



# The Effect of Education, Number of Industries, and Economics Growth on the Open Unemployment Rate in Indonesia

Vivi Kustieni\*, Wiwin Priana Primadha

Universitas Pembangunan Nasional "Veteran" Jawa Timur, Indonesia

DOI:

<https://doi.org/10.47134/jred.v3i2.1055>

\*Correspondence: Vivi Kustieni

Email:

[21011010056@student.upnjatim.ac.id](mailto:21011010056@student.upnjatim.ac.id)

Received: 21-12-2025

Accepted: 16-01-2026

Published: 14-02-2026



**Copyright:** © 2026 by the authors. Submitted for open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license

(<http://creativecommons.org/licenses/by/4.0/>).

**Abstract:** This study aims to examine the impact of Education, Number of Industries, and Economic Growth on the Open Unemployment Rate in Indonesia. The method applied is a quantitative approach by using secondary data from the Badan Pusat Statistik (BPS). The data obtained were then processed through multiple linear regression analysis with the help of SPSS version 25 software to evaluate the partial and simultaneous effects of each variable. The results of the study indicate that partially: (1) education has a significant and negative impact on the open unemployment rate; (2) the number of industries shows a significant and positive effect; while (3) economic growth has no effect on the open unemployment rate in Indonesia. Simultaneously, all of these variables together have a significant effect on the open unemployment rate in Indonesia. The findings of this study are expected to be used as a reference for the central government in designing policies that improve public welfare.

**Keywords:** Education, Industry, Economic Growth, Open Unemployment Rate, Indonesia

## Introduction

Unemployment open is challenge main for Indonesia which influences development social and economic and potential trigger poverty, inequality, and vulnerability social. Badan Pusat Statistik (2021) defines Open Unemployment as force unfinished work, active look for work, prepare business, or not yet start work remains. The TPT trend shows decline from 7.87% in 2009 to 5.32 % in 2023 and 4.91% in 2024 and even though fluctuating like occurrence the increase that occurred in 2015 due to from slowdown economy and mass layoffs as well as peak in 2020 because occurrence the crippling Covid-19 pandemic activity economy (BPS, 2024).

As a country with population the biggest fourth in the world, namely amounting to 278.7 million souls in 2023 (up from 275.8 million souls in 2022) Indonesia is entering demographic bonus phase with 70.72% of the population age productive age (15-64 years) in 2020 (Bappenas , 2023; BKKBN, 2024). Potential This expected push growth economy through contribution power Work skilled in the sector industry. However, the increase

seeker Work consequence growth population often not balanced with field available work that will be available later will make things worse occurrence unemployment.

Sector industry specifically medium and large become contributor main field quality formal work with GDP growth averaged 4.75% to 5% since 2009 and contribution of 18.34% in 2023 (BPS, 2023; Samosir, 2023). Although amount industry increase However absorption power Work Still not optimal due to existence domination industry capital intensive, inequality investment and contraction consequence pandemic (Mu'minah & Tjenreng, 2025; Septiana & Asmara, 2024). Growth fluctuating economy including contraction of -2.07% in 2020 is getting worse hinder stability field work (BPS, 2021b).

Unemployment excess also has an impact term long like decline consumption, GDP, and income per capita which hinders growth economy in a way overall (Azzahra et al., 2024). One of factor key is mismatch competence graduate of education with need industry especially graduate of school middle and high are considered as contributor high unemployment (Khodijah, 2019; Romi et al., 2024).

Data from the Central Statistics Agency (2023) shows that unemployment graduate of School Intermediate Vocational reaching 9.31% in 2023 due to the lack of skills practical relevant, competitive strict from growth graduates, and preferences industry to worker experienced (Ansori et al., 2025; Frisnoiry, 2020). The phenomenon This confirm the need analysis empirical about influence education, number industry and growth economy for support policy more employment appropriate target.

### Research Method

This study uses quantitative analysis using time series data from 2008 to 2023. The data used in this study are sourced from Badan Pusat Statistik (BPS), Kementerian Pendidikan Dasar dan Menengah (Kemendikdasmen), and Kementerian Pendidikan Tinggi, Sains, dan Teknologi (Kemendiktisintek). Data were collected using documentation techniques by observing, reading, and recording data from available sources. Data analysis used the SPSS 25 application. The stages of data analysis include descriptive statistics, classical assumption testing, and hypothesis testing. The data analysis model uses multiple linear regression analysis with the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Explanation:

Y = Open Unemployment Rate

$\beta_0$  = Constant

$\beta_1 - \beta_3$  = Regression Coefficient

$X_1$  = Education

$X_2$  = Number of Industries

$X_3$  = Growth Economy

e = Error

## Results and Discussion

### Assumption Test Results Classic

#### Normality Test

	Unstandardized Residual
N	16
Asymptotic Significance	0.200

Source: Processed Data SPSS 25, 2025

From the table the can concluded that variables level unemployment open, level education, number industry and growth economy own mark significant above 0.05. Therefore that, the data used in study This has fulfil assumptions normality and can considered distributed normally.

#### Multicollinearity Test

	Tolerance	VIF
Education	0.415	2,410
Number of Industries	0.471	2,121
Economic growth	0.800	1,251

Source: Processed Data SPSS 25, 2025

All variables independent (Education, Number of Industry and Growth Economy) VIF value  $\leq 10$  and Tolerance  $\geq 0.1$  so that all independent variable no something happened multicollinearity.

#### Heteroscedasticity Test

	Significance
Education	0.488
Number of Industries	0.821
Economic growth	0.838

Source: Processed Data SPSS 25, 2025

All independent variables (Education, Number Industry and Growth Economy) has significance value  $\geq 0.05$  so all independent variables from heteroscedasticity.

#### Autocorrelation Test

	Unstandardized Residual
Total Cases	16
Asymptotic Significance	0.070

Source: Processed Data SPSS 25, 2025

Significance value  $\geq 0.05$  so known that the data free from autocorrelation.

## Analysis Results Multiple Linear Regression Coefficient Test Determination

Model	R.Square
1	0.663

Source: Processed Data SPSS 25, 2025

Third this independent variable own influence significant to level unemployment open by 66.3%, while the rest 33.7 % is influenced by other factors that are not including in the regression model used.

### t -statistic test

	Significance
Education	0.011
Number of Industries	0.520
Economic growth	0.030

Source: Processed Data SPSS 25, 2025

Variables education and growth economy own significance value  $\leq 0.05$  so variables education and growth economy influential to level unemployment open, whereas variables amount industry own significance value  $\geq 0.05$  so variables amount industry No influential to level unemployment open.

### F Statistical Test

Model	Significance
Regression	0.004

Source: Processed Data SPSS 25, 2025

The significance value of all variables independent (Education, Number of Industry and Growth Economy)  $\leq 0.05$  so that in a way simultaneous all variables independent influential to level unemployment open.

### Interpretation of Equation Models

	Beta
Constant	11,555
Education	$-8.142 \times 10^{-7}$
Number of Industries	$-3.953 \times 10^{-5}$
Economic growth	-0.227

Source: Processed Data SPSS 25, 2025

Equality regression from the output results above is:

$$Y = 11.555 - 8.142 \times 10^{-7}X_1 - 3.953 \times 10^{-5}X_2 - 0.227X_3$$

### Analysis the Influence of Education on the Open Unemployment Rate

Hypothesis study show that level education influential negative significant to level unemployment open in Indonesia. This is prove that improvement amount graduate of

school middle and high in a way significant influence decline unemployment in Indonesia. Increasingly Lots amount graduate of school middle and high so the more low level unemployment open. This is in harmony with human capital theory that looks at education as investment for increase productivity and income power future work (Becker, 1964).

Workers' formal education level increase capability and productivity they are in the job market, even though selectivity to wages and environment Work can cause unemployment educated. Because of that that, individual with higher education tend more own more Lots option in determine type or field work they. Not infrequently too many between those who are more choose become unemployment than get work that is not in accordance with wages or environment the work they do expect the later cause increase unemployment educated.

### **Analysis Influence Amount Industry Against the Open Unemployment Rate**

Hypothesis study state that amount industry No influential to level unemployment open in Indonesia. This means if amount industry increase so matter the No will influential to increase level unemployment open. Research results This No in line with theory request power work by Keynes, who stated that when amount industry experience increase, then will There is improvement to request power work to be done result decline level unemployment. Every There is industry newly opened so will make field Work new that can absorb power previous work unemployed and reduced level unemployment in the area.

Influence amount industry and level unemployment open caused by a mismatch between skills worker with field available jobs so that Lots workers who do not own skills that should be needed by the industry. This is what causes power absorb power work by industry decline which will later will increase amount unemployment. Individuals who are not capable for fulfil qualification for can enter to in the job market will risk become unemployment. This in harmony with research conducted by Febriana and Syafitri (2023) which said that industry increased processing no reduce unemployment.

### **Analysis Influence Growth Economy Against the Open Unemployment Rate**

Hypothesis study show that growth economy influential negative and significant to level unemployment open in Indonesia. Where the increase growth economy will lower level unemployment open. This is synchronous with theory classic by Adam Smith, who stated that growth economy create field Work more many will lower level unemployment so that can raise welfare society (Todaro & Smith, 2018).

Study Rahmanita and Usman (2023) support study this with state that growth economy influence level unemployment open through improvement growth products and services that will make request power his work increase so that number unemployment will decrease.

### **Conclusion**

This study found that increasing the number of secondary and high school graduates significantly reduced the unemployment rate. This aligns with human capital theory, which

emphasizes education as an investment to improve skills, productivity, and job opportunities. However, the number of industries was found to have no effect on the unemployment rate, contradicting Keynesian theory. This is due to a mismatch between worker skills and industry needs. Meanwhile, economic growth negatively impacts the unemployment rate, consistent with Adam Smith's classical theory.

Reforms to the Indonesian education system are needed to address the mismatch between graduate skills and job market demands. The government can also promote local economic development and skills training for the unemployed workforce. Future research is expected to examine the reasons for Indonesia's declining labor absorption capacity.

### References

- Ansori, M. I., Mustari, M., Hakim, M., & Makki, M. (2025). *Analisis Faktor Pendukung Dan Penghambat Implementasi Teaching Factory ( TEFA ) Dalam Meningkatkan Kesiapan Kerja Siswa Konsentrasi Keahlian Teknik Sepeda Motor SMK Negeri 1 Gangga*. 7(2), 384–395. <https://doi.org/10.37216/badaa.v7i2.2623>
- Astari, N. W. (2019). Pengaruh Investasi dan Pertumbuhan Ekonomi Terhadap Penyerapan Tenaga Kerja di Provinsi Bali. *E-Jurnal EP Unud*, 8(6), 1391–1419.
- Azzahra, S. F., Putri, L. D., Purba, F. Y., Tanjung, D., Rezkitaputri, A., & Zulva, Ra. Z. D. (2024). Dampak Pengangguran Terhadap Stabilitas Sosial dan Perekonomian Indonesia. *Menawan: Jurnal Riset Dan Publikasi Ilmu Ekonomi*, 2(4), 220–233.
- Badan Pusat Statistik. (2023). *Tingkat Pengangguran Terbuka Berdasarkan Tingkat Pendidikan*. <https://www.bps.go.id/id/statistics-table/2/MTE3OSMy/tingkat-pengangguran-terbuka-berdasarkan-tingkat-pendidikan.html>
- Bappenas. (2023). *Penduduk Berkualitas Menuju Indonesia Emas*. Bappenas.
- Becker, G. S. (1964). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. National Bureau of Economic Research.
- BKKBN. (2024). *Laporan Kependudukan Indonesia 2024*. Badan Kependudukan dan Keluarga Berencana Nasional.
- BPS. (2021a). *Booklet Sakernas*.
- BPS. (2021b). *Ekonomi Indonesia 2020 Turun Sebesar 2,07 Persen (c-to-c)*. <https://www.bps.go.id/id/pressrelease/2021/02/05/1811/ekonomi-indonesia-2020-turun-sebesar-2-07-persen--c-to-c-.html>
- BPS. (2023). *Laju Pertumbuhan PDB Seri 2010*. <https://www.bps.go.id/id/statistics-table/2/MTA0IzI=-/seri-2010--laju-pertumbuhan-pdb-seri-2010--persen-.html>
- BPS. (2023b). *Statistik Ketenagakerjaan Kabupaten Mappi 2023*. BPS.

- BPS. (2024). *Tingkat Pengangguran Terbuka Menurut Provinsi*. <https://www.bps.go.id/id/statistics-table/2/NTQzIzI=/tingkat-pengangguran-terbuka-menurut-provinsi.html>
- Chowdhury, M. S. R., & Hossain, M. T. (2014). Determinants of Unemployment in Bangladesh: A Case Study. *SSRN Electronic Journal*, 4(3), 16–20.
- Damayanti, D., Akadun, & Milwan. (2025). Pengaruh Pertumbuhan Ekonomi , Jumlah Penduduk , Tingkat Inflasi Dan Indeks Pembangunan Manusia Terhadap Tingkat Pengangguran Terbuka di Kota Tarakan Tahun 2011-2023. *Ganaya: Jurnal Ilmu Sosial Dan Humaniora*, 8(2), 260–269.
- Febriani, E., & Syafitri, W. (2023). Dampak Pendidikan dan Pertumbuhan Industri Pengolahan Terhadap Pengangguran. *Journal of Development Economics and Social Studies*, 2(1), 1–8.
- Frisnoiry, S. (2020). Analisis Permasalahan Pengangguran di Indonesia. *Jurnal Ilmiah Komputerisasi Akuntansi*.
- Hasanah, U. F. (2016). Analisis Penyerapan Tenaga Kerja pada Industri Menengah dan Besar Se-Karesidenan Pekalongan Tahun 2008-2013. Universitas Muhammadiyah.
- Khairul Fatihin, N. (2016). Pertumbuhan Ekonomi, Jumlah Penduduk, dan Pendidikan Terhadap Pengangguran Terbuka di DIY Tahun 2010-2014. In Universitas Muhammadiyah Yogyakarta.
- Khodijah. (2019). Analisis Faktor Penyebab Pengangguran di Indonesia. *Jurnal Ekonomi Dan Kebijakan Publik*.
- Kurniawan, B., Sunarya, S. R., Naofal, F., & Sudarjah, G. M. (2021). Indeks Harga Ekspor, Inflasi, Pengangguran Serta Pengaruhnya Terhadap Pendapatan Nasional Indonesia dan Korea. *Jurnal Riset Ilmu Ekonomi*, 1(3), 120–130.
- Mu'minah, S., & Tjenreng, M. B. Z. (2025). Desentralisasi dan Ketimpangan Pembangunan Antar Daerah. *Scientific Journal of Reflection: Economic, Accounting, Management and Bussiness*, 8(1), 342–351.
- Rahmanita, C. F., & Usman, U. (2023). Pengaruh Pertumbuhan Penduduk Dan Pertumbuhan Ekonomi Terhadap Pengangguran Terbuka Di Wilayah Sumatera. *Jurnal Ekonomika Indonesia*, 12(1), 32. <https://doi.org/10.29103/ekonomika.v12i1.12211>
- Romi, Darmawan, A. I., Yusuf, A. N., & Munawar, W. (2024). *Persepsi Siswa SMK Terhadap Praktek Kerja Lapangan Dalam Membentuk Peningkatan Softskill*. 8(12), 240–246.
- Samosir. (2023). Perkembangan Indeks Produksi Industri Manufaktur. *Jurnal Universitas*

*Siliwangi.*

Septiana, M., & Asmara, K. (2024). Pengaruh Pertumbuhan Ekonomi, Jumlah Industri dan Pendidikan Terhadap Tingkat Pengangguran Terbuka di Kabupaten Sidoarjo. *JPEK*, 8(2), 668–677.

Todaro, M., & Smith, S. C. (2018). *Pembangunan Ekonomi*. Erlangga.