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THE EFFECT OF OPEN UNEMPLOYMENT AND EDUCATION ON POVERTY IN INDONESIA

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Abstract
Poverty remains a major challenge in the economic development process in Indonesia. The purpose of this study is to explore more deeply the influence of unemployment and education on the condition of the poor in Indonesia, focusing on the ten provinces that recorded the lowest poverty rates during President Joko Widodo's leadership. This study uses a descriptive quantitative approach with panel data covering the period from 2015 to 2024. The Random Effect Model (REM), which was selected based on the results of the Chow, Hausman, and Lagrange Multiplier tests, was used to perform the analysis with multiple linear regression. The findings of this study show that individually, the variable Open unemployment rate affects poverty positively and significantly, while the education variable affects poverty negatively and significantly. Overall, these two variables have a considerable effect on chemistry. These findings emphasize the importance of implementing policies that focus on effective means of reducing poverty in Indonesia to improve the quality of education and create jobs.

Keywords: Poverty, Unemployment, Education

1. Introduction

Until now, the problem of poverty is still one of the main obstacles in the process of Indonesia's economic progress. Although various policies have been implemented to reduce poverty rates, this issue remains complex and has many dimensions that need to be considered. Poverty is not only associated with low incomes, but it also reflects a lack of access to adequate education, employment opportunities, and public services. Based on previous research (Kamil et al., 2025), it is stated that education has an effect on poverty individually, while unemployment does not have an impact on poverty if analyzed separately. (Lestari et al., 2025) states that the long-term expectation rate has an effect on poverty. (Feronika et al., 2024) states that education has no influence on reducing poverty as well as good economic growth, not making the unemployment rate decrease. (Purnamasari et al., 2024) states that a person's education level with an average length of schooling does not directly affect the poverty level. (Angelia et al., 2025) states that the poverty rate in a province is influenced by a high unemployment rate. (Samudra & Langsa, 2025) states that unemployment has no effect on poverty.

Nevertheless, the open unemployment rate is still considered one of the indicators that affects poverty. The high number of unemployed reflects an imbalance in the number of workers and market needs, which ultimately negatively impacts people's incomes. When individuals do not have decent jobs, their purchasing power decreases, increasing the risk of falling into poverty. In addition, education plays a crucial role in determining the quality of human resources. Good quality education is able to improve individual skills, so that the chances of getting a job are easy. However, in some regions in Indonesia, inequality in access and quality of education is still a challenge. By improving the quality

and access to education, it is hoped that the community can have enough resources to get out of the poverty trap. The following is a graph showing the condition of poverty in Indonesia:

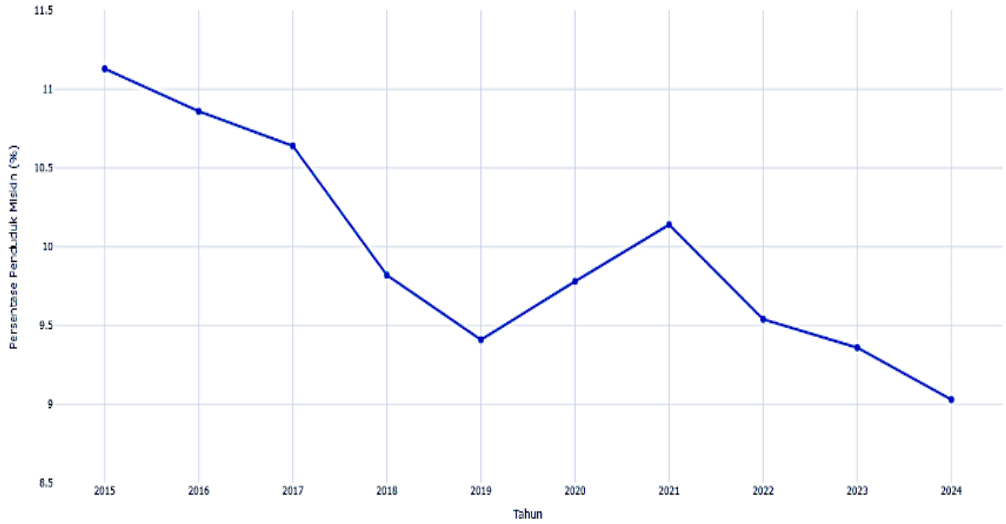

Figure 1. Poverty development in 2015-2024

Interestingly, several provinces in Indonesia have succeeded in reducing the poverty rate to relatively low. The purpose of the analysis of these several provinces is important to understand how variables related to poverty such as open unemployment and education level play a role in reducing the poverty rate. The following are some of the provinces with the lowest poverty:

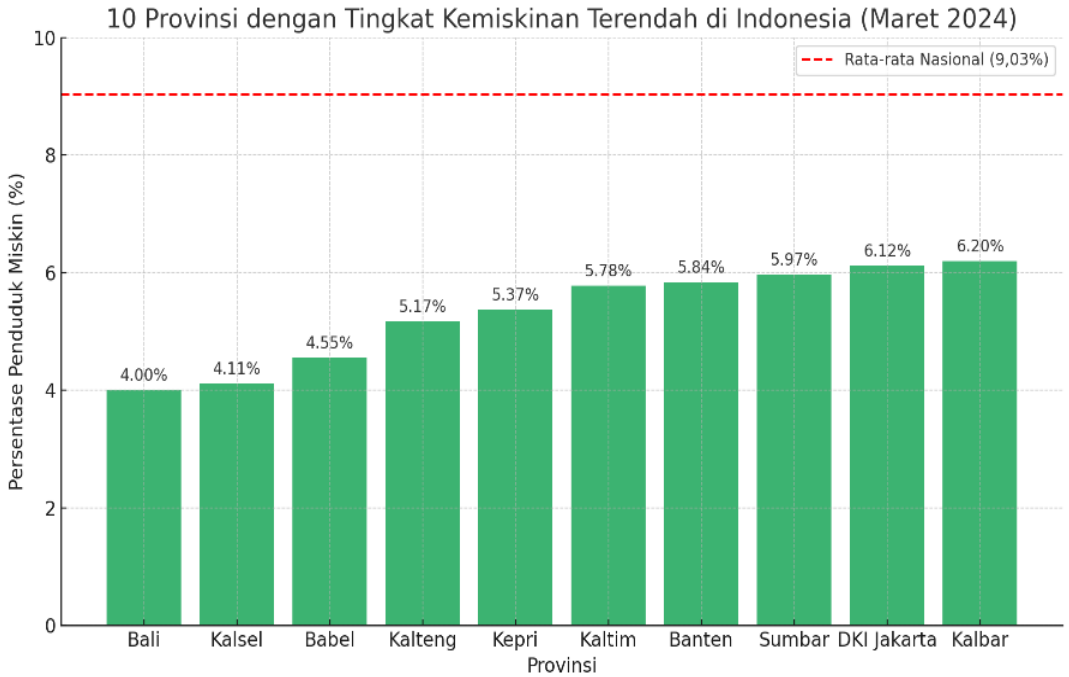

Figure 2. Graph of the 10 Provinces with the Lowest Poverty

Therefore, the focus of this research is on how open unemployment and education affect poverty in Indonesia, by taking a case study in the provinces with the lowest poverty rates during the administration of President Joko Widodo. The research is expected to be a significant benefit and contribution to the formulation of sustainable development policies in an effort to alleviate poverty at the national level.

2. Theoretical Background

2.1 Concept of Poverty

Poverty is a central issue in the study of development economics and has become a major concern. According to Todaro and Smith (2020), poverty can be described as a state of individuals who are unable to meet the minimum basic needs for a decent life, including the need for food, clothing, shelter, school, and medical services. A classic economic approach, poverty is often considered a result of a lack of capital accumulation and low labor productivity. Adam Smith (1776) said that limited access to productive resources causes individuals to be unable to achieve the minimum level of welfare needed in society.

2.2 Keynesian Perspective on Poverty

In a Keynesian perspective, poverty is closely related to market failures and a lack of aggregate demand. Keynes argued that income distribution inequality causes the poor to have low purchasing power, which in turn decreases the demand for goods and services and slows down overall economic growth (Keynes, 1936). Therefore, government intervention through fiscal policies and social spending is considered necessary to reduce poverty and promote inclusive growth. Amartya Sen (1999) expands the definition of poverty by introducing the concept of the capability approach, which sees poverty not only as a lack of income, but also as a lack of substantive freedom to live a meaningful life. In this view, poverty reflects a failure to access the basic functions of life, such as health, education, and social participation. This approach emphasizes the importance of expanding life choices and opportunities as a holistic way of addressing poverty.

2.4 Role of Education in Poverty Alleviation

Education plays a key role in poverty alleviation efforts, as it is the main capital in improving the quality of human resources and encouraging economic productivity. In the concept of human capital theory put forward by Gary S. Becker (1964), education is seen as a form of investment in individuals that will improve one's skills, knowledge, and productive abilities. This increase in human capital directly increases employment opportunities and incomes, thereby reducing the risk of poverty.

2.5 Human Capital Theory and Returns to Education

In the Keynesian approach, government investment in education is included in expansionary fiscal policies aimed at encouraging long-term economic growth and reducing inequality (Keynes, 1936). Wider access to quality education is also considered a form of equitable redistribution of economic opportunities. From a microeconomic point of view, Mincer (1974) states that each additional year of education will increase an individual's income, known as the return to education. These findings have been confirmed by various empirical studies showing that education has a significant negative correlation with poverty rates.

2.6 Unemployment and Its Impact on Poverty

Unemployment is one of the main determinants of poverty in development economics theory. The absence of decent work causes individuals to lose their primary source of income, which ultimately pushes them into a state of absolute as well as relative poverty. According to Todaro and Smith (2020), unemployment does not only reduce household income, but also decreases productivity nationally and increases social inequality.

Meanwhile, in classical and neoclassical labor market theory, unemployment is seen as the result of an imbalance between labor supply and demand, as well as wage rigidity. According to Friedman (1968), there is a natural rate of unemployment that cannot be completely eliminated, but can be suppressed through flexible labor market policies. However, if unemployment exceeds this level, there will be significant pressure on people's welfare, especially the poorly educated and low-income groups.

2.7 Keynesian View on Unemployment and Macroeconomic Imbalances

In the view of Keynesian theory, unemployment is caused by the lack of aggregate demand in the economy. According to Keynes (1936), in recessionary conditions, the private sector tends to reduce investment and consumption, which ultimately leads to a decrease in job opportunities. In this context, poverty is a direct consequence of macroeconomic imbalances that cause low job creation. Therefore, government intervention through expansionary fiscal policies such as increasing public spending is considered important to stimulate demand and reduce unemployment.

3. Methods

This study uses a quantitative descriptive approach. Panel data covering 2015–2024 from the Central Statistics Agency (BPS) was used in the study. Panel data is a combination of observations of various units (such as individuals or countries) measured over several periods of time, so that it has two dimensions, namely the unit dimension and the time dimension. This study will use the open unemployment rate as a variable (X1), Education (X2), and Poverty (Y), where the size of each of these variables is expressed in percentage. The object of this study includes ten provinces in Indonesia that have relatively low poverty rates, namely Bali, South Kalimantan, Central Kalimantan, Bangka Belitung, Riau Islands, Banten, West Sumatra, Jakarta, West Kalimantan, and East Kalimantan. This study uses multiple linear regression analysis and EViews 12. The purpose of this analysis is to identify the influence of unemployment and education on poverty in Indonesia. The multiple linear regression analysis model used in this study is as follows:

$$Y = + € \beta_0 + \beta_1 X_1 + \beta_2 X_2$$

Information:
Y : Poverty
X1 : Open Unemployment Rate
X2 : Education
E : Standard Error

4. Results and Discussion

4.1 Panel Data Model Selection

Here are the results of multiple linear regression to analyze the data in this study. Before performing multiple linear regression, a statistical test will be carried out for model selection, which includes the following steps:

Table 1. Model Selection Tests Results

Test Method	Test Statistic	d.f.	Prob.	Decision
Chow Test (CEM vs FEM)	F = 228.0095	(14,117)	0.0000	FEM is preferred over CEM
Hausman Test (FEM vs REM)	Chi-Sq. = 3.5615	3	0.3129	REM is preferred over FEM

Test Method	Test Statistic	d.f.	Prob.	Decision
Lagrange Multiplier (CEM vs REM)	Breusch-Pagan = 490.8554	–	0.0000	REM is preferred over CEM

Source: Data Processing Results with EViews, 2025.

The selection of the most appropriate panel data model was conducted through three stages:

1) Chow Test (CEM vs FEM)
   The p-value of 0.0000 (<0.05) indicates that the Fixed Effect Model (FEM) is superior to the Common Effect Model (CEM).
2) Hausman Test (FEM vs REM):
   The Chi-square statistic has a p-value of 0.3129 (>0.05), suggesting that the Random Effect Model (REM) is more appropriate than FEM.
3) Lagrange Multiplier Test (CEM vs REM):
   The Breusch-Pagan test shows a p-value of 0.0000 (<0.05), confirming that REM is preferred over CEM.

Since the results of the FEM and LM model tests through the EViews application produce a score below 0.05, while the results of the REM model test show values above 0.05, we will use the REM (random effect model) model to continue at the regression stage.

4.2 Classical Assumption Test

Table 4. Classical Assumption Test Results

Assumption Test	Indicator	Result	Threshold	Conclusion
Normality	Jarque-Bera Prob.	0.6588	> 0.05	Residuals are normally distributed
Multicollinearity	Correlation (X1–X2)	0.4194	< 0.85	No multicollinearity
Heteroscedasticity	Prob. X1 = 0.3236; X2 = 0.4830	> 0.05	> 0.05	No heteroscedasticity

Source: Author's calculation using EViews 12.

The classical assumption test was conducted to ensure the validity of the multiple linear regression model. The normality test using the Jarque-Bera statistic indicates a probability value of 0.6588 (>0.05), confirming that the residuals follow a normal distribution. The multicollinearity test shows a correlation coefficient between X1 and X2 of 0.4194 (<0.85), indicating the absence of multicollinearity. The heteroscedasticity test reports probability values of 0.3236 for X1 and 0.4830 for X2, both greater than 0.05, suggesting that heteroscedasticity is not present. These results confirm that the data satisfies the assumptions for multiple linear regression analysis.

4.3 Multiple Linear Regression Analysis

Multiple linear regression analysis was employed to measure and analyze the influence of more than one independent variable on the dependent variable. The model was estimated to examine the impact of the open unemployment rate (X1) and education (X2) on poverty (Y) across the ten provinces with the lowest poverty rates in Indonesia.

The results of the data processing using EViews 12 are summarized in the following table, which provides a comprehensive overview of the model's estimates, goodness-of-fit, and diagnostic tests.

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Table 5. Multiple Linear Regression Results

Statistic	Coefficient / Value	Std. Error	t-Statistic	Prob.
Intercept (C)	2.792578	0.452193	6.175626	0.0000
Open Unemployment Rate (X1)	-0.199237	0.042132	-4.728901	0.0009
Education (X2)	0.051590	0.017925	2.877885	0.0013
R-squared	0.147			
Adjusted R-squared	0.147			
F-statistic	9.570737			
Prob.(F-statistic)	0.0000			

Source: Processed research data with EViews 12.

The results of data processing show that the regression equation model is as follows:

$$Yit=2.7926-0.1992X1it+0.0516X2it+\mu it$$

Explanation of the Table:

1) Model Estimation: The table presents the coefficients for the intercept and each independent variable. The equation indicates that for every one-unit increase in the Open Unemployment Rate (X1), the Poverty level (Y) is estimated to decrease by 0.199 units, holding other variables constant. Conversely, for every one-unit increase in Education (X2), Poverty is estimated to increase by 0.052 units.
2) Partial Test (Individual Significance): The probability (Prob.) values for each coefficient are used for partial testing, which determines if each independent variable has a significant individual effect on the dependent variable. Both variables are statistically significant at the 1% level ($p < 0.01$), as their probability values (X1=0.0009, X2=0.0013) are less than 0.05.
3) Simultaneous Test (Overall Significance): The F-statistic tests whether all independent variables jointly influence the dependent variable. The highly significant F-statistic (9.570737) with a probability of 0.0000 ($p < 0.01$) leads to the conclusion that the variables Open Unemployment Rate and Education together have a significant effect on Poverty.
4) Coefficient of Determination Test (R-squared): The Adjusted R-squared value of 0.147 indicates that approximately 14.7% of the variation in the poverty variable (Y) can be explained by the combined variations in the open unemployment rate and education levels within the sample of the ten provinces with the lowest poverty in Indonesia. The remaining 85.3% is attributed to other factors not included in this model.

4.4 Discussion

4.4.1 The Effect of Open Unemployment Rates on Poverty

Based on the results of the partial test, the variable unemployment rate (X1) has a probability value of 0.0009, which indicates that its effect on the poverty level has a significant effect. In other words, increased unemployment tends to lead to an increase in poverty rates. In addition, the determination coefficient revealed that the variables of unemployment and education levels together exerted an influence of 14.7% on the poverty rate (Y), while the remaining 85.3% were influenced by other factors beyond the scope of this analysis.

The results of the research analysis coefficient showed that there was an influence of 0.199237 and was significant between the unemployment rate and poverty. When the number of unemployed in a region increases, the poverty rate also tends to increase by 0.19%. The cause is an increase in the number of people who do not have a fixed source

of income, which results in a decrease in people's purchasing power and an increase in economic inequality. Individually, the unemployment rate is one of the key factors that affect poverty, as limited access to decent work is a major obstacle in trying to get out of poverty.

Based on the results of the regression analysis of the results of this study support the findings of a study conducted by (Faidiban et al., 2025) that the open unemployment rate has no effect on poverty because high unemployment does not mean that poverty will also increase. However (Mario Saul et al., 2025) his research states that the open unemployment rate affects the poverty level in a region can be caused by termination of employment and cause the person to not get benefits. However, the results of this study are not in line with stating that unemployment does not affect poverty and does not show a relationship. (Sitorus et al., 2024) stated that unemployment has no effect on poverty but only affects individuals. Similarly (Lowing et al., 2021) stated that it has no effect on poverty.

According to (Todaro and Smith, 2020) unemployment is one of the main determinants of poverty in development economics theory. The absence of decent work causes individuals to lose their primary source of income, which ultimately pushes them into a state of absolute as well as relative poverty. Unemployment not only reduces household income, but also decreases national productivity and increases social inequality.

Meanwhile, in classical and neoclassical labor market theory, unemployment is seen as the result of an imbalance between labor supply and demand, as well as wage rigidity. According to (Friedman, 1968), there is a natural rate of unemployment that cannot be completely eliminated, but can be suppressed through flexible labor market policies. However, if unemployment exceeds this level, there will be significant pressure on people's welfare, especially the poorly educated and low-income groups.

4.4.2 The Influence of Education on Poverty

From partial testing, the results of data analysis showed that the variable level of education (X2) had a probability value of 0.0013, a value below 0.05. This value can explain the level of education affecting poverty. Based on this, the conclusion obtained is that improving education can contribute to reducing poverty rates, as education serves as an important skill capital in finding jobs, especially in the ten provinces with the lowest poverty rates.

This study confirms that education has a coefficient effect of 0.051590 and is significant on poverty. This means that the higher the community's education, the poverty condition tends to decrease by 0.51%. Taking education to a higher level encourages an increase in one's skills and ability to access a better job and earn a decent income. Thus, education functions as a means of social mobility that can help individuals get out of poverty. Therefore, improving the quality and access to education is a very important strategy in efforts to reduce poverty.

Based on the results of the research regression analysis in line with the research conducted (Manullang & Murjana Yasa, 2025), education has an effect on poverty in the province of Bali. With the average level of education of the population at the high school level, it can reduce the poverty rate. Then (Arya Puta & Sukartani, 2025) states that education has an influence on poverty where education has an important role as human capital. However, the results of this study are not in line with this study (Rahman & Alamsyah, 2019) stating that education does not have a significant impact on poverty.

The level of education does not fully affect poverty just by relying on school time alone (Titah Nabibah & Hanifa, 2023).

According to the theory of human capital developed by Gary S. Becker (1964), the level of education is seen as a form of investment or capital in an individual to improve the skills, knowledge, and productive abilities of the individual. Increasing human capital as a skill is suspected to be directly able to increase job opportunities and be able to improve welfare, to reduce the risk of poverty.

4.4.3 The Influence of Unemployment and Education Rates on Poverty

The simultaneous test produced a probability value of 0.000, which is less than 0.05, according to the results of the regression analysis that had been carried out. This shows that in the 10 provinces of Indonesia with the lowest poverty rates, unemployment and education have a simultaneous impact on poverty levels.

The poverty level in an area can be determined using variables such as open unemployment and education level. Using provincial panel data from 2015 to 2024, this study examines the combined impact of unemployment and education on poverty rates in Indonesia. The results of regression estimation show that the unemployment rate has a positive and significant effect on poverty, while education level (measured through the average length of schooling) has a negative and significant effect on poverty. In other words, the higher the unemployment rate, the higher the poverty rate in an area. On the other hand, poverty rates decrease in people with higher levels of education. These results show that both factors have an impact on poverty rates at the same time and should be taken into account when developing measures to combat poverty.

5. Conclusion

Based on the results of the analysis of panel data on the ten provinces with the lowest poverty rates in Indonesia during the period 2015–2024, the following conclusions were obtained:

1) Poverty is positively and significantly affected by the open unemployment rate. The poverty rate of a region increases along with its unemployment rate. This shows how the unemployment rate has a significant impact on people's income and purchasing power.
2) Poverty is significantly and negatively affected by education. Poverty rates decline as educational attainment increases (as shown by the average number of years spent in school). Education enhances personal abilities and creates better job prospects.
3) Stimulant, poverty is significantly influenced by education levels and open unemployment rates simultaneously. Although other factors not included in this analysis had an impact on the remaining portion, these two variables accounted for 14.7% of the difference in poverty rates.

Therefore, increasing employment and employment opportunities is needed and expected to overcome poverty. Likewise, improving the quality of education can be a person's capital to develop individually or in groups. With quality education, it can also change a person's mindset to be more advanced than those who are not educated. Education can also increase better job opportunities in reducing the unemployment rate and will also have an impact on reducing poverty rates both individually and in groups.

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