Asian Journal of Applied Business and Management (AJABM)
Vol. 4, No. 2, 2025: 473-484

The Effect of Unemployment Level, Education Level, and Population Growth on Poverty Level in Gresik District

Devina Lutfa Dianti[1], Wiwin Priana Primandhana[2*]
Universitas Pembangunan Nasional "Veteran" Jawa Timur, Indonesia
Corresponding Author: Wiwin Priana Primandhana wiwinpria10@gmail.com

A R T I C L E I N F O

Keywords: Unemployment Rate, Education Level, Population Growth, Poverty Level, Gresi Regency

Received : 16, April
Revised : 30, April
Accepted: 20, May

A B S T R A C T

This study analyzes the impact of unemployment rate, education level, and population growth on poverty rate in Gresik Regency. Data used are secondary data from the Central Statistics Agency (BPS) for 2008–2023. Multiple linear regression and classical assumption tests are employed for the analysis. It is revealed that jointly unemployment rate, education level, and population growth have a significant effect on poverty rate. Partially, population growth and education level have a significant effect, but not unemployment rate. The Adjusted R^2 of 93.8% indicates that the independent variables explain significantly the poverty rate variation. These findings stress the necessity to improve the quality of education and control the population growth in order to decrease poverty efficiently in Gresik Regency.

DOI: https://doi.org/10.55927/ajabm.v4i2.192
ISSN-E: 2964-7932
https://npaformosapublisher.org/index.php/ajabm

INTRODUCTION

Poverty is a problem that is being considered by various countries, and this problem can be caused by various factors, these factors can be interrelated with each other (Koestedjo, 2018). Indonesia, which is a developing country with the aim of achieving prosperity, is one of the countries facing this problem (Dwi Radila et al., 2021). Various concerns are felt by the Indonesian state regarding the causes of poverty, however, the main cause of concern is when the type of poverty is hereditary poverty, which is when someone in the poor category marries someone in the same category (poor). Especially if they decide to have many children and do not have an income so they cannot meet basic needs.

Poverty itself is a condition when there is an inability to fulfill basic needs, whether food or other needs (Nila Isroviyah, 2020). Poverty can threaten various aspects of life, such as low levels of health, which of course will reduce people's access to education, so that the unemployment rate will increase (Trisnu & Sudiana, 2019). This is what is feared because it can become a cycle, where if someone is unemployed and he cannot meet his basic needs because of loss of income, then he also causes poverty to increase. In Indonesia, unemployment is still a problem that until now remains a challenge for the country (Yusriadi et al., 2020). In this journal, Gresik Regency is a case study in discussing the poverty that occurs. This regency is located in East Java Province and is an Industrial Area, but data states that Gresik Regency has a high level of poverty and unemployment.

The poverty rate data reported directly by the Gresik Regency Government is 10.32% or if per person it is around 142,390 people, although this means it has decreased from 12.42% (166,350 people) and 10.96% (149,750 people) in 2023 (Kominfo, n.d.). Based on the high level of poverty, the Deputy Regent of Gresik stated that poverty alleviation is one of the main programs promoted by the Gresik Regency Government (Radar gresik, 2023). The causes of high poverty in Gresik Regency are quite diverse, it could be due to the high number of people who are unemployed or have no income, high birth rates, and it could also be influenced by low levels of education, which could again have an impact on high poverty rates.

Education also has a significant impact on poverty levels. A key factor in improving human resource capacity and driving inclusive economic growth is high-quality education. The growth of the education sector serves as a foundation for the development of human capital, which is essential for sustainable economic growth. Countries can improve the productivity and quality of their population through education, which will boost social welfare. It is expected that investment in education will increase knowledge and skills, which will increase personal income and production and help lift people out of poverty (Nila Isroviyah, 2020).

In addition, one of the main factors that affects the poverty rate is population growth. Poverty is often exacerbated by a large population. According to data, countries with larger populations usually have higher poverty rates than countries with smaller populations (Suhandi et al., 2018). The economy of a region can slump due to a large population. Population growth can slow

down poverty alleviation efforts and hinder the achievement of economic development goals such as community welfare if not addressed (Iqbal Salsabil & Westi Rianti, 2023). The population growth rate in Gresik Regency was recorded at 1.06%.

It can be concluded that, although Gresik Regency has experienced rapid economic development, poverty is still a major challenge. The poverty rate in this region is said to be caused by a number of variables, such as high unemployment, low levels of education, and population growth. Many people suffer from high unemployment rates, making it difficult to meet basic needs. Meanwhile, low access to quality education hinders the development of human resources that can improve community welfare. However, poverty is also exacerbated by high population growth rates that are not balanced by increased employment opportunities.

Gresik Regency still faces quite high poverty rates even though its economic growth continues. Data shows that unemployment rates, education, and population growth are factors related to poverty. However, most previous studies only highlight the low participation or number of education graduates, without exploring the possibility of other problematic factors, such as the quality of education. In addition, discussions on poverty data in Gresik Regency are also still limited (such as whether the data is truly absolute). Therefore, this study will examine the possibility that these factors, especially education, also influence the high poverty rate in Gresik Regency.

Given these conditions, several questions arise: Does the unemployment rate in Gresik Regency have an impact on poverty? What is the relationship between poverty and education level? Does the poverty rate in the region change due to population growth? The purpose of this study is to examine how poverty in Gresik Regency is affected by population growth, education, and unemployment rates. This study specifically aims to understand and determine whether the population, average length of education, and unemployment rates have an impact on poverty rates in Gresik Regency.

LITERATURE REVIEW

Poverty

Poverty is a condition in which individuals or groups are unable to meet basic needs such as food, clothing, shelter, education, and health. This is often caused by low income, which prevents access to essential services that support a decent quality of life (Hildegunda, 2010). Kasim Muslim in his book "Characteristics of Poverty and Its Alleviation" defines poverty as limited access to employment opportunities, education, health, and assets that are important for well-being. The lack of quality human resources due to low education also worsens the conditions of poverty (Gupta, 2004). According to Nurwati (2008) in Poverty: "Measurement Models, Problems, and Policy Alternatives" low levels of education are often one of the main causes of poverty, because they limit employment opportunities and income.

Unemployment

Unemployment is a condition where individuals of working age are actively looking for work in return for wages, but have not yet succeeded in getting the job they want (Irawati, 2015). However, individuals who are not working and are not actively seeking work are not included in the category of unemployed. One of the main causes of unemployment is low income and high levels of aggregate expenditure in the economy (Qadrunnanda, 2017). According to Sukirno (1994) in his book Introduction to Macroeconomic Theory, unemployment occurs when members of the workforce are looking for work but have not yet succeeded in finding it, while individuals who are not actively looking for work are not considered unemployed.

Education

Education is a structured process to develop the attitudes and behavior of individuals or groups, so that it can form a personality that develops in a balanced way. This process does not only involve teaching activities, but also requires a deep theoretical basis and guidelines. In practice, education is achieved through scientific research and direct experience in the field being studied (Maunah et al., 2022). Education aims to actualize individual potential so that they can make maximum contributions to society, and includes the delivery of knowledge, skills, values, and norms to the next generation. In addition, education also involves life experiences that occur outside the school environment, which are the basis for social and economic development, so that they have an important role in the development of a country (Srimulat et al., 2024).

Population Growth

Residents are all people who live in Indonesia for one year or more, or who live for less than a year with the intention of settling (BPS, n.d.). Population growth is an important factor in the development of a country. According to classical economists, such as Adam Smith, population is a potential resource that can be utilized as a factor of production to improve the economy. Although population growth adds to the workforce, rapid growth also raises various problems that need to be addressed, especially in developing countries such as Indonesia (Zulfa et al., 2016).

METHODOLOGY

This study uses a quantitative approach and secondary data sources. The analysis uses data obtained from the Central Statistics Agency (BPS) of Gresik Regency which includes variables of unemployment rate, education level, and population growth as independent variables, while poverty rate as the dependent variable. The dataset covers the period from 2008 to 2023 in Gresik Regency.

To test the effect of independent variables on poverty rate, multiple linear regression analysis is used. Before conducting the regression analysis, a classical assumption test will be carried out to verify the validity of the model. This test includes checking normality, multicollinearity, heteroscedasticity, and

autocorrelation. Data processing and analysis will be carried out using SPSS software.

The multiple linear regression model used in this study is formulated as follows:

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + e$$

This study uses a partial test (T-test) to assess the influence of each independent variable on poverty, and a simultaneous test (F-test) to assess the collective impact of independent variables on the dependent variable. Through this analysis, it is expected that a clearer understanding will emerge regarding the relationship between the poverty rate in Gresik Regency and factors such as unemployment rate, educational attainment, and population growth.

RESEARCH RESULTS

Normality Test

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		16
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	64.69620166
Most Extreme Differences	Absolute	.104
	Positive	.077
	Negative	-.104
Test Statistic		.104
Asymp. Sig. (2-tailed)[c]		.200[d]

Source: data processed with SPSS

Based on the SPSS results in table 1, all residual data used in this study have a Kolmogorov-Smirnov significance value of 0.200. The normality assumption has been met because this figure is higher than the significance level of 0.05, which indicates that all research data is normally distributed.

Multicollinearity Test

Table 1 Multicollinearity Test

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	X1	.749	1.335
	X2	.145	6.873
	X3	.153	6.556

Source: data processed with SPSS

Referring to the SPSS output in Table 2, it can be seen that all variables have Variance Inflation Factor (VIF) values below 10 and tolerance values exceeding 0.10. These results indicate that the regression model does not exhibit signs of multicollinearity.

Heteroscedasticity Test

Table 2 Heteroscedasticity Test

Variable	Sig.	Requirement	Information
Unemployment Rate	.713	>0.05	No heteroscedasticity detected
Average Length of Schooling	.574	>0.05	No heteroscedasticity detected
Total population	.532	>0.05	No heteroscedasticity detected

Source: data processed with SPSS

According to the Glejser Test results presented in Table 3 from SPSS, there is no indication of heteroscedasticity within the regression model. This conclusion is supported by the fact that the significance values for all variables exceed 0.05, indicating that none of the independent variables have a statistically significant influence on the dependent variable ABRESID.

Autocorrelation Test

Table 3 Autocorrelation Test

Runs Test	
	Unstandardized Residual
Test Value[a]	7.47492
Cases < Test Value	8
Cases >= Test Value	8
Total Cases	16
Number of Runs	6
Z	-1.294
Asymp. Sig. (2-tailed)	.196

Source: data processed with SPSS

Based on the SPSS output in table 4, the Asymp. Sig. (2-tailed) value is known to be 0.196, which is higher than 0.05. Thus, it can be said that there is no autocorrelation in the regression model.

Hypothesis Test

F Test

Table 4 F Test (Anova)

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1200617.772	3	400205.924	76.492	.000[b]
	Residual	62783.978	12	5231.998		
	Total	1263401.750	15			

Source: data processed with SPSS

Based on the table above, with a significance value of 0.001, the calculated F value is 76.492. The degrees of freedom df1 = 3 (number of independent variables) and df2 = 12 (n-k-1) have an f table (α = 0.05) of 3.49. Because the significance value of 0.001 is smaller than 0.05 and the calculated F of 76.492 is greater than the F table of 3.49, it can be said that the variables Unemployment

Rate, Education Level, and Population Growth Rate jointly affect the poverty rate in Gresik Regency.

T Test

Table 5 Partial Test Tabulation or t-Test

Variable	P>|t|	α	t-count	t-table	Information
Unemployment Rate	0,383	0,05	0,895	2,1604	Not significant
Average Length of Schooling	0,003	0,05	3,740	2,1604	Significant
Total population	0,001	0,05	-9,030	2,1604	Significant

Source: data processed with SPSS

a. Unemployment: t count 0.895 < t table 2.1604 and significance 0.383 > 0.05, so that Unemployment (X1) is partially insignificant to Poverty (Y).
b. Education: t count 3.740 > t table 2.1604 and significance 0.003 < 0.05, so that Education (X2) partially has a positive and significant effect on Poverty (Y).
c. Population: t count 9.030 > t table 2.1604 and significance 0.001 < 0.05, so that Population (X3) partially has a negative and significant effect on Poverty (Y).

Coefficient of Determination (R^2)

Table 6 Coefficient of Determination (R^2)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.975[a]	.950	.938	72.333
a. Predictors: (Constant), X3, X1, X2				

Source: data processed with SPSS

Coefficient test results shown in Table 7 yield an Adjusted R Square value of 0.938. This means that the variables Unemployment Rate (X1), Education Level (X2), and Population Growth (X3) can explain 93.8% of the variation in the Poverty Rate (Y), and the other 6.2% is explained by variables outside this research model.

DISCUSSION

Based on the results of data analysis, the partial test via t-test shows that all independent variables, namely Unemployment Rate, Education Level, and Population Growth, do not play a significant role in the Poverty Level.

Unemployment Rate to Poverty Rate

The variable of Unemployment Rate, having a significance value of 0.383 (>0.05), is not significant in affecting the Poverty Level in Gresik Regency from 2008–2023. That is, fluctuations in the unemployment rate do not have a statistically significant effect on poverty levels for that period.

Education Level to Poverty Level

The variable Education Level has a value of 0.003 (<0.05), which signifies a positive and significant impact on the Poverty Level in Gresik Regency from 2008 to 2023. Increasing education by 1% each year has a significant impact on poverty levels. However, the positive relationship implies that greater educational attainment is associated with greater poverty, which might be attributed to reasons such as the quality of education or mismatch between education and labor market requirements. Therefore, further research needs to be done to better understand this phenomenon.

Population Growth to Poverty Rate

Population Growth is a significant and negative determinant of poverty levels, as indicated by its 0.001 (<0.05) significance value. This finding suggests that population growth influences changes in poverty levels annually. Nevertheless, declining population growth does not necessarily result in a declining poverty level, which may indicate other socio-economic determinants are at play.

CONCLUSIONS AND RECOMMENDATIONS

This study found that the unemployment rate, education level, and population growth simultaneously have a significant effect on the poverty rate in Gresik Regency. However, when viewed partially, only the education level and population growth show a significant effect, while the unemployment rate does not. The positive effect of education shows that the higher the average years of schooling is not always followed by a decrease in poverty. This is thought to be related to the inadequate quality of education or the mismatch between graduate skills and labor market needs. Meanwhile, population growth has a negative and significant effect, which means that decreasing population growth does not necessarily immediately reduce poverty rates, because it is still influenced by other factors.

The regression model in this study shows a high level of accuracy with an Adjusted R^2 value of 93.8%. This means that 93.8% of the variation in the poverty rate can be explained by the three variables, indicating that the variables analyzed have a large contribution to changes in the poverty rate in Gresik. However, this study still has limitations, especially in identifying the exact causes behind the significant effects found. The analysis is still general and has not

touched on in-depth aspects such as the quality of education, accessibility, or inequality between regions. Therefore, further researchers are advised to explore more deeply the relationship between education and poverty, especially by highlighting factors of quality, skill suitability, and educational equity as an effort to formulate more targeted policies in poverty alleviation in Gresik Regency.

ADVANCED RESEARCH

Advanced research on poverty determinants increasingly incorporates multidimensional poverty indices and spatial econometric models to capture the complex, localized, and non-linear interactions between education, population dynamics, and labor market structures. Recent studies highlight the need to move beyond aggregate education indicators such as average years of schooling by integrating educational quality metrics, skill mismatch indices, and employability scores derived from labor force surveys and vocational tracking systems. Moreover, employing panel data analysis and machine learning algorithms allows researchers to detect hidden patterns and causal pathways that traditional models may overlook. In the context of Gresik Regency, utilizing high-resolution spatial data and disaggregated socio-economic indicators can provide sharper insights into intra-regional disparities and identify priority intervention zones. These advanced methodologies are essential for designing evidence-based, precision-targeted policies that align education reforms with labor market demands and effectively reduce poverty through systemic, data-informed strategies.

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