth show that the calculated t value is $3.834 > t$ table value 2.364 with a regression coefficient value of 0.263 and a significant value of $0.006 < 0.05$ so it can be concluded that the population growth variable has a positive and significant effect on economic growth in North Luwu Regency. Based on research results from Yuniarto (2021), it shows that population growth has an effect on economic growth [12]. Classical economists such as Adam Smith assumed that population was a potential input used as a production factor to increase household production. The larger the population, the more labor is used. This is in line with research by Akbar (2017), showing that population growth directly has a positive and significant effect on economic growth in the city of Samarinda [13].

Labor force and population growth together influence the economic growth of North Luwu Regency

Based on the simultaneous statistical results, the labor and population growth variables have a significant value of $0.018 < 0.05$ and the Fcount value is $7.537 > F$ table value 4.737. So it can be concluded that the results of the third hypothesis test (H3) simultaneously carried out between the labor variables and population growth together have an influence on the economic growth of North Luwu Regency. The results of research conducted by Hasibuan, (2014) and Martadinata, (2022) show that population and labor growth have a positive and significant effect on economic growth[14][15]. This research is in line with theory according to Todaro (2000), population and labor force growth is traditionally considered a positive factor in spurring economic growth. A larger number of workers means a larger domestic market size.

4. Conclusion

Based on the results of research regarding the influence of labor and population growth on economic growth in North Luwu Regency, the following conclusions were obtained:

1. The calculated t value $>$ t table value shows the number $3.093 > 2.364$ and the regression coefficient value is 0.001 so it can be concluded that the Labor Variable has a positive and significant effect on economic growth in North Luwu Regency.
2. The calculated t value $>$ t table value shows the number $3.834 > 2.364$ and the regression coefficient value is 0.263, so it can be concluded that the population growth variable has a positive and significant effect on economic growth in North Luwu Regency.
3. The results of the F test show that the significant value is $0.018 < 0.05$ and Fcount is $7.537 > Ftable 4.737$, so it can be concluded that the labor variable and population growth together have a positive and significant influence on economic growth in North Luwu Regency.

4.

5. Suggestion

a. For Researchers

After completing this research, the author found that there were still many things that needed to be improved. Therefore, the author suggests further research on the following matters:

1. Researchers still face obstacles in collecting data because some data is not available. Therefore, researchers can only obtain data from several web platforms whose presentation forms are limited. Therefore, it is hoped that further research can obtain more complete data.
2. Add additional research indicators such as community consumption levels, the tourism industry, and other fields that can show the economic growth conditions of North Luwu Regency.

b. For the Government

The author advises local governments regarding the research carried out, including:

1. Based on the results of research on the influence of labor and population growth on economic growth in North Luwu Regency, therefore, the regional government must have the ability to prioritize elements that support increased economic growth. Therefore, it is hoped that the presence of all resources will ensure optimal results.
2. Economic growth is greatly influenced by population growth. Increased economic growth is characterized by increased productivity, which has an impact on increasing social welfare through improving the quality of human resources.

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