THE EFFECT OF ECONOMIC GROWTH AND POPULATION GROWTH ON THE POVERTY RATE
IN SIMALUNGUN REGENCY

*[1]**Elsa Dameria Naibaho,**[2]**Pawer Darasa Panjaitan,**[3]**Dian G Purba***
*[3]**Darwin Damanik,**[5]**Elidawaty Purba***

[1,2,3,4,5]Department of Development Economics, Faculty of Economics
University of Simalungun, Indonesia

Author's email:
[1]elsanaibaho914@gmail.com

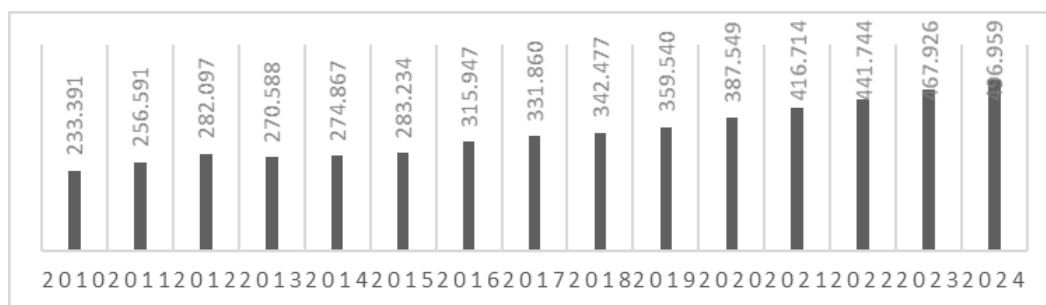**Corresponding author:elsanaibaho914@gmail.com*

Abstract. *This study aims to analyze the effect of economic growth and population growth on the poverty rate in Simalungun Regency. This study uses quantitative methods and by collecting data through the Central Statistics Agency (BPS) office and processing using the SPSS Version 26 application. From the results of the calculation of SPSS version 26 above, it can show that the independent variable affects the dependent variable with an F-table value of 3.89 and an F-count value of 92.931 with a significant 0.00 smaller than the significant level used in this study which is 0.05 (0.00 <0.05). This shows that the independent variable has a significant effect on the dependent variable. Thus, it can be concluded that the above test rejects hypothesis H_0 and accepts H_1.*

Keywords: *Economic Growth; Population Growth; Poverty Rate*
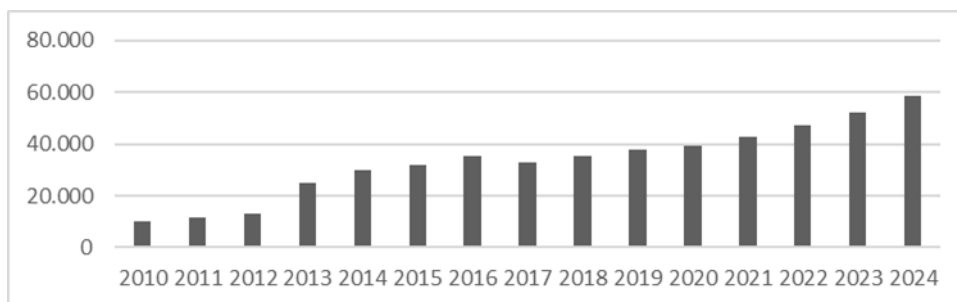
1. INTRODUCTION

Poverty is often seen as one of the main problems faced by developing countries, where it is a prevalent social issue, especially in countries that are implementing various development programs to improve economic conditions and the quality of life of the community. In essence, poverty is closely related to the inability to fulfill the most basic needs of life. Poverty often arises because of deficiencies in consumption and income, which prevent individuals or families from living properly. The problem is made more complex by the fact that it is often associated with limited access to resources and opportunities that can support the improvement of economic conditions in the long term.

The problem of poverty is one of the fundamental issues that is the center of attention of the government in a particular region. Poverty in Indonesia is one of the diseases in the economy, so there must be a solution or policy to reduce the poverty rate. The problem of poverty is complex and multidimensional. Talking about poverty, Simalungun Regency, which is in North Sumatra, still faces various problems related to poverty. This problem is evident from the data recorded at the Central Bureau of Statistics (BPS) of Simalungun Regency, which shows an increase in the number of poverty lines in this area from year to year. This illustrates that poverty is still a growing issue in Kabupaten Simalungun. The data provides a clear picture of the major challenges faced by this region in overcoming the growing problem of poverty.
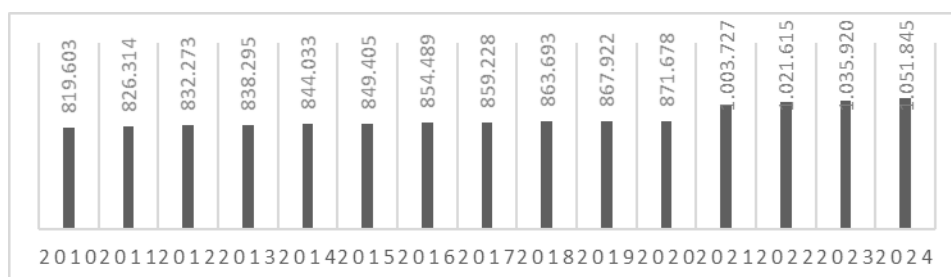
Figure 1. Poverty Line in Simalungun Regency (People)
(Source: BPS Kab. Simalungun, 2025)

This picture shows that the poverty line in Kabupaten Simalungun in 2010-2024 generally showed an increase every year. The poverty line in 2010 amounted to 233,391 thousand people, and in 2024 the poverty line reached up to 496,959 thousand people. To overcome this problem, the government together with various related parties needs to make maximum efforts in improving the regional economy through the implementation of policies that support sustainable economic growth. Economic growth is a process that describes the continuous improvement of economic conditions in a certain period.

Figure 2. Economic Growth (IDR) (Source: BPS Kab. Simalungun, 2025)

Based on the diagram above, it shows that economic growth has fluctuated in the following year. These unstable economic growth conditions are often referred to as fluctuations. But it is expected that with stable and growing economic growth, wider job opportunities will be created, as well as increasing people's income.

Figure 3. Population Growth (Soul) (Source: BPS Kab. Simalungun, 2025)

This picture shows that population growth in Simalungun Regency shows an increase every year. In 2010 the population growth was 819,603 people and in 2024 the population growth reached 1,051,845 people. This rapid increase in population requires careful handling so that the basic needs of the community can be achieved well. Therefore, economic growth is expected to go hand in hand with the increase in population. With stable and sustainable economic growth, it is expected to create new opportunities, such as jobs and increased access to public services, which aims to help reduce the poverty rate, especially in Kabupaten Simalungun.

2. LITERATURE REVIEW
2.1 Poverty
According to (Arsyad, 2015) poverty is multidimensional. This means that because human needs vary, poverty also has many aspects. When viewed from a general policy, poverty includes primary aspects in the form of poor assets, socio-political organizations, and knowledge and skills; and secondary aspects in the form of poor social networks, financial resources, and information. Broadly speaking, the definition of poverty can be sorted into two aspects, namely: (1) the primary aspect, which is poor in

assets, socio-political organization, knowledge, and skills; and (2) the secondary aspect, which is poor in social networks, financial resources, and information.

There are various measures that are often used as indicators of poverty, including 1). Annual per capita rice consumption level, 2). Income level, 3). Index of community welfare.

2.2 Economic Growth

According to Damanik, (2024) economic growth is a process of improving economic conditions in a sustainable manner within a certain period of time. And it can also be interpreted as a process of increasing the production capacity of the economy in the form of an increase in national income.

According to Damanik, (2024) Factors that affect economic growth include natural resources, human resources, capital, technology and so on.

2.3 Population Growth

According to Panjaitan, (2021) Population is a group of individuals who live in a certain area. If an area is inhabited by many people who live there, it can be interpreted as a population, regardless of their citizenship status. The population consists of Indonesian citizens and foreigners living in Indonesia, while Indonesian citizens are native Indonesians and people from other nations recognized through law as Indonesian citizens. From some of the above definitions, it can be explained that the population is a group of individuals who reside or are domiciled in an area in accordance with the provisions of the applicable law or if defined in general, it is all people who are domiciled in the geographical area of a country for a certain period of time, and are considered to have met the conditions determined by regulations in a country. According to Panjaitan, (2021) that there are several factors that affect population growth are Fertility, Mortality (death) and Migration.

3. RESEARCH METHODS

This research was conducted in Simalungun Regency, with the focus on the Central Bureau of Statistics (BPS) of Simalungun Regency. This research aims to collect data related to economic growth, population growth and poverty levels in the region. And with the research time lasting from January to April 2025. The research method used in this research is quantitative method, which emphasizes the collection and analysis of data in the form of numbers or variables which are then processed and analyzed using statistical techniques.

According to Sujarweni, (2015) quantitative research is a type of research that aims to produce findings that can be obtained through the application of statistical procedures or quantification techniques, namely a measurement process that allows data collection objectively. This quantitative approach focuses on identifying and analyzing symptoms or phenomena that have certain characteristics in human life, which in this context are referred to as variables. The data source used in this research is secondary data. Secondary data refers to information that has been collected, compiled, and published by certain institutions or agencies for more general purposes. The data is not collected directly by researchers, but taken from previously available sources.

The data collection methods used are library studies and documentation. The data analysis technique applied in this study is the multiple linear regression analysis method which aims to identify the relationship and make predictions between the independent variable and the dependent variable.

4. RESULTS AND DISCUSSION

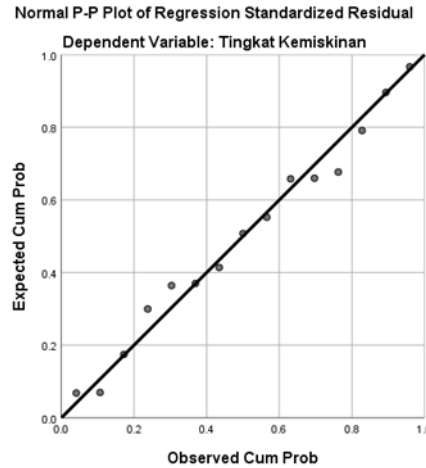### 4.1 Results

The following are the regression results to determine how much influence economic

growth and population growth have on the poverty rate using Multiple Linear Regression data analysis, Classical Assumption Test, and Hypothesis Test.

1. Classical Assumption Test
   a. Normality Test

Figure 1. Normal P-Plot Graph Results
(Source: SPSS 26 data processing results)

Figure 1 Normal Probability Plot above shows that the data spreads around the diagonal line and follows the direction of the diagonal line and shows a normal distribution pattern, so it can be concluded that the assumption of normality has been met and is suitable for use to predict poverty levels based on the independent variables.

   b. Multicollinearity Test

Table 1. Multicollinearity Test Results

	Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	-210.396	95.142		-2.211	.047		
	Economic Growth	2.754	.764	.479	3.606	.004	.287	3.488
	Population Growth	.516	.129	.530	3.994	.002	.287	3.488

(Source: SPSS 26 data processing results)

Based on the processing results using SPSS version 26 as presented in table 4.5 above, the VIF value for each independent variable is obtained, namely the VIF value of economic growth is 3.488, and the VIF of population growth is 3.488. So, it can be concluded that the multicollinearity problem between the independent variables is declared free of multicollinearity indicated by a tolerance value> 0.10 or a VIF value < 10, which can be ignored because the VIF is between 0.10 and 10.

   c. Autocorrelation Test

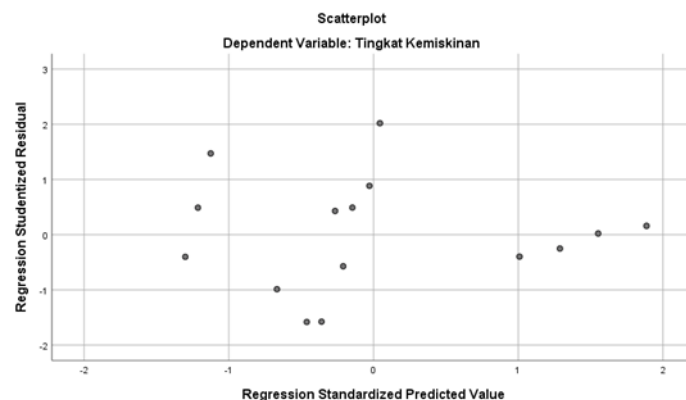**Table 2. Autocorrelation Test Results**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.991a	.982	.976	12.233073	1.877

(Source: SPSS 26 data processing results)

Based on the results of the analysis conducted using the SPSS version 26 application, as shown in Table 4.6, the Durbin-Watson (DW) value is 1.877. This value is in the range of 1.55 to 2.45, which according to general criteria indicates the absence of autocorrelation symptoms in the regression model. Thus, it can be concluded that the regression model used has fulfilled the classical assumptions related to the absence of autocorrelation.

d. Heteroscedasticity Test

Figure 2. Scatterplot Graph
(Source: SPSS 26 data processing results)

From the Scatterplot graph above shows that the distribution data is above zero and below zero there is no clear pattern, so it can be said that heteroscedasticity does not occur.

2. Multiple Linear Regression

Table 3. Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-210.396	95.142		-2.211	.047
	Economic Growth	2.754	.764	.479	3.606	.004
	Population Growth	.516	.129	.530	3.994	.002

(Source: SPSS 26 data processing results)

The results of this multiple linear regression equation are:
$$Y = -210.396 + 2.754 x_1 + 0.516 x_2 + e$$

The value of a = -210.396 This value shows the expected poverty rate when economic growth and population growth are both zero. The result for economic growth is 2.754 and population growth is 0.516.

3. Hypothesis Test
   a. Simultaneious Test (F)
   b.

Table 4. F Test Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	88522.381	2	44261.191	92.931	.000b
	Residuals	5715.339	12	476.278		
	Total	94237.720	14			

(Source: SPSS 26 data processing results)

Economic growth and population growth have a significant effect on the poverty rate in Simalungun Regency.

c. Partial Test (T)

Table 5. T Test Results

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-210.396	95.142		-2.211	.047
	Economic Growth	2.754	.764	.479	3.606	.004
	Population Growth	.516	.129	.530	3.994	.002

(Source: SPSS 26 data processing results)

The Effect of Economic Growth on the Poverty Rate

The regression results can be seen that the Economic Growth variable (X1) < Sig (0.04 < 0.05) then the economic growth variable affects the poverty rate, then H1 is accepted and H0 is rejected.

Effect of population growth on poverty rate

The regression results can be seen that the Population Growth variable (X2) < Sig (0.02 < 0.05) then the economic growth variable affects the poverty rate, then H1 is accepted and H0 is rejected.

d. Determination Test (R2)

Table 6. R2 Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.991ᵃ	.982	.976	12.233073	1.877

(Source: SPSS 26 data processing results)

Based on the results of the SPSS calculation, the adjusted R^2 value is 0.976, which means that 97% of the variation in changes in the poverty rate can be explained by variations in the two independent variables, namely economic growth and population growth. While the remaining 3% is explained by other factors outside the model. The R^2 value is between >0.75-0.99, which means that it has a very strong correlation.

CONCLUSION

This study aims to determine the effect of economic growth and population growth on the poverty rate in Simalungun Regency. Based on the results of the data analysis and discussion previously stated, the following conclusions can be drawn: 1) Economic Growth, based on the results of data analysis conducted using the SPSS version 26 application, this study found that economic growth has a positive and significant influence on the poverty rate in Simalungun Regency. This is indicated by the significance value in the T-test of 0.04, which is smaller than the significance level used in this study, which is 5% (0.05). In other words, there is enough statistical evidence to suggest that economic growth significantly affects the poverty rate. The positive regression coefficient (2.754) indicates that any increase in economic growth is followed by an increase in the poverty rate. This indicates that the economic growth that occurred in Simalungun Regency during the research period has not been fully inclusive or equitable, so that low-income groups have not enjoyed the direct benefits of this growth.

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This indication may reflect the existence of inequality in income distribution or the lack of access to economic opportunities for the poor, so that economic growth tends to benefit certain groups only. Thus, based on the results of the testing and analysis that has been conducted, it can be concluded that the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted, namely that economic growth has a significant effect on the poverty rate. This finding implies that economic growth needs to be accompanied by fair distribution policies and equal economic access to effectively reduce poverty; 2) Population Growth, based on the results of the data analysis in this study, it is known that population growth has a positive and significant influence on the poverty rate in Simalungun Regency. This is based on the results of data processing using SPSS version 26 software displayed in Table 4.9, where the probability value (sig.) in the T-statistic test is 0.02. This value is smaller than the significance level used in the study, which is α = 5% (0.05). Thus, it can be statistically concluded that the population growth variable has a significant effect on the poverty rate variable. Therefore, the null hypothesis (H_0) stating that population growth has no effect on the poverty rate is rejected, and the alternative hypothesis (H_1) stating that there is a significant effect is accepted. Besides being statistically significant, the direction of the relationship between population growth and the poverty rate in this model is positive, as indicated by the positive value of the regression coefficient. This means that the higher the population growth rate in Kabupaten Simalungun, the higher the poverty rate. This finding indicates that a population growth rate that is not matched by the availability of jobs, increased economic productivity, and equal access to basic needs such as education, health, and housing, can put greater pressure on the welfare of the community, especially the economically vulnerable. Implicitly, this result reflects that uncontrolled population growth can be one of the main factors that worsen the socio-economic conditions of the community, especially in the context of regions that are still facing challenges in equitable development. When the population increases significantly, without being accompanied by an inclusive and sustainable development strategy, the impact will be seen in the increasing poverty rate, both in terms of quantity and quality of life of the poor. Therefore, the results of this study emphasize the importance of population planning that is integrated with poverty alleviation policies, including improving the quality of education, health services, job creation, and equitable regional development. With the right policies, the negative impact of population growth on poverty levels can be minimized, so that the general welfare of the community can increase.

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