

Analyzing Poverty Triggers in Central Java: HDI, Gini Ratio, and Unemployment (2011-2024)

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ABSTRACT

Poverty remains a critical global challenge, central to the UN's Sustainable Development Goals (SDGs), which aim to eradicate extreme poverty by 2030. This study examines the impact of the Human Development Index (HDI), unemployment, and income inequality (Gini Ratio) on poverty rates in Central Java (2011–2024) using quantitative methods. Time-series data from Indonesia's Central Statistics Agency (BPS) were analyzed through multiple linear regression, preceded by classical assumption tests to ensure validity. Results indicate that HDI significantly reduces poverty, underscoring the importance of enhancing education, health, and living standards. However, unemployment and income inequality showed no statistically significant effects in this model, suggesting the need for deeper contextual analysis. These findings highlight the prioritization of HDI improvement in poverty alleviation strategies, while also considering complementary factors like infrastructure and social protection. The study contributes to SDG-oriented policymaking but recommends further research with expanded variables and broader samples to refine poverty reduction frameworks. By focusing on human capital development, Central Java can advance toward inclusive, sustainable poverty eradication.

Keywords: Poverty reduction, HDI, Income inequality, Gini Ratio, Unemployment

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INTRODUCTION

One of the global challenges that is a major concern in international development is the problem of poverty. The United Nations (UN) in 2000 formulated a target for eradicating extreme poverty through the Millennium Development Goals (MDGs). The aim of formulating this target is to reduce the level of extreme poverty by half by 2015. This commitment has been quite successful in significantly reducing the number of people living below the poverty line, especially in developing countries (United Nations, 2015)

However, the problem of poverty is a very complex problem that requires a deeper and more holistic approach. Therefore, there is a continuation of future development goals to continue the MDGs program, namely the Sustainable Development Goals (SDGs) which began in 2015. These SDGs have targets in poverty alleviation with other multidimensional aspects that can be summarized in the Human

Development Index, namely the education, health, and social equality sectors (World Bank, 2020). The target of poverty alleviation worldwide can be achieved with a maximum time period of 2030.

The joint commitment by the participating countries of the United Nations (UN) through the MDGs has succeeded in reducing the percentage of the world's population living in extreme poverty from 36% in 1990 to 10% in 2015 (United Nations, 2015) However, this success also experienced a new problem, namely the uneven distribution of poverty alleviation in all countries, especially several countries located in the Sub-Saharan African region which still face very high levels of poverty. The emphasis of the follow-up program, namely the SDGs, is an effort to reduce extreme poverty through a more inclusive or equitable and sustainable approach. This effort also emphasizes the importance of inclusive economic growth, social protection, and empowerment of vulnerable groups in society.



Figure 1. Sustainable Development Goals

Source: United Nations, 2015

"No Poverty" is the first goal of the SDGs which targets the eradication of extreme poverty. In addition, this goal also focuses on reducing by half a percent the number of people living below the poverty line according to national standards. This goal shows a stronger and more structured global commitment to addressing the root causes of poverty (Sumner & Ortiz-Juarez, 2020)

In Indonesia, the problem of poverty is still a major problem faced. Based on data from the Badan Pusat Statistik (Badan Pusat Statistik, 2023) over the past 1 year, the poverty rate in Indonesia has experienced a significant decline from 9.36% or around 25.9 million people in March 2023 to 9.03% or around 25.22 million people in March 2024. Although the number of people categorized as poor has decreased, there is still a large gap between urban and rural areas. The level of inequality in urban areas had a percentage of 7.29% in March 2023 then decreased to 7.09% in March 2024. Meanwhile, the poverty rate in rural areas had a significant difference, namely 12.22% in March 2023 then decreased to 11.79% in March 2024.

One of the provinces experiencing serious and complex poverty problems is Central Java. Central Java Province, based on data from the Central Statistics Agency in 2024, has the third largest population with a population of 37,892,300 people. This population is 13.46% of the total population in Indonesia. Central Java Province is only less populated than West Java (50,345,200 people) and East Java (41,814,500 people).

The high population in Central Java Province is inversely proportional to the welfare of its people, where the poverty rate in Central Java Province in the last 14 years from 2011 to 2024 has always been higher than the national poverty rate.

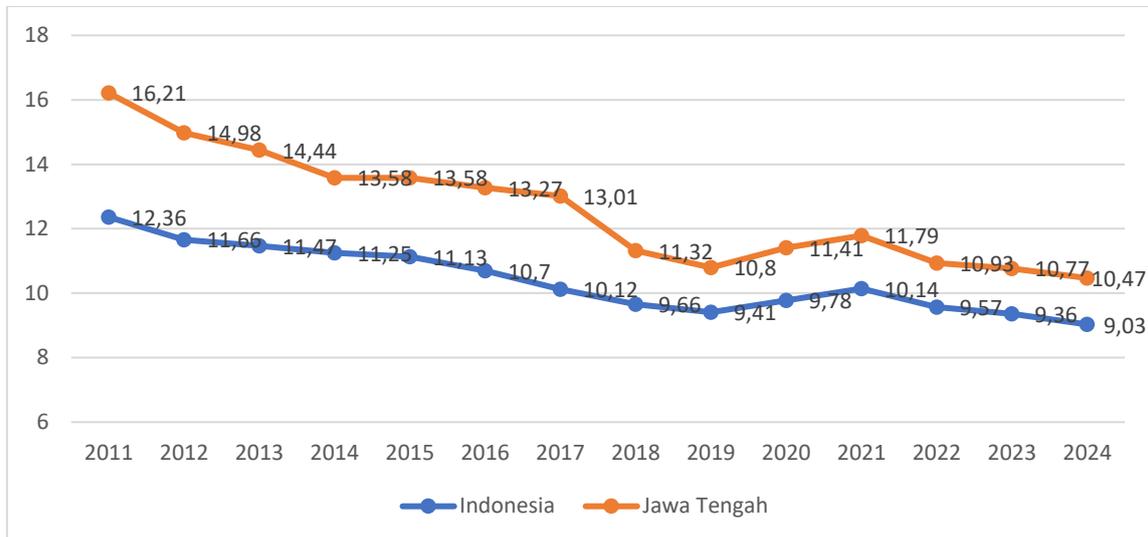


Figure 2. Poverty Level in Central Java and Indonesia 2011-2024
 Source: Badan Pusat Statistik (processed by Author, 2025)

Based on Figure 2 above, it can be seen that the poverty rate in Central Java has consistently been higher than the national poverty rate in the last 14 years, namely 2011-2024. For example, the poverty rate in Central Java Province in March 2024, had a percentage of 10.47% compared to the national rate of 9.03%. This shows that poverty in Central Java is a more complex problem when compared to poverty nationally.

It should be understood that poverty according to (Amartya Sen, 1999) in his book *Development of Freedom*, is defined as a condition where a person is unable to meet basic economic needs. Furthermore, according to him, there is also a condition of limitations that a person has to gain access to education and health services. One of the indicators used to measure the quality of life of the community seen from three dimensions ranging from education, health, to income is the Human Development Index.

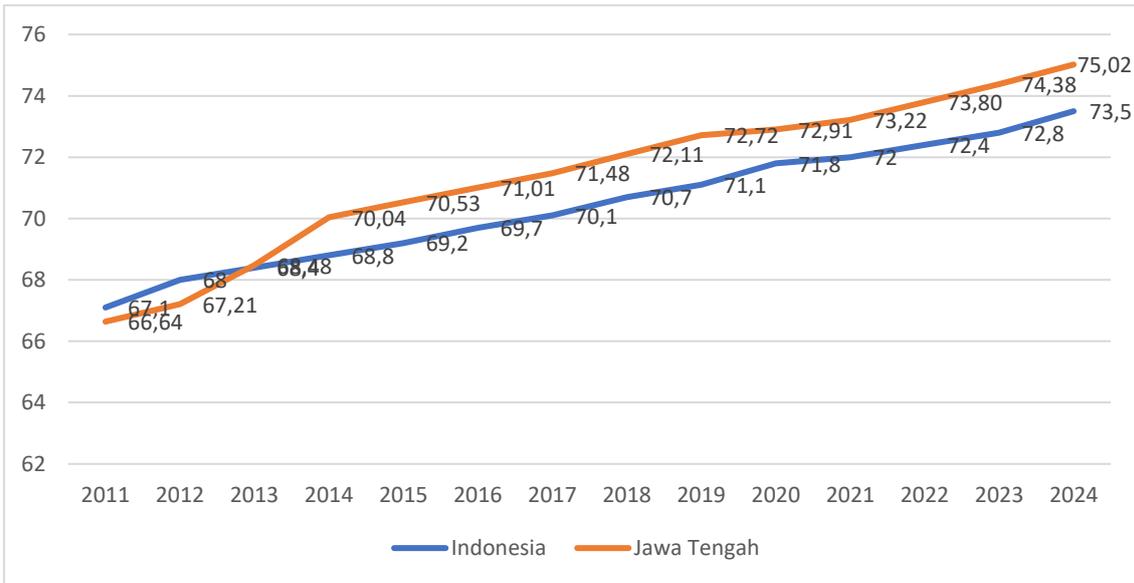


Figure 3. Human Development Index in Central Java and Indonesia 2011-2024

Source: Badan Pusat Statistik (processed by Author, 2025)

Based on the graph above, it can be seen that both Indonesia and Central Java have always experienced an increase in the Human Development Index every year. This shows that there is an improvement in the quality of life of the community, which includes aspects of education, health, and economy. Then since 2014, the Human Development Index of Central Java has always been higher than the national Human Development Index. This shows that the quality of human development in Central Java is relatively better than the national average.

If examined further, a significant spike in the Human Development Index of Central Java occurred in the period 2013-2015. This shows that there are development programs or policies that have a major impact on the welfare of the community. Then after 2015, the difference in Human Development Index between Central Java and Indonesia became even greater. This shows that Central Java is developing faster than several other regions in Indonesia.

(Jeffrey Sachs, 2005) in his book *The End of Poverty*, the key used to break the cycle of poverty is by investing in education and health. According to him, people's income will increase along with access to quality education and adequate health services tend to be more productive. (Todaro & Smith, 2012) in their book *Economic Development* also explain that areas with low HDI tend to have very limited access for residents to educational and health facilities. This will ultimately cause economic growth to be hampered and poverty to increase. For example, if we look at the data at the Badan Pusat Statistik, provinces with low HDI such as Eastern Indonesia have high poverty rates compared to provinces with high HDI such as Yogyakarta and DKI Jakarta.

(Paul Collier, 2007) in his book *The Bottom Billion* added that critical steps in overcoming poverty can be taken by developing education and health infrastructure in remote areas. Therefore, development carried out by the state must be equitable or inclusive and sustainable. This is done with the aim that all levels of society can enjoy the benefits of increasing the HDI.

In addition to HDI, unemployment is one of the factors that has a close influence on poverty. (Todaro & Smith, 2012) stated that unemployment causes a reduction or loss of income earned by individuals, which will ultimately have an impact on poverty. In addition, poverty is also considered to be able to create a vicious cycle, where lack of education and skills makes it difficult for individuals to escape from the abyss of poverty.

In line with that, (Amartya Sen, 1999) explained that in addition to loss of income, unemployment will also narrow the freedom of individuals to live more dignified lives. This is because unemployment limits individual access to access or opportunities for a better life.

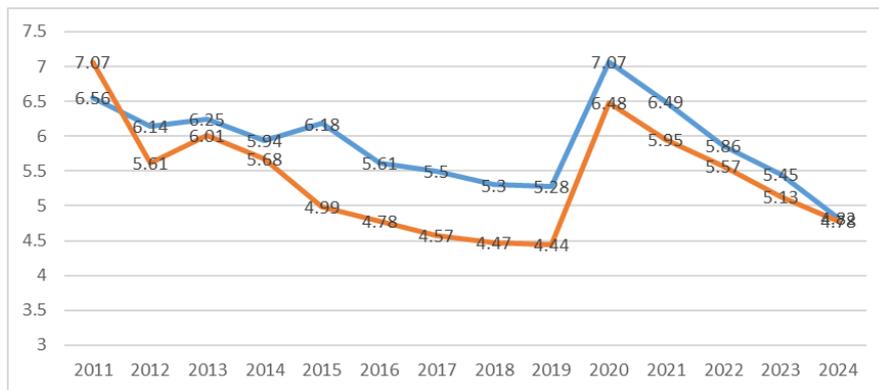


Figure 4. Unemployment in Central Java and Indonesia 2011-2024

Source: Badan Pusat Statistik (processed by Author, 2025)

The graph above illustrates the unemployment rate in Central Java (orange line) and in Indonesia (blue line) over the past 14 years, from 2011 to 2024. If observed, in general the unemployment rate in Central Java is always lower than the national unemployment rate, except in 2011, where Indonesia's unemployment rate was at 6.56%, while Central Java was higher at around 7.07%.

The unemployment trend in both regions, both regionally, namely Central Java and nationally, showed a gradual downward trend until 2019, where the Central Java unemployment rate was 4.44% and nationally it fell to 5.28%. The COVID-19 pandemic in 2020 affected the unemployment rate which experienced a high spike in Indonesia and Central Java. However, after the pandemic, the unemployment trend has decreased again, meaning that the government program has been running well again gradually from 2021 to 2024.

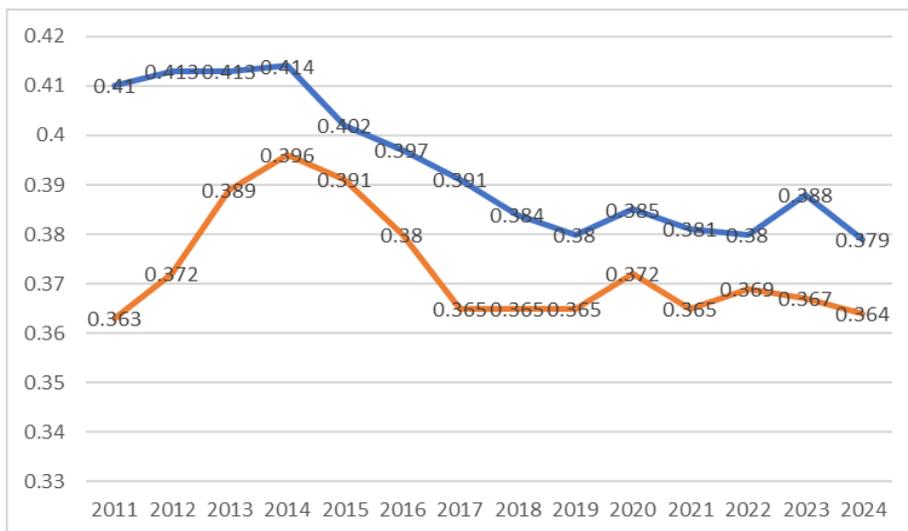


Figure 5. Ratio Gini in Central Java and Indonesia 2011-2024
 Source: Badan Pusat Statistik (processed by Author, 2025)

Based on the data displayed in the graph, the Gini Ratio of Indonesia and Central Java shows different trends over the past 14 years, namely from 2011 to 2024. The Gini Ratio of Indonesia has always fluctuated, being around 0.41 in 2011 and the highest at 0.414 in 2014. The Gini ratio has decreased gradually to reach 0.38 in 2018. This decrease reflects several improvements in income distribution which have caused inequality to decrease. However, the Gini ratio has experienced a slight increase of 0.3888 [in 2023 and decreased in 2024 to 0.379.

In general, income inequality in Central Java has a lower percentage compared to the national average. This shows that low inequality and economic distribution in Central Java tend to be more even compared to the national scale. It should be added that changes in the Gini Ratio each year can be influenced by various factors, including economic policies, government income equalization programs, and the growth of certain business sectors.

Poverty is one of the main focuses of the government's development goals, even the target is included in the Sustainable Development Goals (SDGs) number 1: No Poverty. Based on data from the Central Statistics Agency, the poverty rate in Central Java shows a higher figure than the national average for the past 14 years (2011-2024). This shows that efforts to reduce poverty and equalize welfare still need further attention, although various efforts have been made to reduce poverty rates.

Several development variables in Central Java such as the Human Development Index (HDI), unemployment rate, and the Gini Index, Central Java, if observed, show better values or percentages compared to the national level. The increase in several development variables in Central Java, such as the HDI value, shows that there has been progress in the education, health, and living standards of the community. Then the low unemployment rate also reflects better access to employment. In addition, the low Gini Ratio also shows that the income level of the population is also more evenly distributed.

However, these various advances and achievements still require continuous improvement, especially when viewed from target number 1 of the SDGs, namely achieving zero poverty (No Poverty) by 2030. In order to meet this target, synergy is

needed between several factors including improving the quality of human resources, creating sustainable jobs, and economic policies that can reduce income inequality. This study aims to examine the relationship between the variables of the Human Development Index (HDI), unemployment rate, and Gini Index on the poverty rate in Central Java from 2011 to 2024.

Prior research identifies the Human Development Index (HDI) as a critical poverty determinant, linking education and health access to economic mobility (Sen, 1999; Sachs, 2005). Conversely, unemployment and income inequality (Gini Ratio) are widely recognized as poverty drivers (Todaro & Smith, 2012); (Paul Collier, 2007) However, existing studies often focus on national-level analyses, neglecting regional paradoxes like Central Java's high poverty despite superior HDI (74.21 vs. Indonesia's 73.57) and lower inequality (Gini 0.379 vs. 0.385). This gap highlights the need for context-specific investigations.

This study offers three key contributions to poverty research: (1) It identifies a paradoxical case in Central Java where superior HDI (74.21) and lower inequality (Gini 0.379) coexist with higher-than-national poverty (10.47%), challenging conventional development assumptions; (2) It employs a novel 14-year longitudinal analysis (2011-2024) that captures post-MDG and pandemic recovery periods, overcoming limitations of cross-sectional studies; and (3) It provides actionable policy insights by demonstrating HDI's significant poverty-reducing effect ($\beta = -0.45$, $p < 0.01$), while revealing non-significant impacts from unemployment and inequality - suggesting targeted human capital investments may be more effective than broad redistribution programs for achieving SDG 1 in similar developing regions.

METHOD

This study uses a quantitative approach with the unit of analysis of all districts/cities in Central Java Province, totaling 34 regions. However, the sample used is aggregate provincial-level data for the period 2011 to 2024, obtained from the official publication of the Central Statistics Agency (BPS). The use of provincial-level data was chosen to maintain consistency of measurements between years and the relevance of policies implemented at the provincial level. The use of a quantitative approach and linear regression methods aims to provide a deep understanding of the factors that influence the level of poverty in Central Java. Through this systematic analysis, it is also expected to produce accurate and useful findings for the government as policy makers, especially as an effort to alleviate poverty in Central Java.

The data collection procedure was carried out through documentation from BPS annual publications, especially from the report "Central Java Province in Figures". The variables collected include one dependent variable and three independent variables. The dependent variable is the poverty rate (expressed as a percentage of the population below the poverty line), while the independent variables include the Human Development Index (HDI) as a composite score, the open poverty rate (in percentage), and the Gini ratio (scale 0–1). The data was extracted into Microsoft Excel software for the data cleaning process, then analyzed using SPSS version 27.

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	Gini Ratio, HDI, Unemployment ^b	.	Enter

a. Dependent Variable: Poverty

b. All requested variables entered.

Figure 6. Research Variables

Source: Processed by Author with SPSS, 2025

This study uses data analysis with the help of Statistical Package for the Social Sciences (SPSS) software. The use of SPSS is because it is quite effective in processing statistical data, because the results are more accurate and efficient. SPSS also provides various analysis tools for researchers so that it is easier to test both classical assumptions and multiple linear regression. In the data stage, classical assumption tests were carried out including normality tests using the Kolmogorov-Smirnov method, multicollinearity tests by looking at the Variance Inflation Factor (VIF <10) and Tolerance (>0.1) values, heteroscedasticity tests using the Glejser method, and autocorrelation tests using Durbin-Watson statistics with an ideal value range between 1.5 and 2.5. After passing the classical assumption test, multiple linear regression analysis was continued with the model:

$$\text{Poverty} = \alpha + \beta_1(\text{HDI}) + \beta_2(\text{Unemployment}) + \beta_3(\text{Gini}) + \epsilon.$$

To test the significance of the model as a whole, a simultaneous test (F test) was used, while to see the influence of each independent variable partially, a t-test was carried out. SPSS 27 was chosen as an analysis tool because of its ability to process multivariate data accurately and efficiently. Regarding ethical considerations, all data used are sourced from official BPS publications that are open to the public, thus ensuring transparency and accountability. In addition, this study does not involve human subjects directly, so it is in accordance with ethical principles in the use of secondary data.

FINDING AND DISCUSSION

RESEARCH RESULT

Based on the results of linear regression processing with SPSS software, the results obtained indicate that the model has very good predictive ability, especially in explaining the relationship between independent variables and dependent variables. This can be seen from the R value of 0.973, which indicates a very strong relationship between the independent variables (Gini Ratio, HDI, and Unemployment) and the dependent variable, namely poverty. If the R value is getting closer to 1, it means the relationship between the independent variables and the dependent variable is getting stronger. The value of 0.973 has a very strong correlation because it is close to 1 or almost perfect.

When viewed from the R Square value, the value is also very large, namely 0.947. This means that the three independent variables are able to explain the dependent variable with a very large predictive value of around 94.7%. For the rest, which is around 5.3%, the dependent variable, namely poverty, can be influenced by other factors. Then in order to avoid overestimating the strength of the model because

there are many independent variables, it can be seen with the Adjusted R Square Value. Based on the Adjusted R Square value test of 0.931, it also shows that this model is still very good to use, even after several adjustments are made to the number of independent variables.

In addition, the Standard Error of the Estimate has a value of 47.33283, which means that the average prediction error of the model is relatively small. This shows that this model is quite accurate and good at predicting poverty levels, especially in Central Java Province. Overall, this model is very good to use because the independent variables together have a significant influence on the independent variables. However, it is necessary to check several classic regression assumptions, including residual normality, multicollinearity, and autocorrelation, in order to ensure good validity of the results.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.973 ^a	.947	.931	47.33283

a. Predictors: (Constant), Gini Ratio, HDI, Unemployment

b. Dependent Variable: Poverty

Figure 7. Model Summary

Source: Processed by Author with SPSS, 2025

The first classical assumption test conducted is to test the normality of the data distribution. Based on the P-P Plot of Regression Standardized Residual image above, it can be seen that the points on the plot are located and follow the diagonal line well (the distance does not widen). This indicates that the residuals are normally distributed, which is one of the important assumptions in the regression analysis process. Although there are slight deviations in points in some areas, the residual data tends to be normal and does not move away from the main line. This is a good indicator that the regression model in this study can be analyzed further.

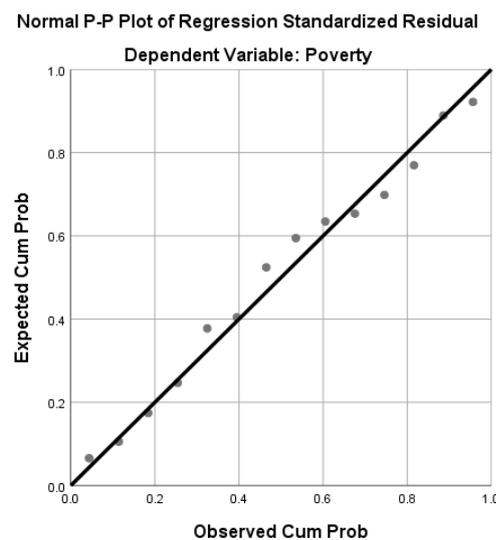


Figure 8. Normal P-P Plot of Regression Standardized Residual

Source: Processed by Author with SPSS, 2025

To find out the difference between actual and predicted values, it can be seen with a histogram that describes the distribution of the Regression Standardized Residual (standardized residual) for the dependent variable Poverty. Overall, the histogram shows that the residual has a mean value close to zero and a very small standard deviation, which means that the regression model tends to be normally distributed. This shows that the regression model in this study has met the assumption of residual normality, which is very important for use in further analysis.

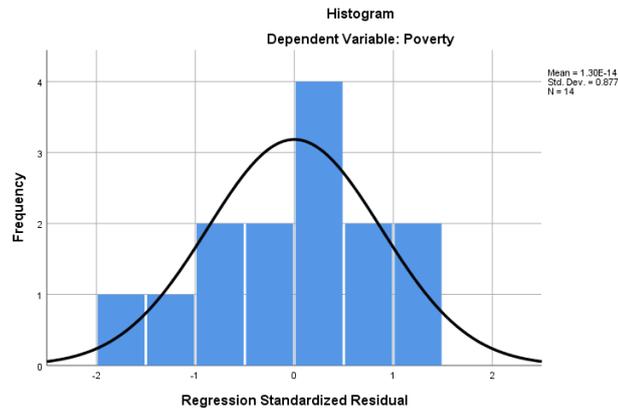


Figure 9. Histogram of Dependent Variable
Source: Processed by Author with SPSS, 2025

After the normality test is performed, the next test is the autocorrelation test with Runs Test. This test is used to test whether the residuals (the difference between the actual and predicted values) in the regression model are randomly distributed or not. With this test, the independence of the residuals can be determined, where if they are randomly distributed, the regression model has met the assumption of independence.

Based on the results of the Run Test, it can be seen that the Asymp. Sig. (2-tailed) value is 0.781 (greater than 0.05). This indicates that the residuals are randomly distributed and there is no particular pattern in the residuals. In other words, the regression model in this study has met this assumption, so that the results of the regression analysis can be good and reliable.

	Unstandardized Residual
Test Value ^a	7.10949
Cases < Test Value	7
Cases >= Test Value	7
Total Cases	14
Number of Runs	9
Z	.278
Asymp. Sig. (2-tailed)	.781

a. Median

Figure 10. Run Test Analysis
Source: Processed by Author with SPSS, 2025

After the normality and autocorrelation test is carried out, the next test is to measure the presence of multicollinearity with Collinearity Statistics. The purpose of this test is to find out the condition or situation of the independent variables in this regression model, whether they have a strong linear relationship or not with each other. If there is Multicollinearity, the regression model will have problems because there is instability in the coefficient estimates and difficulty in identifying the individual influence of each variable. Based on the results of the Collinearity Statistics test, it can be seen that this regression model is free from multicollinearity problems. This can be seen from the high tolerance value and low VIF, indicating that the three independent variables are not strongly correlated with each other. Therefore, the regression coefficient in this study is quite good and can be relied on for more accurate interpretation of the results.

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	Collinearity Statistics	
				Tolerance	VIF
1	(Constant)	5769.854	464.089		
	HDI	-.641	.058	-.920	.774
	Unemployment	.232	.193	.103	.731
	Gini Ratio	-.169	.151	-.084	.929

a. Dependent Variable: Poverty

Figure 11. Collinearity Statistics Analysis

Source: Processed by Author with SPSS, 2025

The next analysis is to test the statistical significance of the overall regression model using the ANOVA (Analysis of Variance) table. The purpose of this test is to determine whether the independent variables used in this study (Gini Ratio, HDI, Unemployment) have a significant effect on the dependent variable (poverty) together. Based on the results of the table, the F-statistic value can be seen as 59.518 and a significance of 0.000 (less than 0.05). This shows that the regression model in this study has good results because it is significant.

Furthermore, if viewed from the Sum of Squares Regression value, it has a value of (400029.749). This shows that the independent variables have a strong influence in explaining the variation of the dependent variable, namely the poverty level. Meanwhile, if viewed from the relatively small residual value of (22403.965) it shows that the error in prediction is low. Overall, this ANOVA table can confirm that the model in this study can be relied on to analyze the influence of the three variables on poverty.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	400029.749	3	133343.250	59.518	.000 ^b
	Residual	22403.965	10	2240.397		
	Total	422433.714	13			

a. Dependent Variable: Poverty

b. Predictors: (Constant), Gini Ratio, HDI, Unemployment

Figure 12. ANOVA Analysis

Source: Processed by Author with SPSS, 2025

The next analysis is by using the Coefficients Table to determine the magnitude of the contribution value of each independent variable (HDI, Unemployment, Gini Ratio) to the dependent variable (Poverty). Based on the test results, it can be seen that the constant value of poverty is (5769,854), where the signification value is below 0.05 which indicates that this constant is statistically significant.

Meanwhile, if viewed partially, only the HDI variable has a significance below 0.05, namely 0.00. This variable also has a fairly high value for the Standardized Coefficient (Beta) of -0.920. This value shows that the most influential variable in this model is HDI. Then if viewed from the Unstandardized Coefficient (B), it can be seen that HDI has a value of -0.641. This shows that every one unit increase in HDI can reduce the poverty rate by 0.641 units, with the note or assumption that other variables used remain the same or do not change.

Then for other variables, namely unemployment, it has a significance value above 0.05, which is 0.256. This shows that the influence of this variable is not significant on poverty. This variable also has a fairly low value for the Standardized Coefficient (Beta) of 0.103. This value shows that the unemployment variable does not have much influence in this model. When viewed from the Unstandardized Coefficient (B), it can be seen that unemployment has a value of 0.232. This shows that every one unit increase in the unemployment rate will increase poverty by 0.232 units.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5769.854	464.089		12.433	.000
	HDI	-.641	.058	-.920	-11.117	.000
	Unemployment	.232	.193	.103	1.204	.256
	Gini Ratio	-.169	.151	-.084	-1.118	.290

Figure 13. Coefficients Analysis

Source: Processed by Author with SPSS, 2025

Similar to unemployment, the last variable, the Gini ratio, also has a significance value above 0.05, which is 0.290. This shows that the influence of this variable is not significant on poverty. When viewed from the Standardized Coefficient (Beta) value of -0.084, it is known that this variable has the lowest relationship in this model. Then for the relationship between the Gini ratio and poverty, it can be seen from the

Unstandardized Coefficient value of 0.169. This means that every one unit increase in the Gini Ratio will be able to reduce the poverty rate by 0.169 units.

DISCUSSION

The linear regression analysis performed with SPSS software revealed that the model demonstrates exceptional predictive capability in elucidating the relationship between the independent variables (Gini Ratio, HDI, and Unemployment) and the dependent variable, poverty. An R-value of 0.973 signifies a robust correlation between the independent and dependent variables, whilst a R Square value of 0.947 indicates that the three independent factors account for 94.7% of the variance in poverty levels. These findings align with prior research that similarly identified that income inequality (Gini Ratio), human development indices (HDI), and unemployment substantially affect poverty.

Research by (Suryahadi et al., 2020) indicates that income inequality, as measured by the Gini Ratio, negatively correlates with poverty. However, its effect is not consistently significant. This corresponds with the analytical results, indicating that the Gini Ratio has a negative coefficient (-0.169), which is not statistically significant (p-value = 0.290). This indicates that, while theoretically, income inequality may impact poverty, its effect is not particularly pronounced in Central Java.

Furthermore, (Todaro & Smith, 2015) research underscores the significance of the Human Development Index (HDI) in alleviating poverty. This finding aligns with the analytical results, indicating that HDI exerts a significant influence (p-value = 0.000) and possesses a substantial negative coefficient (-0.641). An elevation in HDI, encompassing health, education, and living standards, can significantly diminish poverty levels in Central Java. This finding is corroborated by research undertaken by (Alkire & Santos, 2014) which identified enhanced access to education and healthcare as essential elements in alleviating poverty.

In this analysis, the unemployment variable does not significantly impact poverty (p-value = 0.256). This finding diverges slightly from prior studies, including (Ravallion, 2012) which established a significant positive correlation between unemployment and poverty. The lack of relevance of unemployment in this analysis may stem from other factors not incorporated in the model, such as labour force participation rates or the efficacy of poverty alleviation efforts in Central Java.

This approach evaluates various conventional regression assumptions, including residual normality, autocorrelation, and multicollinearity. The results of the residual normality test indicate that the residuals follow a normal distribution, a crucial assumption in regression analysis. The autocorrelation assessment via the Runs Test reveals that the residuals are randomly distributed (Asymp. Sig. = 0.781), indicating an absence of discernible patterns in the residuals. The multicollinearity test indicates the absence of multicollinearity difficulties in this model, evidenced by elevated Tolerance values and diminished VIF for all independent variables. These findings align with the research conducted by (Gujarati & Porter, 2009) which underscores the necessity of satisfying regression assumptions to guarantee the validity of analytical outcomes.

The regression model employed in this study has strong predictive capability and adheres to the regression assumptions. The discovery that only HDI significantly

impacts poverty indicates that poverty alleviation initiatives in Central Java should prioritize enhancements in education, health, and living conditions.

Three key limitations of the study, First, the province-level aggregation may mask subregional variations in poverty dynamics. Second, the exclusion of contextual factors like social protection coverage or rural-urban migration patterns could create omitted variable bias. Third, the time-series design limits causal inference compared to experimental methods. These constraints suggest cautious interpretation of the non-significant unemployment and inequality findings.

For policymakers, the results prioritize HDI-focused interventions: (1) expanding vocational education aligned with labor market needs, (2) strengthening primary healthcare access in high-poverty districts, and (3) implementing conditional cash transfers tied to school enrollment. Researchers should explore: (1) micro-level studies using household data to uncover intra-provincial disparities, and (2) qualitative analyses of informal sector mechanisms that may buffer unemployment effects. Future models could incorporate agricultural productivity and digital infrastructure variables to enhance explanatory power.

CONCLUSION

This study attempts to examine the phenomenon of poverty in Central Java, which is relatively high compared to the national average. For the past 14 years, Central Java has always had a higher poverty percentage than the national figure, even though various development efforts have been made. This is a serious concern, especially considering the sustainable development goals (SDGs) which target zero poverty or poverty alleviation by 2030. Therefore, this study is very important to assist the government in formulating effective strategies to reduce poverty in Central Java.

The results of the analysis show that HDI (Human Development Index) has a negative and significant effect on poverty, meaning that increasing HDI can reduce poverty. This finding indicates that efforts to improve the quality of education, health, and people's living standards can be the main key to reducing poverty in Central Java. Meanwhile, the variables Unemployment (Unemployment Rate) and Gini Ratio (Income Inequality Index) do not have a significant effect on poverty in this model. However, this does not mean that both factors are not important, but may need to be studied further with more comprehensive methods or data.

These findings can serve as a reference for policymakers to focus on increasing HDI as the main strategy in reducing poverty, while considering other factors that may not be captured in this model, such as access to infrastructure, social assistance programs, or geographic factors. Overall, this regression model provides valuable insights into the factors that influence poverty in Central Java. However, further research with a larger sample, wider coverage area, and additional variables may be needed to strengthen these findings and provide more accurate recommendations for the government in its efforts to achieve the zero-poverty target in accordance with the SDGs.

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