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THE EFFECT OF EDUCATION ON THE OPEN UNEMPLOYMENT RATE IN INDONESIA

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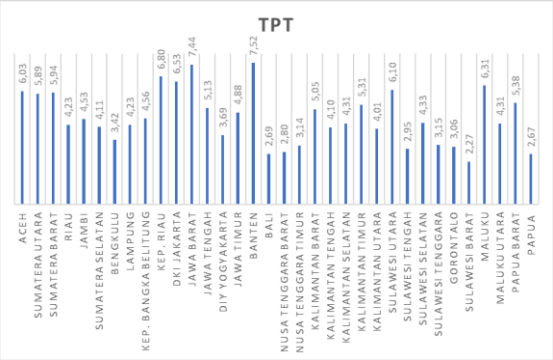
Abstract

Open Unemployment Rate (TPT) This indicator has an important role in evaluating the success of human resource quality development. The purpose of this study is to understand how the average affected schools (RLS), old hope schools (HLS), and the number of schools above the state (JS) compare to Indonesia's open poverty rate (TPT) in 2023. This study uses a quantitative approach using a multiple regression model. Based on cross-section secondary data from 34 provinces. The findings of the study show that from the value of the determination coefficient (R-squared), it can be concluded that the education variables together have a significant influence on TPT, 0.534. Individually, the RLS and JS variables had a significant positive influence on TPT, while the HLS variable showed a significant negative influence. All of this suggests that improving access to education without improving the quality and relevance of the curriculum can magnify skills mismatches, so that they do not automatically lower the unemployment rate. Therefore, education policies need to be directed at improving the quality and linkage between education and the needs of the job market to reduce the unemployment rate in a sustainable manner.

INTRODUCTION

The Open Unemployment Rate (TPT) is a crucial indicator in assessing the economic health of a region because it reflects the imbalance between the number of workers looking for work and the number of available field workers is still a problem. At the national level, information from the Central Statistics Agency in 2023 reveals that there is a disparity in TPT between provinces in Indonesia. As seen in Figure 1.1, the highest TPT in 2023 was recorded in Banten Province (7.52%) and the lowest in West Sulawesi (2.27%) (BPS, 2023). This difference reflects the inequality that exists at related to regional characteristics, especially aspects of education, industrial structure, and urbanization that affect the absorption of labor in each region. (Eat et al., 2023a)



Source: BPS processed by Researcher (2025)

Figure 1.1
Open Unemployment Rate by Province in Indonesia in 2023

Based on the data displayed, TPT in Indonesia in 2023 shows significant variation between provinces. The provinces with the highest TPT are Banten (7.52%), followed by West Java (7.44%) and DKI Jakarta (6.80%). On the other hand, the provinces with the lowest TPT are West Sulawesi (2.27%), Papua (2.67%), and Bali (2.80%) (BPS, 2023). This inequality shows that there are differences in labor market capacity and access to education between regions. From a development economics perspective, this condition is an important starting point to assess the extent to which investment in education is able to overcome unemployment structurally. (Todaro & Smith, 2020)

A number of previous studies have stated that education plays an important role in reducing unemployment, either directly through improving competence, and indirectly through the expansion of work networks. Quality education This contributes to efforts to increase the number of working days. Measures such as school length of expectation (HLS) and average length of school (RLS) are often used as parameters to evaluate educational outcomes and prospects in an area. RLS describes the duration of education that has been undergone by the population, while HLS reflects the estimated length of education that children are likely to take in the future reflecting people's expectations for education in the future. (Siskawati & Zulfhi Surya, 2021a)

Research by Kendari shows that an increase in RLS significantly reduces TPT. Similar results were found in NTT and in East Java. . also concludes that HLS is an important predictor of TPT because it reflects long-term educational expectations that are closely related to labor productivity and competitiveness. Thus, the link between the quality of education and open unemployment is becoming increasingly clear, especially in the context of areas with high levels of urbanization and fierce job competition. (Mustakim et al., 2022) (Eat et al., 2023b) (Squirt , 2023) (Shirley & Buddhism , 2012)

Another important factor is the number of schools, especially public high schools, as a representation of educational infrastructure that can expand access to education. The study, stated that the availability of secondary education institutions correlates with an increase in school participation rates. Adequate infrastructure can reach more students, especially in remote areas, which ultimately reduces structural unemployment due to low access to education. This confirms that the policy of equitable distribution of education infrastructure plays a very important role in supporting inclusive growth. (Stuttgart & Hut , 2021) (V. Tumilaar et al., 2022)

Findings from various regions have also strengthened the role of education in overcoming unemployment. in West Sumatra, Utami & Anwar (2021) in Central Java, and Fitri & Setiadi (2020) in West Kalimantan prove that provinces with high HLS and RLS tend to have lower TPT. In this case, the theoretical approach of human capital theory states that investment in education will increase individual productivity, which in turn increases employment opportunities. emphasized that education not

only improves technical skills, but also increases adaptation capacity and flexibility in dealing with changes in the job market. (Desembriarto , 2021) (Kongelige & Videnskabernes , 1969)

Several comprehensive studies have also shown a causal relationship between education and unemployment, although most are still using pre-pandemic data. In fact, the COVID-19 pandemic has drastically changed the structure of labor demand. Research by Amalia & Nurwati (2020), Nugraha et al. (2021), and calls for the importance of updating empirical studies with the latest data, post-pandemic. The post-pandemic era of digitalization also demands higher adjustment of labor skills, so the role of education is very strategic. (Arin Ramadhiani Soleha & Moh. Faizin , 2023) (Lutriyani , 2023)

Unfortunately, there are still few studies that combine RLS, HLS, and the number of schools as a unit in examining the influence of TPT nationally. In addition, most studies only take specific areas, not yet thoroughly analyzing the inequality of TPT between provinces by simultaneously considering the aspects of formal education and its infrastructure. In fact, with a comprehensive regional analysis approach, this study can provide a comprehensive picture of labor market inequality and inter-regional access to education in Indonesia. (Rick Pertiwi, Asnidar Asnidar , 2025)

Therefore, this study aims to determine the impact of the average length of schooling, the expectation of school length, and the number of schools at the national level in relation to the highest unemployment rate in Indonesia. in 2023. The findings of this study are expected to be a reference for the government, both at the central and regional levels, in developing the right policy strategy for education targets that are more responsive to the needs of the job market, and able to reduce the disparity of TPT between provinces through strengthening the quality and equitable distribution of access to secondary education.

LITERATURE REVIEW

Education plays a central role in the economic and social development of a country. One of the most important indicators between the two that is usually used to measure the growth of the education sector is Average School Length (RLS) and School Length Expectation (HLS). According to Becker (1993), RLS calculates the number of years of formal education completed by students who are at least 25 years old, while HLS represents an estimate of the length of time that a person is likely to complete in the future by school-age children in the future. According to the journal Impact of Cogent Education on Unemployment in Indonesia, as well as the Significant Negative Impact of RLS and HLS on the Open Unemployment Rate (TPT) in Indonesia, especially if education is focused on practical and applicative skills. This research is in line with the findings of the journal Dividend, which emphasizes that investment in formal education will only be effective in reducing TPT if it is accompanied by improving the quality and relevance of the curriculum to the needs of the job market. (Yoana) *et al* ., 2024) (Barysheva et al., 2018)

In addition to individual indicators such as RLS and HLS, the number of public high schools (SMA Negeri) is also an important aspect in assessing access and quality of education in a region. Research published by *Vocational Education and Training Empirical Research (2020)* indicates that equitable access to public high schools in various regions can encourage an increase in the school participation rate (APS) as well as reduce the rate of students dropping out of school. This has a positive impact on the employment opportunities of graduates in the region, thereby contributing to reducing TPT. Research by Newhouse & Suryadarma (2011) published in the World Bank Working Paper also strengthens this argument by showing that areas with better access to secondary schools tend to produce graduates with higher competitiveness in the job market. However, a study in the Journal of Technology and Vocational Education underlines that increasing the number of high schools without improving quality, such as apprenticeship programs or job training, actually risks giving birth to educated unemployment. (Clark, 1983)

The phenomenon of educated unemployment is one of the serious challenges in the world of education in Indonesia. According to the journal Impact of Education Level on Unemployment Rate in Indonesia (IJERE Review) states that although the increase in education level tends to reduce TPT, there is a paradox where high school or college graduates (Yoana) *et al* ., 2024a) still find it difficult to get a job. This

situation occurs due to the disharmony between the competencies possessed by graduates and the demands of the skills needed by the industrial sector. In a study in Academia.edu showed that an unadaptive curriculum and minimal practice cause graduates to be unprepared for work, even though they have formally pursued higher education. Similar things were found in , which noted that an increase in one level of education can increase TPT by 1.69% if it is not accompanied by relevant competencies. (Putra Ahmad Hasibuan and Ruslan, n.d.) (Hasibuan et al., 2017)

To explain the relationship between education and unemployment, several theories were used in this study. First, the Human Capital Theory states that education is a form of productive investment in improving individual abilities and economic competitiveness. RLS and HLS are strong indicators of human capital accumulation, where the higher they are, the more likely a person is to be absorbed into the world of work. However, this theory does not fully explain the phenomenon of educated unemployment, which is more suitable to be explained through Mismatch Theory. According to Brunello, unemployment can occur even if a person has a higher level of education if his skills are not in accordance with market needs. In the Indonesian context, many high school or vocational school graduates experience skills gaps, especially in digital and technical aspects. In addition, the concepts of Structural and Frictional Unemployment are also relevant. Spatial studies relying on SAKERNAS data and the geographic regression method (GWR) show that changes in the economic structure without the flexibility of the education system lead to a surge in structural unemployment in certain regions. (Tansel, 2005) (Yoana et al., 2024)

These studies also suggest that the success of education in reducing TPT does not only depend on access or length of study, but also on the relevance of the curriculum and the involvement of the industrial sector. The study emphasizes that vocational education has a higher rate of return to education than ordinary academic paths, because it is more ready to enter the world of work directly. A study of Vietnam and the World Bank in Southeast Asia also concluded that the waiting period for new graduates (frictional unemployment) is shorter in countries that emphasize a work-practice-based curriculum. (As Shadiqqy , 2020)

Thus, the relationship between RLS, HLS, the number of schools, and TPT cannot be seen in a linear manner. All of these indicators need to be analyzed together, taking into account the socio-economic context, labor market structure, and the capacity of the education system to produce adaptive graduates. This research is very important for developing evidence-based policies, especially in the planning of public high school distribution, curriculum reform, and regional-based workforce training.

RESEARCH METHOD

This study adopts a quantitative approach with an associative design to evaluate the relationship between aspects of education and the Open Unemployment Rate (TPT) in Indonesia The analysis method used is multiple linear regression, which aims to identify the common influence of independent variables on each other dependent.

This study utilizes secondary *cross-section* data taken from 34 provinces in Indonesia in 2023, according to the official publication of the Central Statistics Agency (BPS). Open Unemployment Rate (TPT), Length of School Expectancy (HLS), and Average School Length (RLS) are independent variables that are analyzed as dependent variables. and the number is State Senior High School (JS).

Data analysis was carried out using Stata software.To ensure the validity of the regression model used, a classical assumption test was also carried out, consisting of:

- Multicollinearity test
- Residual normality test
- Heteroscedasticity test

  The above analysis steps follow the standard procedure of multiple linear regression in quantitative economics research. The goal of classical assumptions (normality, multicollinearity, and heteroscedasticity) is to ensure that the resulting regression model is valid and free of bias. Thus, the entire analysis process supports the testing of hypotheses comprehensively and can be scientifically accounted for. (Siskawati & Zulfhi Surya, 2021b) (Riya A.N.D, Ismail A.W, 2024)

The quantitative analysis method and multiple regression procedure in this study are in line with the previous study. For example, using Stata for multiple

regression lines and classical assumption tests with cross-sectional secondary data, while other studies emphasize the importance of examining multicollinearity, normality, and heteroscedasticity in economic regression models. (Fauzaturroisiyah & Wijaya, n.d.) (Neti et al., 2024) (Yoana et al., 2024)

RESULT AND DISCUSSION

The problem of educated unemployment in Indonesia is a serious challenge, especially in the context of increasing secondary and higher education participation which is not accompanied by an increase in labor absorption. mentioned that one of the main causes of the high level of educated unemployment is the mismatch between the skills of graduates and the needs of the world of work. This study found that factors such as gender, household status, and geographic mobility also affect a person's chances of becoming an educated unemployed, which shows that formal education is not enough to guarantee equal access to work. This phenomenon is in line with an analysis that explains that a mismatch between job vacancies and job seekers' skills can contribute significantly to the increase in unemployment, as happened in the United States during the economic crisis. These findings show that the challenges of educated unemployment are not only quantitative, but also qualitative, related to the relevance of competencies to market needs. ((Newhouse & Suryadarma , 2009)) (Khan *et al* ., 2022)

On the other hand, skills-based educational approaches such as vocational education are considered more effective in reducing the unemployment rate. shows that vocational education in Indonesia has a significant role in reducing the unemployment rate, especially when aligned with the needs of local industries and economic sectors. This research emphasizes the importance of synergy between educational planning and the needs of the labor market so that graduates can be better absorbed. Thus, this study is relevant to examine the extent of the influence of the number of public high schools (JS) compared to the open poverty rate (TPT), average length of school (RLS), and expectation of length of school (HLS). The goal is to ensure that the allocation of resources in the education sector can really improve human resources and create jobs. in Indonesia. (Edward, 2024) (Ariansyah et al., 2024)

This study applied the linear regression method used to test the relationship between the number of State High Schools (JS), Old Hope Schools (HLS), and Average School Length (RLS) to the Open Unemployment Rate (TPT) in Indonesia. The data used is cross-sectional data. 2023, which is data collected from various provinces in a certain time period, so that it can represent the current conditions in that year. Furthermore, to ensure that the regression model applied is in accordance with the basic assumptions of classical regression, a series of assumption tests are also carried out. multicollinearity, residual normality, and heteroscedasticity. The results of this test are used as a basis for interpreting the significance and validity of regression models.

Multiple Linear Regression Test

The table below presents the estimated results of multiple linear regression analysis which examines the relationship between the open unemployment rate (TPT) studied through the variables Average School Length (RLS) and School Length Expectation (HLS), as well as the number of public high schools (JS):

Table 1. Multiple Linear Regression Results

Variabel	Coef.	Std. Err.	t-Value	p-Value	[95% Conf. Interval]	Sign.
rls	1.388	0.263	5.29	0.000	0.852 – 1.924	*** Signifikan Positif
hls	-0.762	0.290	-2.62	0.014	-1.356 – 0.169	** Signifikan Negatif
js	0.005	0.001	3.46	0.002	0.002 – 0.008	*** Signifikan Positif
Constant	0.854	3.215	0.27	0.792	- 5.712 – 7.421	

Additional Statistics:

- R-squared: 0.534
- Adjusted R-squared: 0.487
- Prob > F: 0.000
- Root MSE: 1.016
- Observations: 34

Information:

p < 0.01, **p < 0.05, *p < 0.1

The results of multiple linear regression showed that the model used was significant simultaneously, indicated by the Prob value > F

= 0.000, which means that the variables Simultaneously, the variables of average length of school (RLS), length of school expectancy (HLS), and number of public high schools (JS) showed a significant influence on Indonesia's open poverty rate (TPT) in 2023. This is evidenced by a coefficient of determination (R-squared) of 0.534 which shows that the model can explain about 53.4% of the variation that occurs in TPT, while the rest is caused by components or variables that are beyond the scope of this model's analysis.

Individually, the Average School Length Variable (RLS) has a positive and significant effect on the level of open poverty. (TPT), with a coefficient of 1.388 and a significance value of p = 0.000. These findings show that every one-year increase in the average length of education is projected to increase TPT by 1.388 percent. This finding is consistent with the findings This indicates that the increase in average length of school is actually correlated with an increase in the unemployment rate. One of the acceptable explanations for this phenomenon is the mismatch or disharmony between the competence of formal education graduates and the demand for labor in the market. work (mismatch), or the increasing standards of graduates' expectations of the type and quality of work expected, so that they tend to reject jobs that do not meet expectations. (Siskawati & Zulfhi Surya, 2021)

In contrast, the variable Long School Expectancy (HLS) showed a significant negative relationship with the Open Unemployment Rate (TPT), with a high determination coefficient. -0.762 and significance level p = 0.014. This shows that the higher a person's expectations of the length of education to be taken, the lower the tendency to be unemployed. It can be interpreted that individuals with higher education aspirations tend to prolong the study period and delay participation in the job market. These results are in line with the findings of Riya and Ismail A.W. (2024), who stated that increased expectations of the duration of education contribute to a decrease in the unemployment rate, as education-oriented individuals are more likely to obtain employment after completing their studies.

For the variable of the number of public high schools (JS), the regression results showed a significant positive impact on TPT, shown through a coefficient value of 0.005 and a significance value of p = 0.002. This suggests that the increase in the number of high school-level public schools is associated with an increase in the open unemployment rate, although the increase is relatively small. Based on the theory of Human Capital, it is explained that expanding access to education without being balanced by improving the quality and relevance of education to the needs of the job market can actually widen the skill gap. When the growth of educational institutions is faster than the corresponding job growth, then graduates of high school education may have difficulty getting jobs that are in line with their field of expertise or educational background. Therefore, education development needs to be accompanied by integrated employment planning.

Finally, the value of the constant (intercept) does not show statistical significance in this model (p = 0.792), so it does not have a strong interpretive significance in this context.

Multicollinearity Test (VIF)

The multicollinearity test aims to determine whether there is a correlation between independent variables in the regression model. The most commonly used indicator is the VIF (Variance Inflation Factor) value. The general guidelines for the interpretation of VIF are as follows:

- VIF < 10 → Multicollinearity does not occur.
- VIF 5–10 → There is an indication of moderate multicollinearity.
- VIF > 10 → High multicollinearity occurs.

Table 2. Multicollinearity Test (VIF) Results

Variabel	VIF	1/VIF
rls	1.50	0.6669
hls	1.47	0.6815
js	1.04	0.9615
Mean VIF	1.34	

Based on the results, each Variance Inflation Factor (VIF) value in the regression model was well below the threshold of 10, even less than 5, with the average VIF value being 1.34. This shows that there is no independent multicollinearity between variables, so the regression model used can be considered free from the problem of multicollinearity. Therefore,

the estimation of regression coefficients in this model is stable and can be interpreted accurately.

Normality Test (Skewness and Kurtosis Test)

The Normality Test is used to assess whether the residual residues in the regression model contribute to the normal distribution. One of the commonly used approaches is the Skewness and Kurtosis test (sktest). This test tests the hypothesis:

- H_0 (null hypothesis): The residual distribution is normal.
- H_1 (alternative hypothesis): Residual is not normally distributed.

Table 3. Residual Normality Test Results

Variabel	Observasi	Pr(skewness)	Pr(kurtosis)	Adj chil2(2)	Prob > chi2
Resid	34	0.4526	0.3482	1.54	**0.4622**

Based on the test results, the probability value (Prob > chi2) was recorded at around 0.4622, which is higher than the significance level of 5% (α = 0.05). This suggests that there is not much evidence to support the zero (H_0) hypothesis. Thus, it can be concluded that the residuals in the regression model are normally distributed. This state suggests that the assumption of the normality of the error has been met, therefore the regression model used is valid and can be used to determine the need for the study. hypothesis validly. and statistical interpretation of results.

Heteroscedasticity Test

Heteroscedasticity tests were performed to determine whether there are any non-constant (residual) error variables in the regression model. There is only one method. the test is the Breusch–Pagan/Cook–Weisberg test. This test uses the following hypothesis:

- H_0 (null hypothesis): Heteroscedasticity (constant residual variable) does not exist.
- H_1 (alternative hypothesis): Heteroscedasticity (inconsistent residual variable) is present.

Table 4.

Heteroscedasticity Test Results

Stastik Uji	Nilai
Chi2(1)	**0.58**
Prob > Chi2	**0.4467**

The results of the test using the Breusch–Pagan/Cook–Weisberg method showed a Prob > Chi2 value of 0.4467, which exceeded the significance limit of 5% (α = 0.05). Therefore, there is no solid basis for determining the null (H_0) hypothesis. In other words, the regression model used shows no indication of heteroscedasticity, so the variance from the residual can be considered homogeneous or constant. (homoskedastis), which shows that important assumptions in classical linear regression have been met and supports the validity of the regression model for use in further testing.

CONCLUSION

The results of this study reveal that the education factor has a modest impact on the open unemployment rate (TPT) in Indonesia. The average length of education (RLS) and the number of public high school institutions (JS) actually contribute to the increase in TPT, which indicates a mismatch between the competence of graduates and the needs of the job market. In contrast, long-term school expectations (HLS) play a role in lowering TPT because individuals tend to delay entering the job market while increasing their self-capacity. These findings confirm that increasing access to education without improving quality and linkage to the world of work is not effective in reducing unemployment. Therefore, an education policy that is integrated with the needs of the labor market is needed, through curriculum reform, strengthening vocational education, and equitable access and quality of education to create competent and efficient work habits.

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