Journal of Regional Economics and Development, Volume 3, Number 2, 2026, Page: 1-12

Analysis of the Influence of Human Development, Economic Growth, and Labor Indices on Poverty Levels in Sumenep Regency

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Received: 29-11-2025
Accepted: 06-12-2025
Published: 28-02-2026

Abstract: This study aims to analyze the influence of the Human Development Index (HDI), Economic Growth, and Labor on the Poverty Level in Sumenep Regency. The data used is secondary data from the Central Statistics Agency (BPS) of Sumenep Regency and East Java Province for the 2012–2023 period. The analysis was carried out using the Multiple Linear Regression method with the help of the SPSS version 24 program. The results of the classical assumption test showed that the regression model met the criteria of normality, was free from multicollinearity, heteroscedasticity, and autocorrelation, so the model was declared feasible to use. The results of the study show that HDI has a negative and significant effect on the poverty rate, Economic Growth does not have a significant effect, and the Labor Force has a positive and significant effect on the poverty rate. The determination coefficient value (R^2) of 95.1% shows that the model has a very high explanatory power, so that the results of this study can be trusted and accurately describe the empirical conditions in Sumenep Regency, while the remaining 4.9% is influenced by other factors outside the research model. These results confirm that improving human quality has the most dominant role in reducing poverty compared to other economic variables.

Keywords: Human Development Index, Economic Growth, Labor, Poverty

Introduction

Poverty is a multidimensional problem that is not only related to economic aspects, but also education, health, and overall quality of life. Although various development programs and social interventions have been implemented by the government, the welfare gap is still a substantial challenge in many regions of Indonesia. National data shows that poverty trends have tended to decline in the last five years, but the distribution is uneven between regions. Factors such as differences in access to basic services, inequality of employment opportunities, and structural disparities between regions have also slowed down the achievement of overall poverty alleviation targets.

East Java Province is one of the regions with a large number of poor people, especially in the Madura Island area. As explained by Sukirno (2016), inequality between regions occurs if economic growth is not followed by an improvement in the quality of human resources. This is relevant to the condition of Madura, where limited infrastructure, access

to education, and health services are still the main obstacles. Sumenep Regency, as the easternmost region on Madura Island, is recorded as one of the areas with the highest poverty rate in East Java (BPS, 2024).

Sumenep actually has economic potential from the agriculture, fisheries, and tourism sectors. However, this potential has not been fully able to improve people's welfare. According to Mankiw (2020), economic growth can only reduce poverty if it is accompanied by increased productivity and access to job opportunities. In this context, three important indicators that determine the socio-economic condition of the Sumenep people are the Human Development Index (HDI), economic growth, and employment. The three main indicators that theoretically affect poverty are the Human Development Index (HDI), economic growth, and employment. HDI describes the quality of life through the dimensions of education, health, and decent living standards. Economic growth reflects the capacity of the region to generate output and income, while labor reflects the capacity of community participation in productive economic activities. Conceptually, increasing HDI and economic growth should encourage poverty reduction, while high labor participation is often seen as a positive indicator for increasing people's incomes. However, the empirical relationship of these three indicators is not always linear and is highly dependent on the economic characteristics of the region.

Sumenep's data over the past five years shows interesting dynamics that underscore the need for in-depth analysis. The poverty rate fluctuated from 19.48% in 2019 to 20.51% in 2021 before decreasing to 18.70% in 2023. HDI in the same period continued to increase despite being disrupted by the pandemic. Economic growth also shows an unstable pattern, from 3.95% in 2019, down to 2.05% in 2020, then rising to 5.60% in 2022. On the other hand, the number of workers has experienced sharp fluctuations due to the pandemic and changes in the local economic structure. This unstable data pattern shows that although human development is increasing, the regional economy is not strong enough to create equitable employment opportunities, so poverty does not decrease significantly.

The above phenomenon shows that there is an insynchronization between the increase in HDI, the rate of economic growth, and the movement of the poverty rate in Sumenep Regency. This condition is an important research gap to study because theoretically, these three variables are the main determinants of community welfare. However, in the context of Sumenep, improving the quality of life has not been fully able to reduce poverty, and economic growth has not been inclusive for low-income people. Therefore, this study is needed to analyze the influence of HDI, economic growth, and labor on the poverty level in Sumenep Regency empirically, so that it can provide a more comprehensive understanding and support the formulation of more effective and inclusive development strategies.

Research Method

This study uses a quantitative approach with a descriptive method. The quantitative approach focuses on testing hypotheses through systematic measurement of data so that the results can be generalized. A descriptive method is then used to interpret the results in depth Result The conclusions obtained are in accordance with the purpose of the study (Scott, 2020).

The object of this study is located in Sumenep Regency, East Java Province, with data collection carried out through the official website of the Central Statistics Agency (BPS). The type of data used is time series data for the period 1995–2024.

The variables used in this study are Average School Age, Open Unemployment Rate, Economic Growth, and Income Inequality. This study uses a descriptive approach technique with secondary data from the Central Statistics Agency for the period 2014-2023 as a data collection technique. The data analysis technique used was multiple linear regression analysis.

The variables used in this study are the Human Development Index (HDI), Economic Growth, and Labor. This study uses a descriptive approach technique with secondary data from the Central Statistics Agency for the period 1995–2024 as a data collection technique. The data analysis technique used was multiple linear regression analysis.

The formula for multiple linear regression is generally as follows:

$$\beta 0 + \beta 1IPM + \beta 2PE + \beta 3TK + e$$

Information:

JK	= Total Poverty
IPM	= Human Development Index
PE	= Economic Growth
KINDERGARTEN	= Labor
β0	= Constant (value of Y when XI, X2, X3 = 0)
e	= Disruptive Variables

Results and Discussion

Normality Test

One-Sample Kolmogorov-Smirnov Test	
	Unstandardized Residual
Asymp. Sig. (2-tailed)	.140c

Source: SPSS 25 & Author

Based on the SPSS output, the Asymp value. The Sig (2-tailed) in the Kolmogorov-Smirnov test was recorded as 0.140, which exceeded the significance limit of 0.05. Thus, according to the decision-making criteria, it can be concluded that the residual in the regression model has been distributed normally. This shows that the model meets the assumption of normality, making it feasible to use it for further analysis.

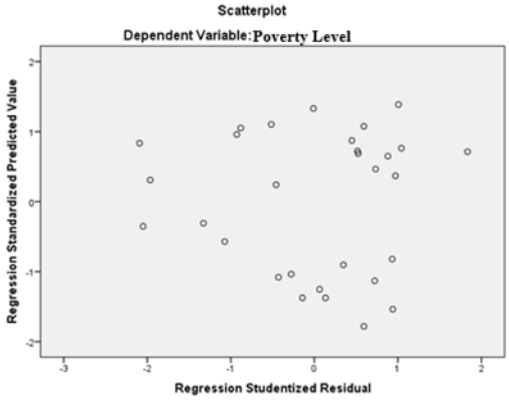
Multicollinearity Test

Variable	Tolerance	VIVID
Human Development Index (X1)	0.651	1.537
Economic Growth (X2)	0.711	1.407
Workforce (X3)	0.691	1.448

Source: SPSS 25 & Author

Based on the results of the multicollinearity test, all independent variables, namely HDI (X1), Economic Growth (X2), and Labor Force (X3) have a Tolerance value of 0.651 each; 0,711; and 0.691, all of which are well above the minimum limit of 0.10. Meanwhile, the VIF value of each variable was recorded at 1.537; 1,407; and 1,448, which is also well below the 10-fold threshold. This condition shows that there is no strong relationship between independent variables in the regression model. Thus, it can be concluded that this research model is free of multicollinearity symptoms and is suitable for further regression analysis.

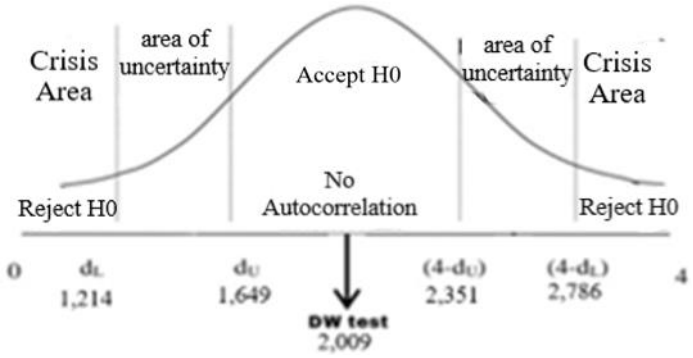
Heteroscedasticity Test



Source: SPSS 25 & Author

Based on this image, the results of the Heteroscedasticity test on the Scatter Plot were obtained a graph that showed an unclear or unorganized pattern and had scattered points on the graph. As a result, it can be concluded that the data used do not have symptoms of Heteroscedasticity.

Autocorrelation Test



Source: SPSS 25 & Author

Autocorrelation was tested to find out if there was a correlation between disruptive errors in a period and the previous period (t-1). The Durbin–Watson method is used as the test instrument, with the statistics shown on the curve in Figure 4.2. The DW value obtained is 2.009, which is between the limits du = 1.649 and (4 – du) = 2.351. Since the DW value is within this range, it can be concluded that the regression model does not experience autocorrelation, either positive or negative. Thus, the classical assumption of residual independence has been fulfilled. To confirm these findings, the researcher also conducted a Run Test, with the following results.

Runs Test	
	Unstandardized Residual
Test Valuea	.83225
Cases < Test Value	15
Cases >= Test Value	15
Total Cases	30
Number of Runs	16
Z	.000
Asymp. Sig. (2-tailed)	1.000

Source: SPSS 25 & Author

Asymp value. Sig. (2-tailed) on the table is recorded 1,000, which exceeds 0.05. Thus, the Run Test reflects that there is no indication of autocorrelation. In conclusion, the classic assumptions in this study were still fulfilled and no violations occurred.

Coefficient of Determination

Model Summaryb			
Type	R	R Square	Adjusted R Square
1	.853a	.727	.696

Source: SPSS 25 & Author

Based on the table, the R^2 value of 0.727 (72.7%) reflects that the Poverty Level (Y) variable can be explained by X1 (HDI), X2 (Economic Growth), and X3 (Labor) up to 72.7%, while the remaining 27.3% is influenced by other variables that are not included in the study.

Test F

NEW ERA		
Type	F	Sig.
Regression	23.124	.000b

Source: SPSS 25 & Author

The significance value on the F test of 0.000 < 0.05 reflects the accepted hypothesis, meaning that HDI (X1), Economic Growth (X2), and Labor Force (X3) have a simultaneous effect on the Poverty Level (Y). F counts a total of 51.804 > F table (4.07) reinforces the conclusion that the influence of these three variables is substantial.

Multiple Linear Regression Model

Variable	Beta	t	Sig.
(Constant)	77.729	11.480	.000
Human Development Index (HDI)	-.732	-6.755	.000
Economic Growth	-.853	-1.799	.084
Workforce	-.009	-.700	.490

Source: SPSS 25 & Author

The regression table reflects a constant of 77.729, which means that if HDI, Economic Growth, and Labor are zero, then the poverty rate is estimated to be 77.729%. The beta coefficient of HDI of –0.732 indicates that every increase in one unit of HDI will reduce the poverty rate by 0.732%, and the effect is substantial (Sig. 0.000 < 0.05). Economic Growth has a beta of –0.853, which reflects that a one percent increase in economic growth lowers poverty by 0.853%, but the effect is not statistically substantial (Sig. 0.084 > 0.05). Meanwhile, the Labor Force has a beta of –0.009, which means that the addition of one worker lowers the poverty rate by 0.009%, but the effect is not substantial (Sig. 0.490 > 0.05).). Multiple linear regression equations can be written as follows:

$$Y = 77.729 – 0.732\ IPM + 0.853\ PE + 0.009\ TK + ei$$

Based on the regression model equation, it can be interpreted as follows:

1. Constant (β_0)

With a constant (β_0) of 77.729, the Poverty Rate (Y) is estimated to reach 77.729 percent if HDI (X1), Economic Growth (X2), and Labor Force (X3) are zero.

2. Human Development Index Regression Coefficient (β_1)

A value of β_1 of -0.732 indicates an inverse correlation between HDI (X1) and Poverty Level (Y). This means that a 1 point increase in HDI will be followed by a decrease in the Poverty Rate of 0.732 percent, with other variables considered fixed.

3. Economic Growth Regression Coefficient (β_2)

A value of β_2 reaching –0.853 indicates an inverse relationship between Economic Growth (X2) and Poverty Rate (Y), but the effect is not substantial. This means that a 1 percent increase in economic growth will be followed by a decrease in the Poverty Rate of 0.853 percent, assuming other factors are constant.

4. Labor Regression Coefficient (β_3)

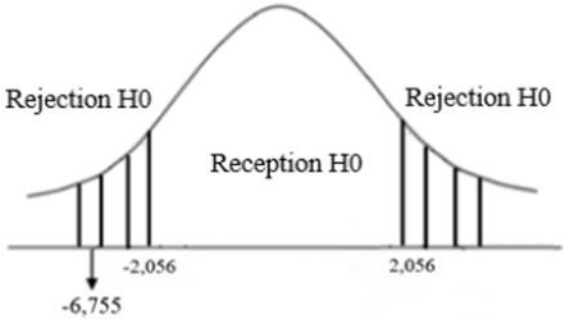
A value of β_3 that reaches –0.009 shows the opposite relationship between the number of Labor Forces (X3) and the Poverty Rate (Y). This means that the addition of one worker will reduce the Poverty Rate by 0.009 percent, if other variables are considered fixed.

T Test

To test an existing hypothesis using calculated t-values and significance, a test method is required, specifically a t-test. If the significance value < 0.05, the hypothesis is accepted, but if > 0.05, the hypothesis is rejected. If the value of the t-calculation exceeds the value of the table, the hypothesis is acceptable; Conversely, if the value of t is calculated < of the value of the table, the hypothesis is rejected.

A. Human Development Index Variable (X1) to Poverty Level (Y)

From the Multiple Linear Regression Table, it can be seen that the significance value of HDI is 0.000, smaller than 0.05. H1 is therefore accepted, which reflects the substantial influence of X1 on Y. The t-value calculated by -6.755 also exceeds the t of table 2.306, which confirms that the influence of HDI on the Poverty Level is partially substantial.

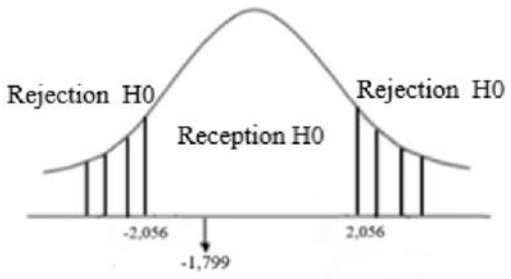


Source: Author, 2025

The graph curve reflects the value of t-count –6.755, which is smaller than the t of table –2.056 (t count < –t table), placing the result in the area of H_0 subtraction. Therefore, at a significance level of 5%, an alternative hypothesis is accepted, which indicates that HDI has a substantial influence on the poverty rate in Sumenep Regency.

B. Economic Growth Variable (X2) to Poverty Level (Y)

From Table 4.1.1 of the regression output table, it can be seen that the significance value of Economic Growth is 0.084, exceeding 0.05. Therefore, H_2 is rejected. In addition, the t-value of the calculation of –1.799 is between –2.056 and 2.056, so the t calculation of the < t table. This confirms that Economic Growth (X_2) partially has no substantial influence on the Poverty Level (Y).

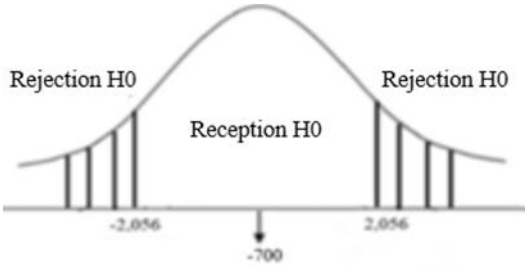


Source: Author, 2025

The calculated t-value of –1.799 is between –2.056 and 2.056, which places it in the acceptance area of the zero hypothesis (H_0). Thus, at a significance level of 5%, H_0 is accepted, indicating that Economic Growth does not have a substantial effect on poverty in Sumenep Regency.

C. Labor Variable (X3) to Poverty Level (Y)

The significance value of Labor was 0.490, above the limit of 0.05, as a result of which H_3 was rejected. This indicates that the Labor Force (X_3) does not have a substantial influence on the Poverty Rate (Y). The calculated t-value of –0.700, which is between –2.056 and 2.056, reinforces the conclusion that this variable is partially uninfluential.



Source: Author, 2025

The significance value of Labor is 0.490, which is above 0.05, as a result of which H_3 is rejected, indicating that the Labor variable does not have a substantial influence on the poverty rate. The t-value of -0.700 which is between -2.056 and 2.056 confirms that the Labor variable is within the H_0 acceptance area, as a result of which it partially does not contribute substantially to the change in poverty level.

Based on the results obtained by the author regarding the latest data processing during the period 1995–2024, it can be seen that of the three independent variables, namely HDI, Economic Growth, and Labor, simultaneously affect the poverty level in Sumenep Regency, East Java Province. This is shown by the results of the F test which obtained a significance value of less than 0.05, so that the three variables together contribute to changes in poverty levels. However, based on the partial test (t-test), not all variables exert a significant influence individually. Only HDI has been shown to have a significant effect on poverty levels, while Economic and Labor Growth does not show a substantial partial effect. These findings show that improving the quality of life, education, health, and purchasing power through increasing HDI is more decisive in reducing poverty rates than changes in economic growth or increasing the number of workers alone.

The results of the study show that the Human Development Index (HDI) has a negative and significant effect on the poverty level in Sumenep Regency. These findings confirm that improving the quality of education, health, and people's purchasing power can

significantly reduce poverty. This is in line with the theory of human development put forward by Todaro and Smith (2011) and in line with the research of Mukhtar et al. (2023) and Jayadi & Brata (2016), which emphasizes that improving human quality is a key factor in poverty alleviation.

On the other hand, the Economic Growth variable has a negative but not significant effect on poverty, indicating that the increase in GDP has not had an equitable impact on the poor. Economic growth tends to be enjoyed by the middle to upper class, so it is not strong enough to suppress poverty, as explained by Tambunan (2011) and Kuznets' theory that growth without equity can increase inequality.

In addition, the Labor variable also has a negative but insignificant effect, which means that the increase in the number of working population has not been able to significantly reduce poverty. The majority of the workforce in Sumenep is still absorbed in low-productivity sectors such as agriculture, fisheries, and the informal sector, so increasing quantity without improving quality is not enough to reduce poverty. These findings are consistent with the research of Prasetyo & Firdaus (2019) and Suharyadi & Purwanto (2021), which affirm that an increase in the workforce must be accompanied by an increase in productivity in order to have a real impact on poverty reduction.

Conclusion

This study analyzes the influence of the Human Development Index (HDI), Economic Growth, and Labor on the poverty rate in Sumenep Regency during the period 1945–2024. The results of the study show that HDI has a negative and significant influence on poverty levels. Improving the quality of education, health, and purchasing power has been proven to be able to consistently reduce poverty levels. These findings affirm the importance of human development as a key factor in encouraging the improvement of community welfare.

Economic growth in this study has a negative but not significant effect on the poverty rate. This condition shows that GDP growth is not yet fully inclusive and has not provided equitable benefits, especially for low-income groups. The growth pattern that is still concentrated in certain sectors causes its impact on poverty reduction to be limited.

The Labor variable also showed a negative and insignificant influence on the poverty rate. This indicates that the increase in the number of working population has not been able to make an optimal contribution to improving welfare. Most of the workforce is still absorbed in the informal sector and low productivity, so an increase in the number of workers does not automatically reduce poverty.

Overall, this study emphasizes that poverty alleviation strategies in Sumenep Regency need to focus on improving the quality of human resources and creating productive jobs.

Efforts to strengthen education, health, job skills, and equitable distribution of economic development benefits are very important factors in reducing poverty levels in a sustainable manner.

In addition, poverty alleviation efforts in Sumenep Regency must be carried out in a sustainable and integrated manner through collaboration between local governments, business actors, educational institutions, and the community. Synergy between stakeholders is essential so that improving human quality, inclusive economic growth, and creating productive jobs can run in the same direction and strengthen each other. With a holistic and sustainable approach, it is hoped that the strategy formulated will be able to produce a more tangible impact in reducing poverty levels and realizing the welfare of the people of Sumenep in a more equitable and sustainable manner.

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