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THE EFFECT OF SCHOOLING LEVEL, POPULATION GROWTH RATE, LIFE EXPECTANCY ON POVERTY IN EAST JAVA PROVINCE 2019 – 2023

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Abstract:
Poverty remains a major challenge in East Java Province despite a downward trend in recent years. Improvements in education and health do not always translate into a reduction in poverty, indicating a complex relationship between variables. This study aims to analyze the effect of education (average years of schooling), population growth rate, and health (life expectancy) on poverty in 38 districts/cities in East Java during 2019–2023. The hypothesis is that education and health have a negative effect on poverty, while the population growth rate has a positive effect. The method used is quantitative descriptive with secondary data from Statistics Indonesia (BPS). The analysis was conducted using panel data regression with the Fixed Effect Model (FEM) through Eviews 13, accompanied by classical assumptions and significance tests (T-test, F-test, and R^2). The results show that education, health, and population growth rate simultaneously influence poverty, with different directions of influence for each variable. These findings emphasize the importance of improving the quality of education and health and controlling population growth as the main strategy for reducing poverty and strengthening regional economic welfare.

Keywords: Education, Health, Poverty, Population Growth Rate, East Java

INTRODUCTION

Poverty remains a fundamental problem facing countries worldwide. According to the World Bank, poverty is not simply a lack of income, but also limited access to education, health care, employment, and a decent quality of life (World Bank, 2020). In other words, poverty is multidimensional and requires a comprehensive approach to addressing it. Globally, although extreme poverty rates (incomes below USD 2.15 per day) have decreased, the COVID-19 pandemic has significantly set back poverty alleviation efforts in many countries. A World Bank report (2022) states that approximately 70 million people have fallen back into extreme poverty due to the pandemic. In Indonesia, for example, although the poverty rate has generally shown a downward trend, the number of poor people remains relatively high. According to data from the Central Statistics Agency (BPS), in March 2023, the number of poor people was recorded at 25.90 million people, or 9.36 percent of the total population (BPS, 2023). While poverty rates have continued to decline year after year, inequality remains a significant issue. Provinces with large populations, such as East Java, Central Java, and West Java, still face significant challenges in reducing poverty rates.

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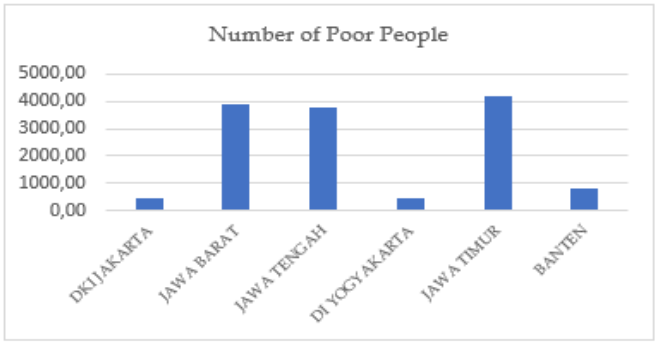

Source: Central Statistics Agency

Figure 1. Number of Poor People per Province on Java Island in 2023

Based on the graph above, in 2023, the number of poor people in East Java reached 4.18 million, or 10.35 percent, as of March 2023. This figure is higher than the national average and places East Java as one of the provinces with the highest number of poor people in Indonesia (BPS, 2023). It indicates that economic growth in East Java is not yet fully inclusive, with the majority of the population not enjoying the benefits of development equally.

One of the main factors influencing poverty is education. According to human capital theory, education is a long-term investment that can improve individual skills, productivity, and income (Becker, 1993). The length of schooling, as an indicator of the Human Development Index (HDI), reflects the average length of formal education completed by the population. The average length of schooling in East Java in 2022 was recorded at 8 years, meaning that the majority of the population only completed junior high school (BPS, 2022). This situation can limit employment opportunities and reduce the competitiveness of the workforce, thereby increasing the risk of poverty. In general, education has a negative relationship with poverty. The higher a person's education level, the greater their chances of finding decent work with adequate income. Conversely, low levels of education make it difficult for individuals to compete in the job market and tend to remain in low-wage jobs. Research conducted by Sari & Fitriani (2021) also found that increasing the average length of schooling significantly reduced poverty rates in Indonesia. It demonstrates that education not only improves individual abilities but also expands economic opportunities for society as a whole.

Besides education, health is also a crucial factor in reducing poverty. Amartya Sen (1999), through his Capability Approach theory, emphasized that health is a fundamental capability that determines a person's ability to live productively. Poor health reduces labor productivity and increases the risk of falling into poverty. In East Java, life expectancy in 2022 reached 71.74 years (BPS, 2022). However, regional disparities persist, with rural communities experiencing more limited access to healthcare than urban communities. Health is negatively related to poverty, meaning that people with good health tend to have more stable economic conditions. Healthy individuals are able to work more effectively and rarely experience income loss due to illness. Conversely, people with poor health often face high medical costs and loss of productivity. Research by Putri & Adawiyah (2023) supports this finding, noting that improvements in basic healthcare services and a reduction in infant mortality have been shown to reduce poverty in various regions.

Another contributing factor is population growth. High population growth can increase the number of poor people if not balanced by job creation and increased productivity. According to Malthus' theory (1798), population growth that exceeds food production growth will lead to resource scarcity, thus triggering increased poverty (Sukirno, 2016). East Java's population growth

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rate in 2023 is relatively high, at 2.12%. The large population (approximately 41,527.9 million people) puts pressure on the provision of employment, infrastructure, and social services (BPS, 2023). However, the results of this study indicate that the population growth rate actually has a negative effect on poverty. It means that the increase in population in East Java is accompanied by a decrease in the poverty rate. This phenomenon can be explained through the concept of the demographic dividend, where high growth in the productive age population can drive increased economic output and community welfare if accompanied by improvements in the quality of human resources. In other words, a large population is not always an economic burden, but can become a productive potential if absorbed in productive economic activities. This finding is in line with research by Sulastri and Darmawan (2021), which found that population growth has a negative and significant impact on poverty levels in several provinces in Indonesia, because increasing labor productivity is able to balance population growth with economic growth.

Thus, poverty in East Java is the result of the interaction of various structural factors, particularly education, health, and population growth. Low levels of schooling limit job access, poor health conditions reduce productivity, and population growth increases the economic burden on families. In the context of education, for example, research conducted by Sari and Fitriani (2021) and Putri (2022) shows that the higher a person's education level, the less likely they are to live in poverty. Education is thought to open wider job opportunities and improve a person's ability to manage economic resources. However, research conducted by Nugraha (2020) found that education is not always a determining factor. In some regions, the quality of education remains low and does not align with the needs of the workforce, thus failing to reduce poverty rates significantly. The same holds for health factors. Rahmawati (2021) found that people with good health tend to have high productivity, which ultimately helps them escape poverty. However, these results differ from the findings of Utami and Dewi (2022), who explain that the influence of health on poverty is not always strong. It is because in many rural areas, access to health services remains limited, so improving public health has not directly impacted economic well-being.

Meanwhile, population growth rates also show inconsistent results. According to Malthusian theory, excessively rapid population growth can trigger poverty due to limited resources. However, several recent studies have shown the opposite. Sulastri and Darmawan (2021) found that increasing the productive population can actually reduce poverty, as more labor can stimulate economic activity. However, research by Handayani (2020) shows the opposite: in regions that have not yet been able to capitalize on demographic potential, population growth actually exacerbates poverty. From these differing research findings, it is clear that the relationship between education, health, and population growth rates with poverty remains inconsistent. Therefore, this study was conducted to fill this gap and is expected to provide an empirical overview of the main factors causing poverty, focusing on East Java Province for the period 2019–2023.

Problem Formulation. Based on the background above, the research problem formulation in this study is as follows:

1. How does the level of schooling years affect poverty in East Java Province in 2019–2023?
2. How does the population growth rate affect poverty in East Java Province in 2019–2023?
3. How does health affect poverty in East Java Province in 2019–2023?
4. How do the three variables: education (level of schooling years), population growth rate, and health (life expectancy), simultaneously influence the poverty rate in East Java Province in 2019–2023?

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Poverty. Poverty is a condition where a person has a low income and lacks assets, making them unable to meet basic needs such as food, clothing, and shelter. More broadly, poverty also indicates a low standard of living and material limitations compared to the average living conditions of the surrounding community. The impact of this condition is not only economic but also affects a person's health, morality, and self-esteem. According to the Central Bureau of Statistics (2023), an individual is categorized as poor if "the average per capita monthly expenditure is below the poverty line, which reflects the minimum ability to meet basic food and non-food needs." It means that poverty is not simply measured by low income, but also by an individual's inability to maintain a decent standard of living.

From a development economic perspective, Todaro and Smith (2020) assert that "poverty involves not only low income and consumption but also poor health, inadequate education, and vulnerability to external shocks." This view clarifies that poverty is multidimensional, encompassing aspects of education, health, and resilience to economic shocks. It aligns with the Indonesian context, where the majority of people with low incomes still face difficulties in accessing basic services and equal economic opportunities.

Meanwhile, Amartya Sen (1999), using the Capability Approach, states that "poverty is the deprivation of basic capabilities, rather than merely low incomes." Sen's view provides a new perspective: poverty is not merely an economic issue, but rather a failure to expand human capabilities to live with dignity, health, and productivity. Therefore, poverty alleviation policies should focus not only on increasing incomes but also on expanding human capabilities.

Furthermore, a study by Determinants of Poverty in Western Indonesia and Eastern Indonesia revealed that “life expectancy, average length of schooling, domestic investment, foreign direct investment, and health sector spending had a significant negative effect on poverty.” (Kurniasari & Oktavilia, 2023, p. 95) Thus, poverty is not only about material deprivation, but also about limitations in basic human capabilities—the ability to live healthily, be educated, and be productive.

Education. Education is a key factor in improving the quality of human resources and alleviating poverty, as it enables individuals to acquire the knowledge, skills, and values necessary to participate productively in economic activities. According to Becker (1993), "education and training are the most important investments in human capital," meaning that education serves as a means of long-term investment in individuals to improve skills, productivity, and competitiveness in the labor market. It aligns with Schultz's (1961) view, which asserts that "investment in human capital is the most valuable form of investment for economic development," demonstrating that education is not only a social instrument but also an economic asset that plays a crucial role in driving a country's progress through increased efficiency and innovation. Thus, education plays a strategic role in improving the quality of the workforce, reducing unemployment rates, and accelerating inclusive and sustainable economic growth.

Furthermore, Todaro and Smith (2020) explain that "education has a direct effect on economic growth through the improvement of labor productivity and a powerful indirect effect on social mobility and income distribution," which emphasizes that education not only directly increases labor productivity but also contributes to increased social mobility, income equality, and reduced economic disparities between social groups. In this context, access to equitable and quality education is key to creating a more just and highly competitive society. Hanushek and Wößmann (2007) also add that "it is not simply years of schooling but the cognitive skills acquired that drive economic growth," meaning that the quality of learning and cognitive abilities acquired through education have a more significant impact on economic growth than simply the length of schooling. Therefore,

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efforts to improve the quality of education, both in terms of curriculum, teaching staff, and facilities and infrastructure, are a priority in encouraging the development of superior human resources.

Empirically, Sari and Fitriani (2021) found that increasing the average length of schooling significantly reduced poverty rates in Indonesia. This finding strengthens the evidence that education significantly contributes to reducing structural poverty, expanding employment opportunities, and improving community well-being. In other words, education serves as a key foundation for sustainable human development, where each individual not only gains economic benefits but is also able to develop their potential, strengthen independence, and actively participate in the national development process.

Population Growth Rate. Population growth rate is a crucial factor influencing economic development and social welfare. Todaro and Smith (2020) explain that "rapid population growth exerts pressure on natural resources, employment opportunities, and the provision of social services," meaning that high population growth can put pressure on natural resources, employment opportunities, and social infrastructure, and potentially increase poverty if not balanced by adequate economic growth. In his classical theory, Malthus (1798) stated that "population, when unchecked, increases in a geometrical ratio, and subsistence for man in an arithmetical ratio," so that population growth that exceeds food production growth will lead to resource scarcity and a decline in welfare.

Furthermore, Kuznets (1967) argued that the relationship between population growth and development is dynamic; in the early stages of industrialization, "a rapid rise in population may become a burden to economic growth," but in the long term, it can become an economic potential if managed by increasing labor productivity. In the Indonesian context, Sukirno (2016) emphasized that "population control must be balanced with improvements in the quality of human resources so that development not only grows but is also equitable."

This finding also aligns with an empirical study by Septadarman and Rambe (2023), which showed that "population growth has a significant positive effect on poverty in Indonesia from 2018 to 2022," indicating that high population growth without a commensurate increase in the quality of education and health actually exacerbates poverty levels. Therefore, population control must be accompanied by improvements in human quality to achieve inclusive and sustainable development.

Life Expectancy. Life expectancy is an important indicator that reflects the level of public health and provides a general overview of the success of social and economic development. "The higher the life expectancy, the healthier the workforce, the greater the potential for productivity and income, thereby reducing the risk of poverty." (Schultz, 1961; Becker, 1964). This indicator not only indicates the average lifespan a population can expect to reach, but also reflects the quality of health services, nutrition, the environment, and the community's access to adequate medical facilities and sanitation. The World Health Organization (2023) states that "life expectancy is a key measure of a population's health and reflects social and economic conditions," emphasizing that the level of public health is closely related to a country's socioeconomic conditions. Good health is a key foundation for economic productivity, as healthy individuals tend to have higher levels of labor participation, better productivity, and a lower risk of economic dependency. Thus, increasing life expectancy can be interpreted as improving the overall welfare of society, which has a direct impact on reducing poverty and social inequality.

It aligns with research by Kurniasari and Oktavilia (2023), which found that "life expectancy, average length of schooling, and health sector spending had a significant negative effect on poverty," indicating that improved health, coupled with investment in the education and health sectors, significantly contributed to poverty reduction in Indonesia. These findings reinforce the view that

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comprehensive human development must encompass health, education, and economic aspects in an integrated manner. Increased life expectancy indicates that people have better access to preventive and curative health services, enabling them to work longer and more productively, supporting family and national economic activities.

Furthermore, Alfian and Rahmawati (2022) explain that increased life expectancy in areas with adequate health facilities directly strengthens the quality of human resources and increases the community's productive work capacity. They assert that "better health conditions lead to higher productivity and income, reducing the likelihood of being trapped in poverty," meaning that good health not only reduces the risk of poverty but also creates a sustainable cycle of economic development. In this context, investment in the health sector has a multiplicative effect because it not only improves individual well-being but also broadens the regional economic base by increasing labor productivity.

Similar findings were expressed by Putri and Wahyuni (2021), who stated that health has a long-term effect on regional economic growth because healthy communities are better able to participate in economic activities consistently and sustainably. Communities with high levels of health can more effectively utilize economic opportunities, innovate, and contribute to increased national productivity. Therefore, increasing life expectancy is not only an indicator of success in the health sector but also an important benchmark for economic progress and social welfare. Therefore, efforts to improve public health through expanding access to medical services, improving nutrition, and providing a healthy living environment play a crucial role.

METHODS

This study uses a quantitative descriptive approach to analyze the influence of years of schooling, population growth rate, and health (life expectancy) on poverty in districts/cities in East Java Province during the 2019–2023 period. This approach was chosen because it provides an objective, measurable, and systematic picture of the relationships between variables through statistical analysis, while simultaneously describing the socioeconomic conditions of the community, particularly in East Java Province, numerically and in a structured manner. The data used are secondary data obtained from the Central Statistics Agency (BPS) of East Java Province, including data on poverty, average years of schooling, population growth rate, and life expectancy during the study period.

The analysis used in this study is a panel data regression with a fixed-effects model using E-views 12 software. This model was chosen because it accommodates the unique characteristics of each district/city, which remain relatively constant over time. It allows the estimation results to focus more on internal changes within a region from year to year and to avoid bias due to omitted variables. With this approach, the study focuses on how education, population growth, and health influence poverty levels internally in each region of East Java. Mathematically, the regression model used in this analysis can be formulated as follows:

$$Yit=\beta0+\beta1X1it+\beta2Ln\_X2it+\beta3X3it+a1D1+a6D6+eit$$

Description

Y: Poverty Rate (Percent)

β0: Constant

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$\beta 1$, $\beta 2$, $\beta 3$: Regression Coefficients
$X1$: Years of Schooling (Years)
Ln_$X2$: Population Growth Rate (Percent)
$X3$: Life Expectancy
a: Significance Level
D: Dummy Regency of East Java Province
i: City/Regency in East Java Province
t: 2019 – 2023
e: Error Term

RESULT AND DISCUSSION

Table 1. Descriptive Statistical Analysis

Statistic	Y	X1	LN_X2	X3
Mean	10.65163	8.1	-0.3387	71.87374
Median	10.025	8	-0.29439	72.46
Maximum	23.76	12	1.396245	74.91
Minimum	3.31	5	-2.40795	66.55
Std. Dev.	4.41394	1.638008	0.553368	1.991163
Skewness	0.719361	0.280864	-0.28277	-0.87025
Kurtosis	3.19509	2.315228	5.409169	3.025209
Jarque-Bera	16.68821	6.210233	48.48111	23.98702
Probability	0.000238	0.044819	0	0.000006
Sum	2023.81	1539	-64.3527	13656.01
Sum Sq. Dev.	3682.262	507.1	57.87886	749.3336
Observations	190	190	190	190

Source: Processed data by researchers (2025)

Based on the descriptive statistical analysis results in Table 1, this study used 190 observational data points. The Poverty variable has an average logarithmic poverty rate of around 10.65, with the highest observed value being 23.76 and the lowest being 3.31. The median value, which is slightly lower than the mean, indicates a slight positive skew in the data. The Years of Schooling variable has an average of 8.10, with a maximum of 12.00 and a minimum of 5.00, indicating considerable variation between observations. The population growth rate variable has the widest range of values, from -2.40 to 1.39, indicating considerable variation between observations. The life expectancy variable has the highest average, at 71.87. Note that the maximum value of 74.91 and the minimum value of 66.55 are quite far apart, indicating considerable variation between observations.

The population growth rate variable has the smallest standard deviation, at 0.55. It means that the logarithmic population growth rate across observations is nearly identical. The poverty rate variable has the highest standard deviation, at 4.41. It indicates a significant difference in poverty rates across observations.

In the book "Multivariate Data Analysis" by Hair et al., a variable within the tolerance limits passes the normality test if the skewness (which measures skewness) and kurtosis (which measures

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sharpness) of each variable are within the tolerance limits, with skewness between -2 and +2 and kurtosis between -7 and +7. The variables for poverty level, average years of schooling, population growth rate, and life expectancy are declared normally distributed because the skewness and kurtosis values for each variable are within the tolerance limits.

Table 2. Panel Data Regression Analysis

Variable	Common Effect Model		Fixed Effect Model		Random Effect Model	
	t-statistic	Prob.	t-statistic	Prob.	t-statistic	Prob.
C	3.040321	0.0027	7.366355	0.0000	8.175093	0.0000
X1	-12.00381	0.0000	2.015207	0.0457	0.350505	0.7264
LN X2	1.537456	0.1259	2.319615	0.0217	2.747332	0.0066
X3	-0.022281	0.9822	-6.093917	0.0000	-6.555942	0.0000

Source: Processed data by researchers (2025)

Panel Data Regression Analysis. After obtaining the estimation results, the next step is to conduct a series of tests to determine the most appropriate panel data regression model. The selection between the Common Effect Model, the Fixed Effect Model, and the Random Effect Model is carried out through three types of tests: the Chow Test, the Hausman Test, and the Lagrange Multiplier Test. The purpose of these tests is to identify the model that best fits the data characteristics and produces the most accurate and reliable analysis results.

Table 3. Chow Test (Restricted F Test)

Effects Test	Statistic	d.f.	Prob.
Cross-section F	146.373587	(37,149)	0.0000
Cross-section Chi-square	687.852079	37	0.0000

Source: Processed data by researchers (2025)

Chow Test. Based on the Chow Test results in the table above, the cross-section Chi-Square probability value is 0.0000 < 0.05, which means H_0 is rejected. Therefore, the most appropriate model to use is the Fixed Effects Model (FEM), as there are significant differences between individuals (cross-section) in the tested data. Once the appropriate model based on the Chow Test is determined to be the Fixed Effects Model, the next step is to conduct the Hausman Test to determine whether the most appropriate model is the Fixed Effects Model or the Random Effects Model.

Table 4. Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	43.373333	3	0.0000

Source: Processed data by researchers (2025)

Hausman Test. Based on the results of the Hausman Test shown in Table 2, the cross-section Chi-Square probability value is 0.0000 < 0.05, thus concluding that the appropriate model for this study is the Fixed Effects Model (FEM).

Therefore, the null hypothesis (H_0) stating that the appropriate model is the Random Effects Model (REM) is rejected, and the alternative hypothesis (H_1) is accepted, namely that the Fixed Effects Model is better. Because the Hausman Test results indicate that the most appropriate model

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is the Fixed Effects Model, a Lagrange Multiplier Test is not necessary. This model will then be used to estimate all variables in the study.

Classical Assumption Test.

Multicollinearity Test. The multicollinearity test is used to determine whether there is a strong linear relationship between the independent variables in a regression model. This test is conducted using the Pairwise Correlation method, with the criterion that if the correlation coefficient between the independent variables is <0.80, the model is declared free of multicollinearity.

Table 5. Multicollinearity Test

	X1	Ln_X2	X3
X1	1	0. 224860...	0. 722204...
Ln_X2	0.224860...	1	0. 084820...
X3	0.722204...	0.084820...	1

Source: Processed data by researchers (2025)

Based on the test results presented in Table 5, the correlation value of the variable of the level of schooling and the variable of population growth rate is 0.224860 < 0.80, the correlation of the variable of the level of schooling and the variable of life expectancy is 0.722204 < 0.80, the correlation of the variable of population growth rate and the variable of life expectancy is 0.084820 < 0.80. Therefore, it can be concluded that this independent variable is free from the Multicollinearity Test. Thus, all the correlation coefficient values between independent variables are below 0.80. It indicates that there is no multicollinearity among the independent variables in the regression model.

Heteroscedasticity test. This test aims to determine whether the regression model exhibits unequal variances in the residuals for each observation. The method used in this study is the Glejser Test, with the following criteria: If the significance value (Prob.) is >0.05, then heteroscedasticity is absent. If the significance value (Prob.) is <0.05, then heteroscedasticity is present.

Table 6. Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	70.24303	31.79956	2.208931	0.0917
X1	0.248685	0.131969	1.884423	0.1326
Ln_X2	0.199537	0.077649	2.569733	0.062
X3	-0.8562	0.442795	-1.93362	0.1253

Source: Processed data by researchers (2025)

Based on the test results shown in Table 6, the probability value for Years of Schooling (X1) is 0.1326 > 0.05, indicating no signs of heteroscedasticity. The probability value for Population Growth Rate (X2) is 0.062 > 0.05, indicating no signs of heteroscedasticity. However, the probability value for Life Expectancy (X3) is 0.1253 > 0.05, indicating no signs of heteroscedasticity in variable X3.

Table 7. Autocorrelation Test

R-squared	0.989954	Mean dependent var	10.65163
Adjusted R-squared	0.987258	S.D. dependent var	4.413940
S.E. of regression	0.498257	Akaike info criterion	1.633101

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Sum squared resid	36.99080	Schwarz criterion	2.233775
Log likelihood	-114.1446	Hannan-Quinn criterion.	1.916934
F-statistic	367.0815	Durbin-Watson stat	2.203915
Prob(F-statistic)	0.000000		

Source: Processed data by researchers (2025)

Because the DW (2.20) lies between the DU (1.73) and 4-DU (2.27), there is no autocorrelation. Since the DW value is within the range DU < DW < 4 - DU, the model does not show any positive or negative autocorrelation. It means that the regression model meets the classical assumption of being autocorrelation-free, so observation errors do not influence the relationship between variables in the previous period.

Table 8. Panel Data Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	70.24303	9.535657	7.366355	0.0000
X1	0.248685	0.123404	2.015207	0.0457
LN_X2	0.199537	0.086022	2.319615	0.0217
X3	-0.856198	0.1405	-6.093917	0.0000

Source: Processed data by researchers (2025)

The table shows the panel data regression equation as follows:

$$\mathbf{Y= 70.24303 + 0{,}248685 + 0.1995 + (-0.\ 856198)}$$

Panel Data Regression. The constant 70.24303 means that if Years of Schooling (X1), Population Growth Rate (X2), and Health (X3) are all 0, then poverty is estimated at 70.24303. This is the baseline poverty value before considering the effects of Years of Schooling (X1), Population Growth Rate (X2), and Life Expectancy (X3). Each 1-unit increase in Years of Schooling (X1) will increase poverty by 0.248685, assuming other variables remain constant. Each 1-unit increase in Population Growth Rate (X2) will increase poverty by 0.248685, assuming other variables remain constant. Each 1-unit increase in Life Expectancy (X3) will decrease poverty by 0.856198, assuming other variables remain constant.

T-Test (Partial). The t-statistic test shows the extent of influence of one independent variable (X), Years of Schooling (X1), Population Growth Rate (X2), and Health (X3), collectively on the dependent variable (Y), Poverty. If the calculated t-value is greater than the t-table value or sig <0.05, then H0 is rejected. It means H1 is accepted, indicating there is an influence between variables X and Y. If the calculated t-value is less than the t-table value or sig >0.05, then H1 is rejected. It means H0 is accepted, indicating there is no influence between variables X and Y.

Table 9. T-Test (Partial)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	70.24303	9.535657	7.366355	0.0000
X1	0.248685	0.123404	2.015207	0.0457

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LN_X2	0.199537	0.086022	2.319615	0.0217
X3	-0.856198	0.1405	-6.093917	0.0000

Source: Processed data by researchers (2025)

Judging from Table 9, it can be concluded that t count < t table or sig < 0.005, then H1 is accepted and H0 is rejected, which means that the independent variable (X), namely the Level of Years of Schooling (X1), sig value 0.0457 < 0.05 has a significant positive effect on the dependent variable Poverty (Y). It is relevant to research by Mandey et al. (2023), which states that the average length of schooling has a positive and significant effect on the poverty rate, indicating that the higher the average length of schooling, the higher the poverty rate in East Java Province in 2019 - 2023. The results of this study are not in line with the opinion of Mankiw (2012), who emphasized that education is a form of investment for individuals, where increasing the level of education will increase a person's welfare. This finding also differs from the results of research by Pramesti and Bendesa (2016), which shows that increasing education can reduce poverty levels.

The Population Growth Rate (X2) had a sig. 0.0217 < 0.05, indicating a significant effect on the dependent variable, Poverty (Y). This finding aligns with the research findings of Iqbal Salsabil et al. (2023) that found a positive and significant effect of Population Growth Rate on poverty levels in West Java Province from 2016 to 2020, with a coefficient of 2.716514.

Life Expectancy (X3) had a sig. 0.0000 < 0.05, indicating a significant negative effect on the dependent variable, Poverty (Y). This finding aligns with the research findings of Kevin et al. (2022), who explained that life expectancy had a negative and significant effect on poverty. It indicates that increasing life expectancy directly reduces the number of poor people in the region. Therefore, it can be concluded that, in the context of this study, life expectancy has a significant effect on poverty, thus statistically proving a causal relationship.

F Test (Simultaneous).

Table 10. F Test (Simultaneous)

Cross-section fixed (dummy variables)			
R-squared	0.989954	Mean dependent var	10.65163
Adjusted R-squared	0.987258	S.D. dependent var	4.41394
S.E. of regression	0.498257	Akaike info criterion	1.633101
Sum squared resid	36.9908	Schwarz criterion	2.233775
Log likelihood	-114.1446	Hannan-Quinn criterion.	1.916934
F-statistic	367.0815	Durbin-Watson stat	2.203915
Prob(F-statistic)	0.000000		

Source: Processed data by researchers (2025)

Based on the results of data processing in Table 10, it is concluded that f count > f table (2.653165) with a significant value of prob < 0.05. It means that H0 is rejected and H1 is accepted, which means that the independent variables (X), namely the Level of Years of Schooling (X1), Population Growth Rate (X2), and Life Expectancy (X3), are significantly influenced simultaneously on the variable (Y), namely Poverty.

Coefficient of Determination Test. The Adjusted R-Square value of 0.987258, or 98.72%, indicates that the independent variables, consisting of Schools, Population Growth Rate, and Health,

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are able to explain the dependent variable, Poverty, at a level of 98.43%. The remaining 1.28% (100 – 98.72) is explained by other variables not included in this research model.

Years of Schooling. The results of the study indicate that Years of Schooling had a positive and significant effect on poverty in East Java Province from 2019 to 2023. When people receive more education, poverty rates actually increase. This phenomenon may be counterintuitive to the general assumption that education should reduce poverty, but in certain contexts, this can actually occur. One explanation supporting this finding is the concept of the education-lag effect, where increasing years of schooling are not accompanied by sufficient job opportunities. As a result, more educated people are not absorbed into the workforce and ultimately become educated unemployed. This view also aligns with Spence's (1979) screening theory, which asserts that education is often treated merely as a "signal" in the labor market, not as a guarantee of skills that meet industry needs. Therefore, even if someone has more years of schooling, their skills may not be truly relevant to market demand.

Furthermore, the mismatch between graduate competencies and job market needs, commonly referred to as a human capital mismatch, also prevents higher education from reducing poverty. In fact, in many regions, the longer a person attends school, the greater the opportunity cost to families, especially those who actually need additional labor to support household income. This situation means that increasing the length of schooling does not necessarily lead to improvements in welfare.

This research finding aligns with the study by Mandey et al. (2023), which also found that the average length of schooling had a significant positive effect on poverty in East Java. Similar results were also demonstrated by Putra and Sari (2021), who explained that increasing formal education can lead to an increase in educated unemployment when job opportunities are inadequate. Research by Hapsari (2020) also confirmed that education that only increases the number of years of study, without improving quality and skills, actually increases the number of job seekers who struggle to compete. Meanwhile, a study by Wijaya (2022) in Central Java also showed a similar pattern. The consistency of these findings confirms that increasing years of schooling do not always translate directly into a reduction in poverty, especially when the quality of education and employment opportunities do not improve as rapidly as the number of graduates.

Population Growth Rate. The population growth rate had a positive and significant impact on the poverty rate in East Java Province from 2019 to 2023. This finding suggests that the higher the population growth rate, the higher the poverty rate in a region. Logically, this condition occurs because high population growth is not always accompanied by sufficient economic capacity to absorb the population into productive activities. According to the Malthusian Population Trap theory, population growth that exceeds economic production growth will put pressure on resources and worsen public welfare. Furthermore, the Lewis Dual Sector Model explains that excess labor in the traditional sector can lead to a labor surplus, ultimately reducing productivity and increasing poverty if not absorbed by the modern sector. In the East Java context, population growth actually increases the burden on basic needs such as food, education, health care, and employment, which, if not met properly, will result in increased poverty (Heykal et al., 2024).

These findings also indicate that population growth is not simply an increase in numbers, but also has structural implications for the regional economy. When the population increases, but job opportunities do not expand as rapidly, competition for labor intensifies, incomes tend to decline, and household economic pressures increase. It explains why the increase in population growth can drive up poverty rates in several districts/cities in East Java during the 2019-2023 study period.

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These research findings align with the findings of Iqbal Salsabil et al. (2023), who also concluded that population growth had a positive and significant impact on poverty rates in West Java Province from 2016 to 2020. Furthermore, research by Rachmawati (2021) shows that excessively rapid population growth tends to exacerbate poverty rates in densely populated areas on Java. Research by Sudirman & Halim (2020) also found that population growth had a positive impact on poverty in Banten Province because population growth was not accompanied by increased job opportunities. Meanwhile, a study by Yuliani (2022) in Sumatra confirmed that areas with high population growth rates are at greater risk of poverty due to increased economic burdens. The consistency of findings from these various studies reinforces the finding that population growth is indeed a significant factor in increasing poverty in East Java between 2019 and 2023.

Life Expectancy. Life expectancy has a significant and negative impact on poverty. It means that when people enjoy better health and live longer, their economic conditions tend to improve. Logically, a healthy society has a higher work capacity, more stable productivity, and greater income opportunities. Becker (1993), in his human capital theory, explains that health is a form of self-investment that can improve a person's ability to work effectively, thus indirectly helping to reduce poverty. Sen (1999) also emphasizes that health provides individuals with greater "capabilities," opportunities to work, engage in activities, and make productive decisions, which ultimately have a positive impact on economic well-being. These findings align with research by Kevin et al. (2022) in Central Java, which showed that high life expectancy contributes to a decline in the number of poor people. Other studies, such as those by Sari (2021), Rahmadani et al. (2023), and Mulyani & Haryo (2020), have also found a similar pattern: regions with better health generally have lower poverty rates. In other words, public health is not only a social factor, but also an important part that determines the economic conditions of a region.

CONCLUSION

Based on the results of the research that has been conducted, partially, the variables of the level of schooling, population growth rate, and life expectancy have a significant effect on the poverty rate in East Java Province in 2019 - 2023. The variable of the level of schooling has a significant positive effect on poverty, which means that the higher the average length of schooling of the community, the poverty rate tends to increase. The variable of population growth rate also shows a significant positive effect on poverty, which indicates that an increase in population causes an increase in the poverty rate in East Java Province. Meanwhile, the variable of life expectancy has a significant negative effect on poverty, which indicates that an increase in life expectancy has not been able to reduce poverty significantly. Thus, simultaneously, the three variables have a significant effect on poverty, which means that education, health, and population dynamics together have an important role in influencing the poverty rate in East Java Province.

Suggestion. Future research is recommended to use a longer time period to more clearly demonstrate the long-term impact of education and health on poverty. Furthermore, a wider range of indicators, such as education quality (graduation rates, workforce competencies) and other health indicators (stunting rates, access to healthcare), should be used, as the variables currently used do not fully reflect the actual situation. Based on research findings showing that education plays a significant role in poverty levels, the government needs to strengthen policies in the education and health sectors, including by improving access to and quality of education in underdeveloped areas, providing scholarship programs for low-income families, and ensuring equitable distribution of affordable healthcare services. These efforts are expected to improve the quality of human resources

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and reduce poverty levels sustainably, particularly in East Java Province. Future research could also add control variables such as per capita GDP, open unemployment, and income inequality to make the model more comprehensive. The use of micro-household data, such as the National Survey of Indonesia (SUSENAS), could provide a more detailed picture of the influence of socioeconomic factors on poverty. With these developments, it is hoped that future research will produce more accurate results and form the basis for effective poverty alleviation policies in East Java Province.

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