UNS Fintech Center | Bulletin of Fintech and Digital Economy

The Influence of Economic Growth, Human Development Index, and Minimum Wages on Open Unemployment Rate In Banten Province 2017-2023

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Abstract:
The purpose of this study is to ascertain how the minimum wage, human development index (HDI), and economic growth affect the unemployment rate in Banten Province between 2017 and 2023. This study employs a quantitative methodology using secondary data in the form of panel data, which includes cross-sectional data from eight districts and cities in Banten Province as well as time series data spanning seven years (2017–2023). Panel data regression using the Fixed Effect Model (FEM) approach is the analysis technique employed. The analysis's findings indicate that the unemployment rate in Banten Province is negatively and significantly impacted by economic growth, negatively and significantly impacted by HDI, negatively and significantly impacted by MSE, and positively and significantly impacted by the COVID-19 pandemic.

JEL: D63, O33

Keywords:
Open Unemployment Rate, Economic Growth, Human Development Index, Minimum Wages, Covid-19

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DOI: 10.20961/bfde.v6i1.103952

1. Introduction

The problem of employment, especially unemployment, is an issue that is often faced by every country, especially developing countries. Unemployment occurs when the number of labor force is not proportional to the available jobs, so that most of the labor force is not absorbed optimally (Sukirno, 2008). The high level of unemployment is an indicator of labor market imbalance in the use of production factors, which has an impact on people's welfare. In the Southeast Asian region, the unemployment condition between countries shows a significant gap. According to Trading Economics (2024), Indonesia recorded the highest unemployment rate at 5.32% followed by Brunei Darussalam at 5.30%. The high unemployment rate is a big challenge for Indonesia in achieving the Sustainable Development Goals (SDGs), especially point 8 on decent work and economic growth (Badan Pusat Statistik, 2023b).

The high unemployment rate in a country is certainly inseparable from the unemployment rate in each region. One of the provinces with a consistently high unemployment rate is Banten Province. According to the Badan Pusat Statistik (2023b) in 2023 Banten Province recorded an unemployment rate of 7.52%, the highest in Indonesia and always above the national average. This condition indicates that although Banten has several large industrial estates, there is still an imbalance between labor demand and supply. Other factors such as migration flows from surrounding areas also put pressure on the labor market. To overcome this problem, it is necessary to analyze economic indicators that can affect the unemployment rate, such as economic growth, Human Development Index (HDI), and minimum wage.

Because increased output of goods and services tends to raise labor demand, economic expansion plays a significant influence in job creation. According to Badan Pusat Statistik (2023b), Banten Province's economic development fluctuated between 2017 and 2023, with the pandemic causing a steep decrease in 2020. In addition, the HDI of Banten Province also shows an increasing trend and is in the high category (>70), which reflects the better quality of human resources (Badan Pusat Statistik, 2023a). In the perspective of Human Capital theory, improving the quality of education, health, and income will increase the competitiveness of the workforce so that it is more easily absorbed in the labor market. On the other hand, an increasing minimum wage can have a double effect: from the worker's side, it provides better welfare, but from the company's side, it can reduce labor absorption due to increased production costs (Mankiw, 2006). The impact of economic growth, HDI, and minimum wage on the unemployment rate has been the subject of conflicting findings in a number of prior research. As a result, more study with more precise area coverage and the most recent data range—including the time frame before to and following the pandemic—is required. The purpose of this study is to examine how the minimum wage, HDI, and economic growth affect Banten Province's open unemployment rate between 2017 and 2023.

2. Literature Review

2.1 The relationship between economic growth and the unemployment rate

Theoretically, Arthur Okun's Law explains the connection between economic growth and the unemployment rate. According to this idea, the rate of unemployment and economic growth are negatively correlated. Generally speaking, the unemployment rate will drop by around 1% for every 2% growth in the GDP. This is due to the fact that economic expansion stimulates demand for products and services, which in turn stimulates higher output and labor demand (Mankiw, 2006). Therefore, it is anticipated that economic expansion will boost employment and decrease unemployment.

The significance of Okun's Law hypothesis is reinforced by research conducted in Sidoarjo Regency by Yuniarti & Imaningsih (2022), which demonstrates that economic expansion significantly lowers the unemployment rate. Similarly, study conducted in East Java by Bethmarth et al. (2020) found that unemployment is significantly impacted negatively by Gross Regional Domestic Product (GRDP), a measure of economic growth. This suggests that because there are more job prospects in areas with strong economic growth, unemployment rates are often lower.

2.2 Relationship between Human Development Index (HDI) and unemployment rate

Human capital theory explains that high quality human resources will increase the productivity and competitiveness of individuals in the labor market. HDI measures human quality through the dimensions of education, health, and living standards. With an increase in HDI, people have better access to education, better health, and higher per capita expenditure, all of which contribute to increasing one's chances of obtaining a decent job and lowering the unemployment rate (Todaro, 2011).

According to research by Mangirang et al. (2023), HDI significantly lowers the jobless rate in Minahasa Regency, indicating that raising community standards of living can lower the unemployment rate. Dewi & Setiawina (2023) discovered similar results and came to the conclusion that the unemployment rate is directly impacted by the quality of human resources, which is a component of HDI. This demonstrates that investing in raising HDI is a crucial tactic for lowering open unemployment.

1.3 Relationship between Minimum Wage and Unemployment Rate

The Wage Efficiency Theory explains that higher wages can increase worker productivity and loyalty, which in turn reduces employee turnover and increases firm efficiency (Mankiw, 2006). However, from a labor market perspective, a minimum wage that is too high may cause firms to reduce labor recruitment due to increased costs, which may lead to an increase in the unemployment rate, especially for less skilled workers.

The wage efficiency argument is supported by research by Anjarwati & Juliprijanto (2021), who found that the minimum wage significantly lowers the rate of educated unemployment in Java. On the other hand, Rofik et al. (2018) discovered that the minimum wage has a beneficial impact on West Kalimantan's unemployment rate, suggesting that raising the minimum wage actually promotes higher unemployment. This disparity in findings implies that the impact of minimum wages on unemployment is strongly influenced by the local environment and the composition of each region's labor market.

3. Data and Methodology

In order to investigate the link between the independent and dependent variables, this study used a quantitative technique. The Central Bureau of Statistics (BPS) provided secondary data for this study. Panel data, which combines cross-sectional and time-series components in the research, is the type of data utilized (Gujarati & Porter, 2009). Eight Banten Province districts and cities are the subject of panel data analysis in this study, which spans the years 2017 through 2023.

This research will apply panel data regression analysis as the main method. This approach is used to see the relationship and impact caused by the independent variable on the dependent variable. The regression analysis adopted in this study can be represented through the following equation:

$$TPT_{it} = \beta_0 + \beta_1 LPE_{it,} + \beta_2 IPM_{it} + \beta_3 LNUMKit + \beta_4 DCOVID19_{it} + \varepsilon_{it}$$

Keterangan:

TPT	=	Open Unemployment Rate (percent)
LPE	=	Economic Growth (percent)
IPM	=	Human Development Index (index)
LNUMK	=	District/City Minimum Wage
DCOVID19	=	Dummy Covid-19 (2017-2019 = 0 ; 2020-2023 = 1)
β_0	=	Coefficient Regression
β_1 β_2 β_3 β_4	=	Coefficient Regression Independent
i	=	Data Cross Section 8 District/City Minimum Wage in Banten Province)
t	=	Data Time Series 2017-2023

Three estimate techniques are available for panel data regression: Random Effect Model (REM), Fixed Effect Model (FEM), and Common Effect Model (CEM) (Gujarati & Porter, 2009). A number of model selection tests, including as the Chow, Hausman, and Lagrange Multiplier tests, are necessary to identify the best model among the three. Panel data regression analysis still has to run a number of additional tests once the best model has been chosen. One such test is the classical assumption test, which verifies that the data utilized has satisfied the necessary requirements for the analysis to proceed.

4. Result and Discussion

Descriptive analysis will explain the condition of the data used in this study. Basically, descriptive analysis is useful for knowing how the data is distributed and the characteristics of the data used. Descriptive statistics in this study are shown in Table 1.

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum

DOI : 10.20961/bfde.v6i1.103952

TPT	56	8.764286	1.85066	4.67000	13.06000
LPE	56	4.046250	2.95251	-7.36000	7.49000
IPM	56	73.28554	5.86565	62.95000	83.57000
UMK	56	3.593.791	70.6047	2.127.112	4.657.223

Table 1. Descriptive Statistics
Source: Eviews 12, processed (2025)

This study used the panel data regression approach using the Fixed Effect Model (FEM) as the chosen model to ascertain the link between LPE, HDI, MSE, and the influence of the COVID-19 pandemic on the unemployment rate in Banten throughout the 2017–2023 timeframe. Table 2 displays the panel data regression results using the FEM technique.

Table 2. Fixed Effect Model Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPE (X1)	-0.215612	0.052305	-4.122180	0.0002
IPM (X2)	-0.534876	0.189494	-2.822649	0.0071
LNUMK (X3)	-5.832297	2.747343	-2.122886	0.0394
DUMCOVID19 (X4)	2.716817	0.789624	3.440648	0.0013
C	135.1975	36.90900	3.662995	0.0007

Source: Eviews 12, processed (2025)

From the panel data regression results with the FEM approach in table 2 above, the panel data regression equation can be obtained as follows:

$$TPT_{it} = 135.19 - 0.21LPE_{it}, - 0.53IPM_{it} - 5.83LNUMKit + 2.71DCOVID19_{it} + \varepsilon_{it}$$

Based on the results and model equations above, it can be described as follows:

3.1 Economic Growth Rate on Unemployment Rate

The estimation results of the regression model with the Fixed Effect Model (FEM) approach show that economic growth has a significant effect on the unemployment rate, with a negative coefficient of 0.21. This means that every 1% increase in economic growth can reduce the unemployment rate by 0.21%. This finding is in line with research by Marliana (2022) in Indonesia and Yuniarti & Imaningsih (2022) in Sidoarjo which states that an increase in economic growth tends to reduce unemployment due to increased economic activity and the opening of new jobs. However, this result contradicts the findings of Corolina & Panjawa (2020) in Purwomanggung Region, which states that there is no significant effect.The next test is the optimum lag test. The duration of a variable's impact on other variables that will yield the best outcomes is ascertained using the optimum lag test. This is due to the fact that there is still a certain amount of time before changes in one variable's movement are instantaneously reflected in changes in other variables. Table 4 displays the results of the optimum lag test.

According to the Central Bureau of Statistics (2023), Banten Province has several large manufacturing industrial estates. Economic growth in the pre-COVID-19 period (2017-2019) was relatively stable with an average of 5.59% so that it could contribute to a decrease in the unemployment rate in Banten Province. However, the COVID-19 pandemic in 2020 caused Banten's economic growth to decline to -3.39%, which might lower demand for products and services and lower industrial productivity, leading to widespread layoffs and an increase in the unemployment rate to 10.64%. Following COVID-19, Banten's economic development and activity started to improve, and the unemployment rate also started to decline.

3.2 Human Development Index (HDI) on Unemployment Rate

The FEM model shows that HDI has a significant negative effect on the unemployment rate with a coefficient of -0.53. This means that a 1% increase in HDI can reduce the unemployment rate by 0.53%. This result supports the findings of Mangirang et al (2023) which showed that an increase in the quality of education, health, and income in HDI contributes to a decrease in unemployment, reflecting that good human development improves labor readiness. In contrast, Marliana (2022) found that HDI has no significant effect on unemployment in Indonesia.

An increase in HDI goes hand in hand with a decrease in the unemployment rate, indicating that the quality of human development is quite good. In the period before COVID-19, the HDI condition continued to increase significantly which went hand in hand with a decrease in the unemployment rate. However, during the pandemic in 2020 there was pressure on the education, health and income sectors. In that year, the education system was transferred online, many people's health was threatened, and income was also reduced as a result of layoffs so that the increase in HDI slowed down and caused high unemployment. After the pandemic began to improve, the HDI increased steadily again and was accompanied by a decrease in the unemployment rate.

3.3 Minimum Wage on Unemployment Rate

A 1% rise in the minimum salary reduces the unemployment rate by 5.83%, according to the FEM estimation, which indicates that the minimum wage has a strong negative impact on the unemployment rate with a coefficient of -5.83. This outcome is consistent with studies by Marliana (2022) and Mangirang et al. (2023) that show raising the minimum wage boosts labor welfare and lowers unemployment. These results, however, are at odds with those of Bethmarth et al. (2020) in East Java, who claimed that MSEs had no discernible impact.

Before the COVID-19 pandemic, MSEs contributed to improving the welfare of workers and in line with a stable economy, MSEs also contributed to reducing the unemployment rate. However, in 2020, which was the peak of the COVID-19 pandemic, economic activity fell so significantly that many companies were unable to retain their workers even though the minimum wage was still in effect. This can lead to an increase in the unemployment rate. After the pandemic began to be controlled, economic activity began to recover, which was accompanied by adjustments to the minimum wage, which finally reduced the unemployment rate.

3.4 COVID-19 Pandemic on Unemployment Rate

With a coefficient of 2.71, the regression findings demonstrate that the COVID-19 dummy variable significantly and favorably affects the unemployment rate. This shows that there was a 2.71% increase in the average unemployment rate from 2020 and 2023. This outcome is consistent with studies by Maliqi & Falgenti (2023), which demonstrates that the pandemic has directly increased unemployment in numerous areas.

The COVID-19 pandemic is a disease outbreak faced by the entire global and is very threatening for all sectors, especially economic activity. During the pandemic, many new policies were set by the government such as the Large-Scale Social Restrictions (PSBB) policy which requires people to be able to reduce crowds. With this policy, all industries in Banten reduced their production activities. The productivity of all industries decreased and the demand for goods and services decreased so that many companies could not retain their workers and to reduce production costs, companies carried out massive layoffs and not a few Micro, Small and Medium Enterprises (MSMEs) experienced bankruptcy as a result the unemployment rate in Banten in 2020 jumped to 10.64%.

DOI : 10.20961/bfde.v6i1.103952

5. Conclusion

The unemployment rate in Banten Province is significantly impacted negatively by economic growth, the Human Development Index (HDI), and the minimum wage. In the meanwhile, Banten Province's unemployment rate is significantly and favorably impacted by the COVID-19 epidemic.

In this research, economic growth, Human Development Index (HDI), and minimum wage have a strong enough relationship to reduce the unemployment rate in Banten Province. The higher and more stable economic growth can open up new jobs so that it can reduce unemployment. This of course must be supported by the quality of qualified Human Resources (HR) which can be represented through HDI. In addition, the minimum wage set must also be competitive where the higher the wage, the purchasing power of the community and aggregate demand will increase so that labor market balance will be achieved and can reduce unemployment. Although these three factors can reduce the unemployment rate, there is an unexpected factor that can actually increase the unemployment rate, namely the COVID-19 pandemic.

6. References

Anjarwati, L., & Juliprijanto, W. (2021). Determinan Pengangguran Terdidik Lulusan Perguruan Tinggi Di Pulau JawaTahun 2015-2019. *Jurnal Ekonomi Dan Bisnis Universitas Udayana*, *10*, 178–187.

Badan Pusat Statistik. (2023a). *Indeks Pembangunan Manusia Menurut Kabupaten/Kota di Provinsi Banten*. Indeks Pembangunan Manusia Menurut Kabupaten/Kota di Provinsi Banten, 2023 - Tabel Statistik - Badan Pusat Statistik Provinsi Banten

Badan Pusat Statistik. (2023b). *Indikator Tujuan Pembangunan Berkelanjutan*. https://www.bps.go.id/id/publication/2023/12/29/b949e9778a781b4727d05701/indikator-tujuan-pembangunan-berkelanjutan-indonesia-2023.html

Badan Pusat Statistik. (2023c). *Laju Pertumbuhan PDRB ADHK Menurut Kab/Kota di Provinsi Banten*. Laju Pertumbuhan PDRB ADHK Menurut Kab/Kota di Provinsi Banten - Tabel Statistik - Badan Pusat Statistik Provinsi Banten

Badan Pusat Statistik. (2023d). *Umur Harapan Hidup Menurut Kabupaten/Kota di Provinsi Banten*. https://banten.bps.go.id/id/statistics-table/2/NTIwIzI=/umur-harapan-hidup-saat-lahir--uhh--hasil-long-form-sp2020-menurut-kabupaten-kota-di-provinsi-banten--tahun-.html

Bethmarth, A. V., Nafie, Subagiarta, I. W., & Prianto, F. W. (2020). Determinan Angka Pengangguran Di Jawa Timur Tahun 2007-2017. *Jiep*, *20*(1), 21–30.

Corolina, N. N., & Panjawa, J. L. (2020). Determinan Tingkat Pengangguran: Studi Kasus Wilayah Pengembangan Purwomanggung, Jawa Tengah. *Jurnal Ekonomi Pembangunan*, *9 (1)*, 45–55.

Dewi, K. D. P., & Setiawina, N. D. (2023). Analisis Faktor-Faktor Yang Mempengaruhi Pertumbuhan Ekonomi dan Tingkat Pengangguran Terbuka Di Indonesia. *Jurnal Ekonomi Dan Bisnis Universitas Udayana*, *13*(September 2021), 1427–1442.

Gujarati, D. ., & Porter, D. . (2009). *Dasar Ekonometrika, Edisi kelima*. Salemba Empat.

Maliqi, R., & Falgenti, K. (2023). *Komparasi Klaster Pengangguran Terbuka di Indonesia Sebelum dan Saat Pandemi Covid-19 Menggunakan K-Mean Clustering*. *16*(1), 23–30. https://doi.org/10.30998/faktorexacta.v16i1.15108

Mangirang, G. S., Masinambow, V. A. ., & Masloman, I. (2023). *Analisis Faktor-faktor yang Mempengaruhi Tingkat Pengangguran Di Kabupaten Minahasa*. *23*(10), 13–24.

Mankiw, N. G. (2006). *Pengantar Ekonomi Makro, Edisi Ketiga*. Salemba Empat.

Marliana, L. (2022). *Analisis Pengaruh Indeks Pembangunan Manusia , Pertumbuhan Ekonomi dan Upah Minimum terhadap Tingkat Pengangguran Terbuka di Indonesia*. *6*(1), 87–91. https://doi.org/10.33087/ekonomis.v6i1.490

Rofik, M., Lestari, N. P., & Septianda, R. (2018). Pertumbuhan Ekonomi, Upah Minimum, dan Tingkat Pengangguran di Kalimantan Barat. *Jurnal Inovasi Ekonomi*, *03*, 45–52.

Sukirno, S. (2008). *Makro Ekonomi Modern*. PT. Raja Grafindo Pestada.

Todaro, M. P. (2011). *Pembangunan Ekonomi*. Erlangga.

Trading Economics. (2024). *Unemployment Rate, Asia*. Trading Economics. https://tradingeconomics.com/country-list/unemployment-rate?continent=asia

Yuniarti, Q., & Imaningsih, N. (2022). Pengaruh Pertumbuhan Ekonomi, Tingkat Kemiskinan dan Indeks Pembangunan Manusia terhadap Tingkat Pengangguran Terbuka di Kabupaten Sidoarjo. *Ekonomis: Journal of Economics and Business*, *6*(1), 44. https://doi.org/10.33087/ekonomis.v6i1.474

DOI : 10.20961/bfde.v6i1.103952