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Analysis of the Influence of Economic Growth, Education Level, Unemployment and Poverty on the Human Development Index in East Java Province

Bagus Arya Nur Efendi, Marseto*, Anisa Fitria Utami

Universitas Pembangunan Nasional "Veteran" Jawa Timur, Indonesia

*Correspondence: Marseto
Email: marseto.ep@upnjatim.ac.id

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Abstract: This study was conducted to analyze the influence of economic growth, education level, unemployment, and poverty on the Human Development Index (HDI) in East Java Province for the period 2013-2022. This study used quantitative methods with secondary data from the Central Statistics Agency (BPS). The analysis was conducted through multiple linear regression with the classical assumption test, F-test, and t-test to determine the simultaneous and partial effects between variables. The results showed that economic growth and the unemployment rate did not significantly influence the HDI. Conversely, education level had a significant positive effect on the HDI, while poverty had a significant negative effect. These findings confirm that improving the quality of education and reducing poverty levels are key factors in improving human development in East Java.

Keywords: Economic Growth, Education, Unemployment, Poverty, Human Development Index

Introduction

Development is a continuous process that is planned to improve various aspects of people's lives. The ultimate goal of development is the welfare of the community. Human beings are not only objects of development but are expected to be subjects so that they can make useful contributions to the progress of a region or region which macroly becomes the progress of a country (Hauzan et al., 2021).

East Java Province is one of the regions with a great contribution to the national economy by being ranked 14th nationally out of 38 provinces in Indonesia. Among the provinces on the island of Java, East Java's HDI ranks 5th, below DKI Jakarta, the Special Region of Yogyakarta, West Java, and Central Java. In recent years, this province has recorded fairly stable economic growth, even becoming one of the largest contributors to the Gross Regional Domestic Product (GDP) on the island of Java. However, this economic progress has not fully reflected the improvement of people's quality of life equally.

The Human Development Index (HDI) is a key indicator in assessing the success of development, which aims to improve the quality of human life, including the level of

people's quality of life in the aspects of education, health, and decent living standards The Government has a central role in achieving an increase in HDI. One of the important aspects of economic development is to improve the welfare of the community. HDI can be interpreted as how people get development results both in terms of income, education and a decent quality of life

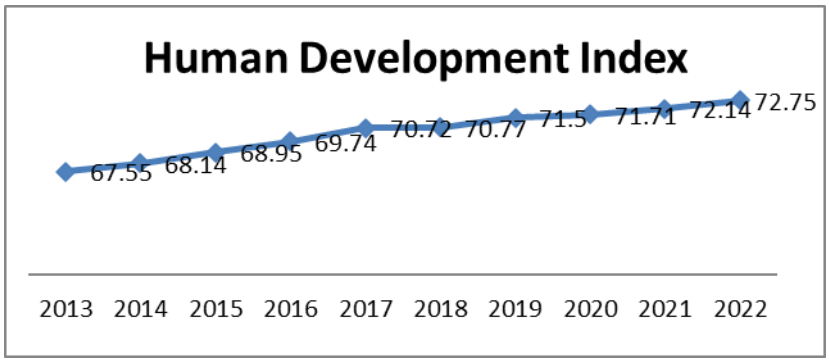


Figure 1. East Java Province Human Development Index Chart 2013-2022

From the graph above, it shows that the HDI in East Java Province has increased significantly, increasing from 67.55 in 2013 to 72.75 in 2022. During this period, East Java's HDI grew by around 0.90 percent per year and has reached a "high" level since 2017. Nevertheless, the COVID-19 pandemic does not seem to have a significant impact on human development achievements in East Java. In 2021, HDI reached 72.14, growing by 0.60 percent, outperforming the previous year's growth. As for 2022, East Java's HDI reached 72.75, showing a growth of 0.85 percent compared to 2021. During the period 2011-2022, the growth rate of East Java's Human Development Index (HDI) experienced four slowdowns, namely in 2014 (growth slowed to 0.87%), in 2017 (growth slowed to 0.76 percent), in 2018 (growth slowed to 0.71 percent) and in 2020 (growth slowed to 0.30 percent).

The achievement of the Human Development Index (HDI) declined in 2020, largely triggered by a decline in the growth of the adjusted per capita/year expenditure component, while other components continued to experience positive growth. After the intensity of the COVID-19 pandemic gradually decreased, especially in 2022, economic activity began to recover, thus encouraging an increase in HDI in 2021.

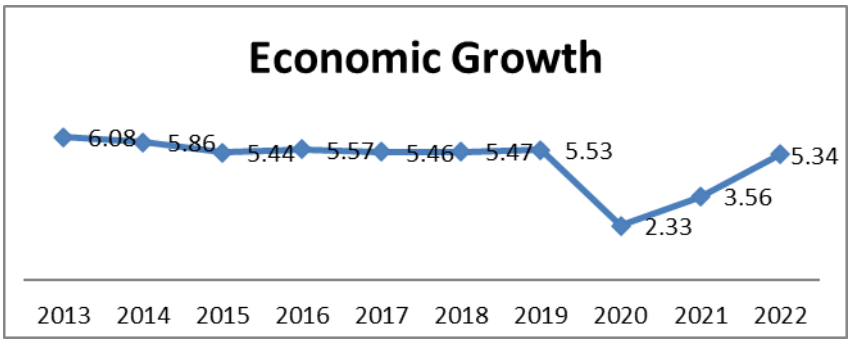


Figure 2. East Java Economic Growth Chart 2013-2022

Based on growth data Basically, fluctuations in the rate of economic growth that occurred in the period 2013-2022 in East Java Province reflecting complex economic dynamics. In the context already mentioned, the impact of the economic slowdown in 2020 due to the Covid-19 Pandemic was one of the significant causes of these fluctuations. Unemployment is one of the main problems that the country often faces. In 2013, the economic growth rate was at 6.08%, then experienced a slight decline in 2014 to 5.86%. This downward trend continued until 2016, where the growth rate reached 5.46%. After that, economic growth was relatively stable in the range of 5.47% to 5.53% in 2019.

However, in 2020 there was a very significant economic slowdown due to the impact of the COVID-19 pandemic, where economic growth plummeted drastically to 2.33%. This reflects the pandemic's huge impact on various sectors, such as industry, trade, and employment. After experiencing a sharp contraction in 2020, the economy began to recover in 2021 with growth of 3.56%. This recovery strengthened in 2022 with growth reaching 5.34%, close to pre-pandemic figures. This shows that economic activity is starting to return to normal, driven by various economic recovery policies and a resurgence of consumption and investment in the region.

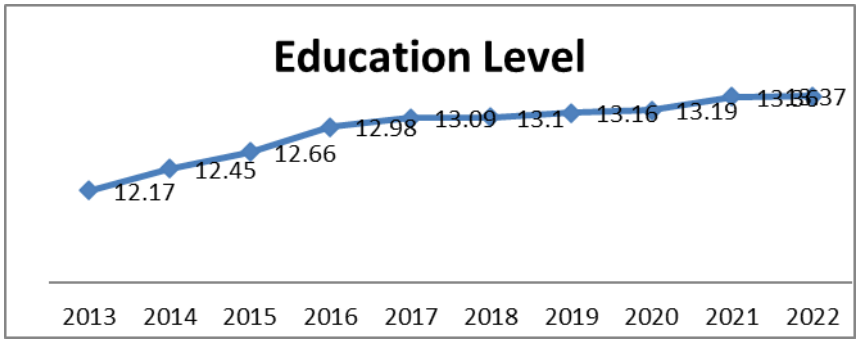


Figure 3. East Java Province Education Level Chart 2013-2022

The graph of education level above, it can be explained that the development of education levels in the studied area shows an increasing trend from 2013 to 2022.

In 2013, the education level was at 12.17 and continues to increase every year. In 2014 it rose to 12.45, then in 2015 it reached 12.66, and in 2016 it increased again to 12.98. This

increase shows an improvement in the education sector, both in terms of access, quality, and educational participation. This increasing trend continued in the following years, where the education rate in 2017 reached 13.09, then in 2018 it reached 13.1. Then, in 2019 it increased to 13.16 and continued to rise to 13.19 in 2020 and 2021 increased to 13.36. In 2022, the education rate reached 13.37, which was the highest achievement in the period.

This increase in education level can be caused by various factors, such as increasing public access to education, improving the quality of teaching staff, educational assistance programs, and government policies in supporting the education sector. Despite the COVID-19 pandemic in 2020-2021 which had a major impact on the education system, education levels still showed a positive trend.

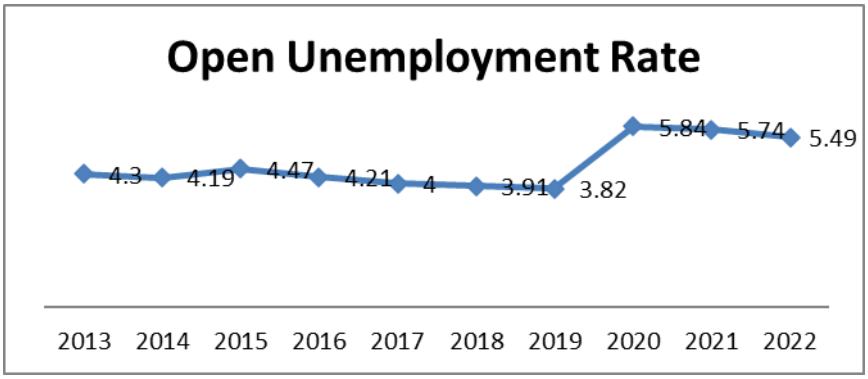


Figure 4. East Java Province Open Unemployment Rate Graph 2013-2022

Graphs It is shown above that the unemployment rate in East Java Province fluctuates every year. Although there are fluctuations or irregularities every year, there are years with high unemployment rates. especially in 2020 of 5.84 percent in East Java Province, can have a significant impact, especially related to the possibility of increasing poverty rates. A high unemployment rate can indicate difficulties in providing adequate employment for the working-age population, which in turn can lead to a decline in household income that is at risk of a decline in the Human Development Index through the aspect of the population's standard of living.

In the context of human development, the large amount of poverty is one of the prima donnas and one of the main elements in influencing the Human Development Index. Poverty is caused by an inequality in income distribution, which results in a decrease in people's purchasing power, and this has an impact on meeting needs such as Health and Education which affects the growth of the Human Development Index.

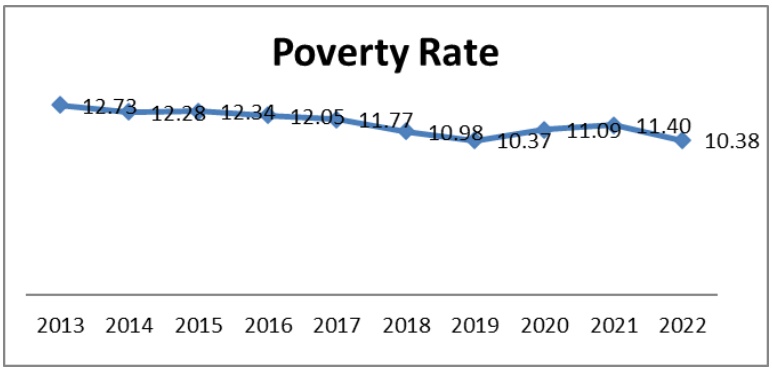


Figure 5. Poverty Rate Graph of East Java Province 2013-2022

Based on the poverty level graph above, it can be explained that the poverty rate in the study area fluctuated in the period from 2013 to 2022. In 2013, the poverty rate was at 12.73% and increased slightly in 2014 to 12.78%. Furthermore, there was a gradual downward trend, where in 2015 the poverty rate decreased to 12.34%, then in 2016 to 12.05%, and continued to decline to 11.77% in 2017. This downward trend continued until 2019, when the poverty rate reached a low of 10.37%. However, in 2020, the poverty rate increased again to 11.09%, which was most likely caused by the impact of the COVID-19 pandemic which caused an economic slowdown and an increase in the unemployment rate In 2021 and in 2022, there was a decrease in the poverty rate to 10.38%, indicating an economic recovery in line with the increase in post-pandemic economic activity. Various economic recovery policies and social assistance programs from the government are likely to contribute to reducing poverty in the year

East Java ranks first in the list of provinces with the highest number of poor people in Indonesia in March 2024. East Java ranks third as the province with the highest poverty rate on the island of Java. In March 2024, the percentage of poor people in East Java will be 9.79%.

Research Method

This research approach uses quantitative research with Place and Time This research was conducted in East Java Province by taking data through BPS East Java Province In this study uses secondary data types from 2013 – 2022 obtained through the Central Statistics Agency agency. Includes data on the Human Development Index, Economic Growth, Education Level, Poverty and Poverty. The analysis techniques used by the researcher include multiple linear regression to analyze the influence of economic growth, education level, unemployment and poverty on the Human Development Index (HDI) In addition, the researcher also conducted a classical assumption test with the time series analysis method with the first stages in SPSS, namely with the normality test, multicoloniality test, heterokedasticity test and auto correlation test as well as hypothesis test including the coefficient test terminated test f and t test.

Results and Discussion

Normality Test

The data normality test in this study used the KolmogorovSmirnov (K-S) one sample test. The basis for decision-making in this study is that if the value of asymp.sig (2-tailed) is above the level of significant 5% (0.05), it can be concluded that the variable is normally distributed.

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		10
Normal Parameters[a,b]	Mean	0E-7
	Std. Deviation	.18294328
Most Extreme Differences	Absolute	.140
	Positive	.140
	Negative	-.092
Kolmogorov-Smirnov Z		.443
Asymp. Sig. (2-tailed)		.989

a. Test distribution is Normal.

b. Calculated from data.

An Asymp value is obtained. Sig. (2-tailed) is 0.989, which is greater than the significance level of 0.05. This indicates that the residual is normally distributed. Thus, the assumption of normality in the regression model is met, so that the model is feasible to use for further analysis.

Multicoloniality Test

The Multicollinearity test is aimed at looking at the relationship or correlation between each variable. This test is seen through the Tolerance and Variance Inflation Factor. The conditions for this test are the tolerance value >0.10 and the VIF value < 10.

Table 2. Multicoloniality Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Economy Growth	.315	3.171
	Education Level	.234	4.274
	Open Unemployment Rate	.358	2.797
	Poverty Rate	.292	3.426

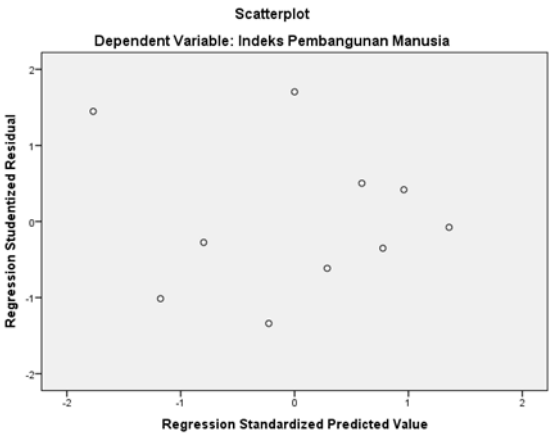
a. Dependent Variable: Human Development Index

Based on the attachment of the above data that has been tested, it shows that the tolerance value of the four variables has a value of (>0.10) and the VIF value of the four variables also has a value of (<10). Based on the results of the data test, it can be concluded that the data does not have multicollinearity.

Heterokedasticity Test

The Heteroscedasticity test aims in regression models to detect the extent to which variance differences occur in a model from residual from one observation to another. The provisions of the Heteroscedasticity test use a scatterplot graph.

Table 3. Heterokedasticity Test



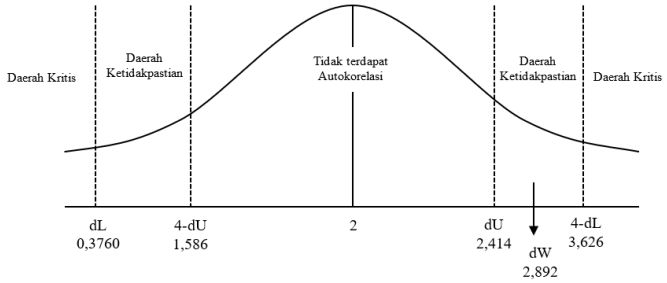
Based the dots on the graph randomly scattered above and below the zero axis on the Y-axis, without forming a specific pattern such as widening, narrowing, or wavy. This shows that there are no symptoms of heteroscedasticity in the regression model.

Auto Correlation Test

The Autocorrelation test is used as a way to detect the extent to which a regression model shows the relationship between the disruptive error in period t and the error in period t-1. In this data test, the Durbin Watson Test was used.

Table 4. Auto Correlation Test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.989	.980	.24544	2.892



The position of the Durbin Watson Test value in the Autocorrelation appendix shows that the Durbin-Watson value is 2.892. Through the above test provisions, the value of the dW value test results is in the area of doubt, namely between 4-dU and 4-dL (1.5863 < 2,892 < 3,624). Therefore, testing is carried out using the Run Test method to overcome this problem of autocorrelation doubt.

Uji Runs Test

Table 5. Uji Runs Test

Runs Test

	Unstandardized Residual
Test Value[a]	-.02019
Cases < Test Value	5
Cases >= Test Value	5
Total Cases	10
Number of Runs	7
Z	.335
Asymp. Sig. (2-tailed)	.737

a. Median

Based on the test results shown in table 4.8, an Asymp value is obtained. Sig. (2-tailed) is 0.737. This value is greater than the significance level of 0.05, so it can be concluded that there are no autocorrelation symptoms in the residual regression model.

Analysis of the Linear Regression

Linear Regression Analysis is used to determine the significant influence between independent variables on dependent variables.

Table 6. Multiple Linear Regression Result Estimation

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	38.443	7.572		5.077	.004
	Economy Growth	.065	.124	.044	.523	.623
	Education Level	2.857	.424	.652	6.738	.001
	Open Unemployment Rate	.449	.175	.201	2.566	.050
	Poverty Rate	-.646	.183	-.306	-3.529	.017

a. Dependent Variable: Human Development Index

Based on the appendix of the table above, multiple linear regression results can be compiled as follows

$$Y = 38.443 + 0.065X1 + 2.857X2 + 0.449X3 - 0.646X4$$

The results of the regression equation show that a constant of 38.443 indicates that if the variables of economic growth, education level, open unemployment rate, and poverty level are constant, then the Human Development Index (HDI) is at 38.443. The economic growth coefficient (X1) of 0.065 indicates that an increase in economic growth will increase the HDI by 0.065 assuming other variables remain the same. The education level coefficient (X2) of 2.857 indicates that improving education has a significant impact on increasing HDI. In contrast, the variable open unemployment rate (X3) has a coefficient of -0.449, which means that an increase in unemployment will lower the HDI. Similarly, the poverty level

(X4) has a coefficient of -0.646, so an increase in poverty will lower HDI. Thus, it can be concluded that economic growth and education have a positive effect on increasing HDI, while unemployment and poverty have a negative influence.

Coefficient Test Terminated (R2 Test)

The determination coefficient test aims to find out how far each X variable is capable of how much it affects the Y variable.

Table 7. Thermalized Coefficient Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.995[a]	.989	.980	.24544	2.892

a. Predictors: (Constant) Open Unemployment Rate, Poverty Rate, Economy Growth, Education Level

b. Dependent Variable: Human Development Index

The table above shows an R Square value of 0.989 or 98.9%. This shows that the Independent Variable is able to affect the Dependent Variable by 98.9% while 1.1% is explained by other variables outside the study.

Test F

The F test is used to determine whether or not an independent variable has a significant influence on the dependent variable.

Table 8. F Test Results

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.182	4	6.796	112.803	.000[b]
	Residual	.301	5	.060		
	Total	27.484	9			

a. Dependent Variable: Indeks Pembangunan Manusia

b. Predictors: (Constant), Tingkat Kemiskinan, Tingkat Pengangguran Terbuka, Pertumbuhan Ekonomi, Tingkat Pendidikan

Based on the table above, it shows that the Fcal value is 112,803 with a significant value of 0.000. where the value of 0.000 < 0.05 and the value of Ftable is obtained a value of 112,803 > Ftable 5.19, it can be concluded that H0 is rejected and can be interpreted as an independent variable that has a significant effect on the dependent variable.

T-Test

The t-test aims to test the significance of the influence of each independent variable partially on the dependent variable. Through this test, it can be known whether each independent variable has a significant or insignificant influence on the dependent variable.

Table 6. T test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	38.443	7.572		5.077	.004		
	Economy Growth	.065	.124	.044	.523	.623	.315	3.171
	Education Level	2.857	.424	.652	6.738	.001	.234	4.274
	Open Unemployment Rate	.449	.175	.201	2.566	.050	.358	2.797
	Poverty Rate	-.646	.183	-.306	-3.529	.017	.292	3.426

a. Dependent Variable: Human Development Index

Based on the t-test table above, the first step is to determine the t-value of the table. The calculation was carried out at a significance level of 0.05 with a two-party test (0.05/2 = 0.025) and a degree of freedom (df) of n – k – 1 or (10 – 4 – 1) = 5. Based on this calculation, the t-value of the table was obtained of 2.571.

Discussion

The results of the study show that the variables of economic growth, education level, open unemployment rate, and poverty level do not all have a significant effect on the Human Development Index (HDI) in East Java Province. Before regression analysis is performed, the model is first tested through classical assumptions which include normality, multicollinearity, heteroscedasticity, and autocorrelation tests. The results show that the residual is normally distributed, there is no multicollinearity or heteroscedasticity, and the residual is random and autocorrelation free, so the regression model is feasible. Multiple linear regression analysis yielded equations Y = 38.443 + 0.065X1 + 2.857X2 – 0.449X3 – 0.646X4. This equation indicates that economic growth and education have a positive effect on HDI, while open unemployment and poverty have a negative influence. A coefficient of determination (R^2) of 0.989 indicated that 98.9% of the variation in HDI could be explained by these four independent variables, while 1.1% was influenced by other factors outside the study. In addition, the results of the F test prove that simultaneously independent variables have a significant effect on HDI in East Java Province.

Economic Growth (X1) to Human Development Index (Y)

Based on the results of the t-test, it was shown that the t-value calculated at X1 was 0.523 with a significant value of 0.623 > 0.05 and t-calculated 0.523 < t table 2.571. Thus, there is no partial significant influence of the economic growth variable (X1) on the human development index (Y).

The results of this study are supported by research Rahman & Wijaya, (2024) that economic growth has no effect on HDI. Based on the budget ceiling and expenditure realization in East Java in the BI Economic Report of East Java Province, the health sector is

not the main sector as shown by the budget value of 9998 billion (2021) and 9984 billion (2022), which is very far when compared to the budget in other sectors. In addition, the Education sector budget also decreased by 13.875 billion (2021) to 12.683 billion (2022). This is the cause of the lack of effect of Economic Growth on the Human Development Index.

And also research from (Ningrum et al., 2020) which states that economic growth has not reached all sectors, especially the education and health sectors in HDI which are considered by UNDP as important indicators, economic growth is not always followed by good human development because economic growth does not always guarantee being able to improve welfare.

Education Level (X2) against the Human Development Index (Y)

Based on the results of the t-test, it was shown that the t-value calculated on X2 was 6.738 with a significant value of 0.001< 0.05 and t-calculated 6.738 > t table 2.571. Thus, there is a partially significant influence of the variable Education Level (X2) on the human development index (Y).

These results are consistent with the Human Capital theory by Gary Becker which states that investment in education increases individual productivity and income, which in turn promotes the well-being of society. People who have a higher level of education, also measured by the length of their school time, will have better jobs and wages than those with lower education.

Previous research by (Yusuf et al., 2022). It shows that education has a positive and significant effect. Education is the most common basis and the main means for a country to build the quality of human resources. Education is an important aspect to increase income and productivity. Because education has a wide impact on the life of the people of a country, where the health level improves and the crime rate decreases. Therefore, education plays an important role in building a country.

The Open Unemployment Rate (X3) to the Human Development Index (Y)

Based on the results of the t-test, it shows that the t-value calculated at X3 is 2.566. Thus, there was no partial significant influence of the variable Unemployment Rate (X3) on the human development index (Y) with a significant value of 0.05 = 0.05 and t calculated 2.566 < t table 2.571.

These results show that fluctuations in the open unemployment rate in East Java do not have a real impact on the improvement or decrease in the quality of human development. Thus, it can be affirmed that open unemployment is not the dominant factor in influencing HDI. Other factors such as economic growth, education levels, and poverty reduction play a more important role in improving the quality of human development in

East Java.

In line with research (Syahrani et al., 2024) which states that austerity has a negative effect on the human development index because it is only related to income. This means that when the population is unemployed, there is no income, so the population cannot achieve a better quality of life.

And strengthened by the existence of Sadono Sukirno's theory which states that the declining level of people's welfare due to unemployment will certainly increase the opportunity of being trapped in the low Human Development index because they cannot have income to meet their needs.

Poverty Rate (X4) to Human Development Index (Y)

Based on the results of the t-test, it shows that the t-value calculated at X4 is -3.529 with a significant value of 0.017 > 0.05 and t calculates -3.529 < t table 2.571. Thus, there is a partially significant influence of the Poverty Level variable (X4) on the human development index (Y).

In line with research conducted by (Rahman & Wijaya, 2024) which states that the Poverty Rate significantly affects the Human Development Index. In line with the theory put forward by (Todaro and Smith 2006) A high level of poverty will result in a low Human Development Index so that in order to produce quality human resources, the government must alleviate poverty by opening up diverse job opportunities, businesses, and training programs.

Meier and Baldwin's theory in (Fivien Muslihatinningsih, 2022) stated that the circle of poverty is influenced by the condition of the community which is still in the traditional or backward category but has abundant natural resources and no one is able to take advantage of them. In order to be able to manage these natural resources, seo-rang is needed who has knowledge in improving natural resources until the realization of a system of economic activity. To increase knowledge means that the quality of human resources is also improved. Indicators of the quality of human resources can be seen from the Human Development Index (HDI) of a region. This shows that if poverty decreases, the Human Development Index will increase. And vice versa, if poverty increases, the Human Development Index will decrease.

Conclusion

Economic Growth has no significant effect on the Human Development Index. This indicates that an increase in economic growth is not necessarily followed by an improvement in the quality of human development. Meanwhile, the level of education has a positive and significant effect on the Human Development Index that the higher the level

of education of the community, the greater the opportunity to obtain a more decent job, higher income, and improve the quality of life. While the Open Unemployment Rate does not have a significant effect on the Human Development Index, the fluctuation of the open unemployment rate in East Java does not have a real impact on the improvement or decrease in the quality of human development. Thus, it can be affirmed that open unemployment is not the dominant factor in influencing HDI. Meanwhile, the Poverty Level has a positive and significant effect on the Human Development Index. This means that the higher the poverty level, the higher the quality of human development, the more likely it is to decrease, and vice versa if the poverty level decreases, human development will increase.

The government needs to focus development policies on the equitable distribution of economic growth results, so that the benefits are not only concentrated in urban areas, but also felt by people in disadvantaged areas. Improving the quality and access to education, both through the development of educational infrastructure, improving the quality of teaching staff, and scholarship programs for low-income communities. The community also needs to increase awareness of the importance of education as a long-term investment to improve the quality of life.

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