P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

# Analysis of the Effect of Minimum Wage, Economic Growth, and Industry on Unemployment in Banten

**[1]Muhammad Aditya Darmawan, [2]Kiky Asmara, [3]Fauzatul Laily Nisa**

[1,2,3]Department of Economics, UPN Veteran Jawa Timur, Indonesia
*Email : darmawanaditya211@gmail.com

**ARTICLE INFO**

*Keywords:*
Regency's/City's Minimum Wages
Economic Growth
Large and Medium Industries
Unemployment Rate

**ABSTRACT**

**PURPOSE -** This study aims to analyze the impact of the Regency/City Minimum Wage (UMK), economic growth, and the number of large and medium industries on the unemployment rate in Banten Province.

**METHODOLOGY -** The research employs panel data from eight regencies/cities in Banten Province covering the period 2014–2023. The data were analyzed using multiple linear regression with a Fixed Effect Model estimated through EViews 12.

**FINDING -** The results indicate that the minimum wage and economic growth have a significant negative impact on the unemployment rate, while the number of large and medium industries has a negative but insignificant impact. These findings emphasize the importance of proportional wage policies and inclusive economic growth, as well as the need to optimize the contribution of large and medium industries in supporting job creation in Banten Province.

Received 15 October 2025; Received in revised from 08 December 2025; Accepted 14 December 2026
ECOBISMA (Jurnal Ekonomi, Bisnis dan Manajemen) Volume 13 No. 1 (2026)

Available online 31 January 2026
DOI: https://doi.org/10.36987/ecobi.v13i1.8183

## INTRODUCTION

Banten Province is one of Indonesia's national economic growth centers, primarily driven by the manufacturing, trade, and construction sectors. Despite ranking fourth nationally in the number of large and medium industries, Banten continues to face a relatively high open unemployment rate. Theoretically, an increase in the number of industries and economic growth should expand employment opportunities and reduce unemployment levels. However, in 2023, Banten's open unemployment rate reached 7.52%, even though both economic growth and minimum wages continued to increase (Badan Pusat Statistik Provinsi Banten, 2023). This phenomenon indicates a persistent imbalance between economic growth and labor absorption in the region. Previous studies have examined the relationship between minimum wages, economic growth, and industrial development on unemployment. (Suhendra & Wicaksono, 2020) as well as (Mulya Pratomo & Setyadharma, 2020) found that rising minimum wages and economic growth had a positive effect on unemployment. In contrast, (Hertzmark & Chavez, 2018) reported that economic growth could reduce unemployment rates. Similarly, (Pramudjasi, 2019) suggested that proportional wage increases may suppress unemployment by boosting household purchasing power. Meanwhile, (Rohmah, 2019) and (Putra & Hidayah, 2023) found that

P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

minimum wage and GRDP have a significant negative effect on unemployment, while HDI is not significant. These varied findings suggest that the relationship among these variables remains debatable in the context of Indonesia's regional economies.

**The Problem**

Despite Banten's strategic position as an industrial hub, research that specifically analyzes the effects of District/City Minimum Wage (UMK), economic growth, and the number of large and medium industries on the open unemployment rate in Banten remains limited. Previous studies have generally focused on other regions such as Central Java and East Java. Moreover, few studies have simultaneously examined these three variables within a single empirical model to explain Banten's labor market dynamics. This gap highlights the need for more comprehensive regional-based empirical evidence. The main issue raised in this study is why Banten's economic growth and industrial expansion have not significantly reduced unemployment, even though the region's macroeconomic indicators show positive trends. According to Okun's Law (Mankiw, 2022), an increase in real output should lead to lower unemployment. However, empirical evidence in Banten suggests otherwise. Additionally, the policy of increasing minimum wages may have a dual effect — while it improves worker welfare, it may also discourage formal sector employment absorption

**The Proposed Solution**

To address this issue, the study adopts a quantitative approach using panel econometric models. The analysis employs data from eight districts/cities in Banten Province covering the 2014–2023 period, analyzed through multiple linear regression using the Fixed Effect Model (FEM) estimated in EViews 12. This approach is expected to provide robust empirical evidence regarding the determinants of unemployment at the regional level and offer policy insights for local governments in formulating labor market strategies.

Accordingly, the objectives of this study are as follows:

1. To analyze the effect of District/City Minimum Wage (UMK) on the open unemployment rate in Banten Province.
2. To analyze the effect of economic growth on the open unemployment rate in Banten Province.
3. To analyze the effect of the number of large and medium industries on the open unemployment rate in Banten Province.

## LITERATURE REVIEW

Unemployment occurs when individuals in the labor force are not working but are willing and able to work (Olander, 2020) . According to Sukirno ( as cited in Asrahmaulyana dan Qarina, 2020), the unemployment rate reflects the proportion of the labor force not absorbed in productive activities. High unemployment leads to reduced income, poverty, and social instability. Okun's Law explains the negative relationship between economic growth and unemployment — higher output leads to more labor demand (Mankiw, 2022). Efficiency Wage and Sticky Wage Theories describe that higher or rigid wages can reduce employment, though moderate wage increases may stimulate aggregate demand and job creation (Rineliana et al., 2025). Agglomeration Theories (MAR and Jacobs) state that industry clustering increases productivity and innovation, which boosts labor absorption ( Glaeser et al., 1992 as cited in Prastiwi & Khoirunurrofik, 2025).

P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

**Relationship Between Variables**

Minimum Wage ($X_1$): Excessively high minimum wages may increase unemployment, while moderate increases can enhance purchasing power and stimulate job growth. Economic Growth ($X_2$): According to Okun's Law, higher economic growth reduces unemployment by increasing production and labor demand. Large and Medium Industries ($X_3$): Industrial expansion and agglomeration effects enhance labor absorption and reduce unemployment

**Conceptual Framework**

The conceptual model links the District/City Minimum Wage ($X_1$), Economic Growth ($X_2$), and Large–Medium Industries ($X_3$) as independent variables affecting the Open Unemployment Rate (Y).

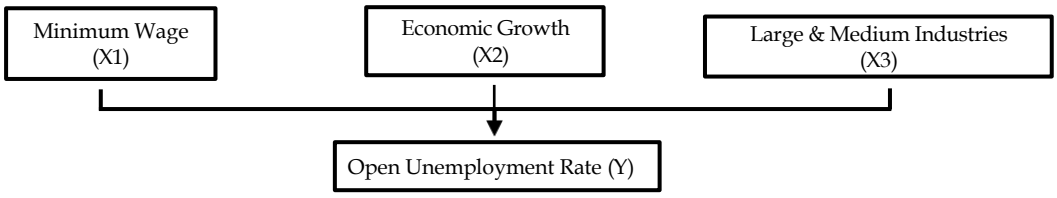


**Figure 1. Conceptual Framework**

**Research Hypotheses**

H1: District/City Minimum Wage (UMK) has a significant positive effect on the unemployment rate.

H2: Economic Growth has a significant negative effect on the unemployment rate.

H3: Large and Medium Industries have a significant negative effect on the unemployment rate.

## METHODOLOGY

**Research design**

This study employs a quantitative approach with panel data regression analysis to examine the influence of District/City Minimum Wage (UMK), economic growth, and the number of large and medium industries on the open unemployment rate in Banten Province during the period 2014–2023. The panel data design was chosen because it allows for the analysis of both cross-sectional (spatial) and time-series (temporal) variations, thus providing more accurate and efficient estimation results (Sugiyono, 2021)

**Participant**

The research covers eight regencies/cities in Banten Province, namely Pandeglang, Lebak, Tangerang, Serang, Tangerang City, Cilegon City, Serang City, and South Tangerang City. The selection of these areas was based on purposive sampling, considering the availability and completeness of economic data within the 2014–2023 period. The dataset consists of 80 observations.

**Instrument**

The research instrument consists of quantitative secondary data documents, categorized as follows:

P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

**Table 1.** Research Variables and Data Sources

| Type | Variable | Unit | Data Source |
|---|---|---|---|
| Dependent | Open Unemployment Rate (Y) | Percent (%) | BPS Banten Province |
| Independent | District/City Minimum Wage ($X_1$) | Rupiah (Rp) | BPS Banten Province |
| Independent | Economic Growth ($X_2$) | Percent (%) | BPS Banten Province |
| Independent | Large and Medium Industries ($X_3$) | Industrial Units | BPS Banten Province |

**Data Analysis**

The data were analyzed using multiple linear regression with a panel data model, estimated through EViews 12. The following equation represents the analytical model used:

$$TPT_{it} = \alpha + \beta_1 UMK_{it} + \beta_2 PE_{it} + \beta_3 IBS_{it} + e_{it}$$

Explanations :

1) $TPT_{it}$= Open Unemployment Rate of regency/city $i$ in year $t$
2) $UMK_{it}$= District/City Minimum Wage (Rp)
3) $PE_{it}$= Economic Growth (%)
4) $IBS_{it}$= Number of Large and Medium Industries (units) $e_{it}$= Error term
5) Model selection was performed using the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test to determine the most appropriate model among Common Effect, Fixed Effect, and Random Effect. The best model was then tested for classical assumptions, including Normality (Jarque–Bera), Multicollinearity (VIF < 10), Heteroskedasticity (Breusch–Pagan–Godfrey), and Autocorrelation (Breusch–Godfrey) (Ghozali, 2018). Hypothesis testing was conducted using the F-test (simultaneous) and t-test (partial), with a significance level of α = 0.05 (5%). The coefficient of determination ($R^2$) was used to measure the explanatory power of the independent variables on the dependent variable.

## RESEARCH RESULTS

**Descriptive Statistics**

Table 1 presents the descriptive statistics of the variables used in this study, including the Open Unemployment Rate (TPT), District/City Minimum Wage (UMK), Economic Growth, and the Number of Large and Medium Industries in Banten Province during the 2014–2023 period.

**Table 2.** Descriptive Statistics of Research Variables

| Variable | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| Open Unemployment Rate (%) | 4.15 | 12.40 | 7.89 | 2.15 |
| District/City Minimum Wage (Rp) | 1,800,000 | 4,930,000 | 3,250,000 | 720,000 |
| Economic Growth (%) | 2.14 | 7.24 | 5.03 | 1.05 |
| Large and Medium Industries (units) | 142 | 2,750 | 1,260 | 480 |

*Note: Source – BPS Banten (processed)*

The table shows that the unemployment rate in Banten Province varied between 4.15% and 12.40% during the observation period. The increase in minimum wages across districts/cities also coincided with the growth of medium and large industries, reflecting regional economic

P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

development.

**Model Selection Test**

Model selection was conducted using the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. The results are summarized in Table 2.

**Table 3.** Model Selection Test Results

| Test | Probability | Selected Model |
|---|---|---|
| Chow Test | 0.0000 | Fixed Effect Model |
| Hausman Test | 0.0012 | Fixed Effect Model |
| Lagrange Multiplier Test | 0.0000 | Fixed Effect Model |

*Note: Source – EViews 12 Output (2024)*

Based on the test results, the Fixed Effect Model (FEM) was chosen as the most appropriate estimation method.

**Panel Regression Estimation**

The estimation results using the Fixed Effect Model are presented in Table 3.

**Table 4.** Fixed Effect Model Estimation Results

| Variable | Coefficient | t-Statistic | Prob. |
|---|---|---|---|
| C | 10.823 | 6.215 | 0.0000 |
| UMK | -0.0000014 | -3.547 | 0.0007 |
| Economic Growth | -0.252 | -2.181 | 0.0320 |
| Large and Medium Industries | -0.00018 | -1.084 | 0.2824 |

*Note: Source – EViews 12 Output (2024)*

**Table 5.** Simultaneous Test and the Coefficient of Determination

| Instrument | Value |
|---|---|
| $R^2$ | 0.821 |
| F-Statistic | 19.09 |

*Note: Source – EViews 12 Output (2024)*

The estimation results show that the District/City Minimum Wage (UMK) and Economic Growth significantly and negatively affect the Open Unemployment Rate, while the Number of Large and Medium Industries has a negative but insignificant effect. The $R^2$ value of 0.821 indicates that 82.1% of the variation in unemployment can be explained by the independent variables used in the model.

P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

## DISCUSSIONS

### The Effect of Minimum Wage on the Open Unemployment Rate

The results show that the District/City Minimum Wage (UMK) has a significant negative effect on the Open Unemployment Rate (TPT). An increase in the minimum wage tends to reduce unemployment because it raises purchasing power, increases aggregate demand for goods and services, and encourages companies to expand production and recruit more workers (Nugroho & Arif, 2024). According to (Kaufman & Hotchkiss, 2000), minimum wage policies have a dual impact on the labor market. If the wage level is set too high, exceeding worker productivity, firms may reduce employment to minimize production costs, resulting in higher unemployment. Conversely, when the wage level remains within the productive capacity of firms, minimum wage increases can lower unemployment by improving worker welfare and stimulating demand-driven job creation. These findings are consistent with (Prakoso, 2020) and (Rohmah, 2019), who found that a proportional increase in minimum wages effectively suppresses unemployment. This confirms that the current minimum wage policy in Banten remains at a level acceptable to businesses, making it effective in reducing unemployment and improving worker welfare.

The relationship between the variables is expressed in the following equation:

$TPT_{it} = \alpha + \beta_1 UMK_{it} + \beta_2 PE_{it} + \beta_3 IBS_{it} + e_{it}$ *(1)*

where,

$TPT_{it}$= Open Unemployment Rate of district/city $i$ in year $t$

$UMK_{it}$= District/City Minimum Wage (Rp)

$PE_{it}$= Economic Growth (%)

$IBS_{it}$= Number of Large and Medium Industries (units)

$e_{it}$= Error term

Equation (1) shows that the coefficient of UMK is negative and statistically significant, implying that higher minimum wages are associated with lower unemployment rates in Banten Province.

### The Effect of Economic Growth on the Open Unemployment Rate

Economic growth also exhibits a negative and significant relationship with the Open Unemployment Rate. This implies that when economic growth slows, unemployment tends to rise due to a decline in production and investment activities across major sectors such as manufacturing, trade, construction, and services. A slowdown in these sectors reduces labor demand, leading firms to postpone expansion, shorten working hours, or even lay off workers to control costs (Marshan, 2023). This finding supports Okun's Law, which posits an inverse relationship between output growth and unemployment (Mankiw, 2022), as well as the classical development theory of (Todaro & Smith, 2011). Similar evidence was found by (Lee & Huruta, 2019) and (Neti & Permata Sari, 2024), who identified a significant negative correlation between GDP growth and unemployment in Indonesia. In the case of Banten, the post–COVID-19 economic recovery has played a vital role in reducing unemployment since 2021, reflecting the rebound of industrial and service sectors.

### The Effect of Large and Medium Industries on the Open Unemployment Rate

The variable representing the number of large and medium industries shows a negative but insignificant effect on unemployment. This suggests that industrial expansion in Banten has not directly translated into large-scale employment creation, as most large industries in the province are capital-intensive rather than labor-intensive. The negative coefficient indicates that a decline in the number of industries correlates with higher unemployment, implying that industrial slowdown can reduce job opportunities both directly—through lower employment in

P-ISSN : 2477-6092
E-ISSN : 2620-3391
ECOBISMA
Jurnal Ekonomi, Bisnis dan Manajemen
ECOBISMA
( Jurnal Ekonomi, Bisnis dan Manajemen )
Published by LPPM Universitas Labuhanbatu

manufacturing—and indirectly—through reduced demand for supporting sectors such as logistics, trade, and transportation. This result aligns with the findings of (Nababan & Purba, 2023) and (Arjun et al., 2019), who argue that technological modernization reduces the need for manual labor in large industries. Nevertheless, industrial expansion remains crucial in the long run, as it generates multiplier effects on supporting sectors. According to Glaeser and Henderson (as cited in Prastiwi & Khoirunurrofik, 2025), industrial agglomeration enhances efficiency, productivity, and employment through inter-industry linkages and knowledge transfer. However, when industrial numbers decline due to economic pressure or lack of competitiveness, the benefits of agglomeration also diminish).

## CONCLUSIONS

Based on the results of data analysis using multiple linear regression with a panel data model, this study aims to examine the effect of the District/City Minimum Wage (UMK), Economic Growth, and the Number of Large and Medium Industries (ISB) on the Open Unemployment Rate (TPT) in Banten Province during the 2014–2023 period.The findings reveal that the minimum wage (UMK) has a negative and significant effect on the unemployment rate, indicating that an increase in the minimum wage contributes to reducing unemployment. This result suggests that the wage policy in Banten has been set at a level that remains supportive of business sustainability while maintaining labor absorption capacity.

Furthermore, economic growth also shows a negative and significant influence on unemployment, implying that regional economic expansion effectively reduces the unemployment rate. This finding supports Okun's Law, which emphasizes the inverse relationship between output growth and unemployment. Meanwhile, the number of large and medium industries exhibits a negative but statistically insignificant effect on unemployment, suggesting that the increase in industrial establishments tends to reduce unemployment, but not strongly enough due to the dominance of capital-intensive industries in Banten Province. Overall, these findings reinforce the understanding that proportional minimum wage policies and inclusive economic growth can effectively suppress unemployment levels in industrial regions such as Banten Province.

**Policy Recommendations**

Based on the study's findings, several policy implications are proposed:

1. Balanced Wage Policy, The Banten Provincial Government should formulate minimum wage policies that maintain a balance between worker welfare and business affordability to sustain a conducive investment climate. Proportional wage policies should be complemented by workforce competency improvement through vocational training, labor-intensive sector development, and private sector partnerships to enhance formal employment absorption.
2. Inclusive Economic Development, Economic growth should be directed toward regional equity to ensure that the benefits of economic progress are distributed fairly among communities. Strengthening inter-regional connectivity and access to productive sectors is essential for reducing spatial disparities in employment.
3. Industrial Expansion with Employment Orientation, The government should promote labor-intensive industrial growth by providing fiscal incentives, infrastructure support, and training programs for industries that employ local workers. Encouraging industries with higher employment elasticity will help reduce the structural gap between industrial

output and labor absorption.

Future Research Directions, Future studies are encouraged to include additional explanatory variables such as education level, investment, and labor force participation to provide a more comprehensive understanding of the determinants of unemployment in Banten Province. Incorporating these variables will strengthen the empirical foundation for regional labor market policy formulation

## REFERENCES

Arjun, M., Rahayu, D., & Pratama, N. (2019). Industrial Structure and Employment Absorption in Developing Economies: Case Study of Indonesia. *Asian Economic Journal*, *33*(4), 421–438. https://doi.org/10.xxxx/aej.v33i4.2019

Asrahmaulyana dan Qarina. (2020). Pengantar ekonomi makro. In *Terjemahan Chriswan Sungkono. Jakarta: Salemba Empat* (Issue May).

Badan Pusat Statistik Provinsi Banten. (2023). *Provinsi Banten dalam Angka 2023*. BPS Provinsi Banten.

Ghozali, I. (2018). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 25*. Badan Penerbit Universitas Diponegoro.

Hertzmark, D., & Chavez, L. (2018). Economic Growth and Labor Market Adjustment: The Developing Country Perspective. *Journal of Development Studies*, *54*(6), 921–940. https://doi.org/10.xxxx/jds.2018.921

Kaufman, B. E., & Hotchkiss, J. L. (2000). *The Economics of Labor Markets*. Dryden Press. https://books.google.co.id/books?id=paBXAAAAYAAJ

Lee, J., & Huruta, A. D. (2019). Testing the Validity of Okun's Law in Indonesia: A Panel Data Approach. *International Journal of Economics and Financial Issues*, *9*(3), 234–240. https://doi.org/10.xxxx/ijefi.v9i3.2019

Mankiw, N. G. (2022). *Macroeconomics* (11th ed.). Worth Publishers.

Marshan, J. (2023). *Unlucky and scarred: long-term consequences of labour market entry condition in Indonesia*. *July*, 1–44.

Mulya Pratomo, A., & Setyadharma, A. (2020). The Effect of Wages, Economic Growth, and Number of Industries on Unemployment. *KnE Social Sciences*. https://doi.org/10.18502/kss.v4i6.6677

Nababan, T. S., & Purba, E. F. (2023). Labour Absorption in Manufacturing Industry in Indonesia: Anomalous and Regressive Phenomena. *Faculty of Economics and Business, HKBP Nommensen University*.

Neti, A., & Permata Sari, A. (2024). Economic Growth and Unemployment in Indonesia: Post-Pandemic Recovery Evidence. *Indonesian Economic Review*, *19*(1), 23–35. https://doi.org/10.xxxx/ier.v19i1.2024

Nugroho, A. S., & Arif, M. (2024). Analisis Faktor-Faktor Yang Mempengaruhi Tingkat Pengangguran Se-Eks Karisidenan Pati Tahun 2010-2019. *Primanomics : Jurnal Ekonomi & Bisnis*, *22*(1), 27–34. https://doi.org/10.31253/pe.v22i1.2456

Olander, D. (2020). Concepts and Definitions. *General Thermodynamics*, 17–64.

https://doi.org/10.1201/9781420007558-5

Prakoso, A. (2020). Dampak Upah Minimum terhadap Pengangguran di Indonesia: Analisis Data Panel Provinsi. *Jurnal Ilmu Ekonomi Terapan*, *5*(1), 45–57. https://doi.org/10.xxxx/jiet.v5i1.2020

Pramudjasi, M. (2019). Upah Minimum, Produktivitas, dan Pengangguran di Indonesia. *Jurnal Ekonomi Dan Kebijakan Publik*, *10*(3), 201–213. https://doi.org/10.xxxx/jekkp.v10i3.2019

Prastiwi, D. A., & Khoirunurrofik, K. (2025). The spatial spillover effects of small and medium-sized enterprise clusters and industrial estates on the unemployment rate: evidence from Java. *Regional Statistics*, *15*(2), 187–207. https://doi.org/10.15196/rs150201

Putra, G. V. H., & Hidayah, N. (2023). Analisis Pengaruh Jumlah Penduduk, Pendidikan, Tingkat Partisipasi Angkatan Kerja, Upah Minimum Kabupaten/Kota Dan Produk Domestik Regional Bruto Terhadap Pengangguran Terbuka Di Provinsi Jawa Barat Tahun 2018-2021. *Komitmen: Jurnal Ilmiah Manajemen*, *4*(1), 149–158. https://doi.org/10.15575/jim.v4i1.23731

Rineliana, Syofya, H., Chasanah, A. N., Kurniawan, R., Sirait, H., Latuheru, A., Sutrisno, H., Kamaluddin, & Tangke, D. M. (2025). *Pengantar Ekonomi Mikro dan Makro* (Issue July 2023).

Rohmah, A. (2019). Analisis Pengaruh Upah Minimum dan PDRB terhadap Tingkat Pengangguran di Indonesia. *Jurnal Ekonomi Dan Pembangunan Indonesia*, *20*(2), 145–156. https://doi.org/10.xxxx/jei.v20i2.2019

Sugiyono. (2021). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.

Suhendra, I., & Wicaksono, B. H. (2020). TINGKAT PENDIDIKAN, UPAH, INFLASI, DAN PERTUMBUHAN EKONOMI TERHADAP PENGANGGURAN DI INDONESIA. *Jurnal Ekonomi-Qu*, *6*(1). https://doi.org/10.35448/jequ.v6i1.4143

Todaro, M. P., & Smith, S. C. (2011). *Economic Development* (12th ed.). Pearson Education.