

Unemployment Concentration and its Determinants in Java Island Provinces in 2008-2022

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Abstract.

The study aims to analyze the unemployment concentration in the provinces of Java from 2008 to 2022, as well as the influence of population growth, provincial minimum wages, economic growth, and industrial volume on the unemployed concentration of the province of Java between 2008 and 2022. The data used in this study are secondary data published by the Central Statistical Agency. The study uses cross sections of six provinces with time series of 2008-2022. The method used in this study is a concentration index to calculate unemployment concentration and panel data regression to determine the influence of independent variables on dependent variables. The results of this study show that the provinces of DKI Jakarta, West Java, and Banten have a greater than national role in unemployment issues and become the unemployed base provinces in Java Island.

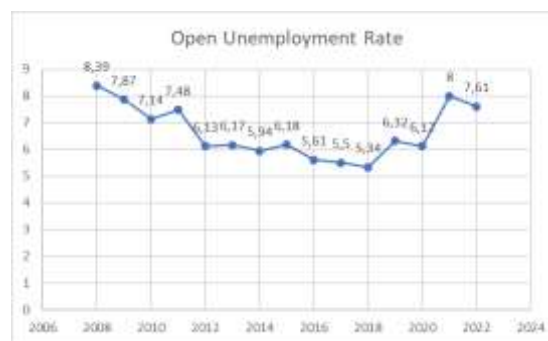
Panel data regression results show that population growth variables have a positive and significant influence on the population concentration, provincial minimum wage variables and economic growth have a negative and significant impact on the unemployee concentration.

Keywords: unemployment concentration, population growth, provincial minimum wage, industry

1. INTRODUCTION

Unemployment is a serious problem affecting the Indonesian economy. Unemployment is a situation where some members of society are unable to obtain employment opportunities so that they are unable to fulfill their economic needs. Unemployment must be resolved immediately because it can cause a high social burden (Kurniawan, 2013).

Figure 1. Open Unemployment Rate in Indonesia for 2008-2022

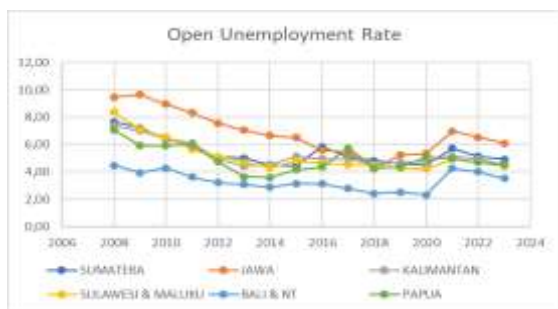


Source : Central Agency of Statistic, 2023

Unemployment in Indonesia has continued to rise in recent years. Although there was a decrease in the number of unemployed people in 2022, to 7.61% compared to 8% in 2021, the total unemployment rate in Indonesia rose to 8.42 million people in August 2022.

With the increasing number of unemployed people in Indonesia, the challenges and problems of job seekers are also increasing. One of the biggest challenges is the high level of competition.

Figure 2. Open Unemployment Rate by Island in Indonesia 2008-2022



Source: Central Agency of Statistic, 2023

Based on Figure 1 and Figure 2 in the period 2008-2022, the average unemployment rate in Java Island reached 6.47 percent. This number is even above the national average of 6.23 percent. This is because Java Island is the island with the largest population in Indonesia, as well as being the center of government, the center of education, and the center of industry, so there is a very tight competition in the search for work. Labor absorption in Java Island is still quite low, this is because the population and the number of labor forces are not balanced with the absorption of labor, which results in higher unemployment (Silvia and Wildan, 2023)

As the center of economic activity and the largest population in Indonesia, Java Island shows complex dynamics related to economic growth and labor. Unemployment is one of the biggest obstacles to economic development, especially in Java. To understand the factors that are related to the level of unemployment concentration in the provinces of Java Island, this phenomenon must be studied thoroughly. Given the significant differences in the analysis of economic and industrial demographic characteristics of the provinces in Java.

Based on the above problems, the researcher is interested in conducting further research by formulating the problem of the influence of Population Growth, Provincial Minimum Wage, Economic Growth and Number of Industries (Large and Medium) on Unemployment Concentration in Java Island Provinces in 2008-2022, and with the aim of knowing and analyzing the concentration of

unemployment in Java Island provinces and the influence of each of these variables.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT (IF ANY)

Unemployment

Unemployment is a situation where a person who belongs to the labor force wants to get a job but has not been able to get it (Sukirno, 2016). Unemployment can occur due to an imbalance in the labor market. This shows that the amount of labor offered exceeds the amount of labor demanded.

According to Sukirno (2016), unemployment is usually divided into 3 (three) types based on the conditions that cause it :

1. Frictional unemployment, which is unemployment caused by an employee's decision to leave their position in search of a more suitable or better job.
2. Structural unemployment, which is unemployment caused by changes in the economic structure.
3. Conjuncture unemployment, which is unemployment caused by a decline in aggregate demand and natural overemployment.

Marius (2004) states that unemployment is usually defined as the labor force that has not worked or is not working optimally. Based on this definition, unemployment can be divided into 3 types :

1. Open Unemployment

Open unemployment refers to the labor force that does not actually have a job. Some of this unemployment occurs because people are unable to find a job despite their best efforts, and some unemployment occurs because people are too lazy to look for a job or too lazy to work.

2. Disguised Unemployment

Unemployment that occurs because the number of workers in each work unit is too large, even though production has not decreased even though the number of workers is reduced to a certain extent. Disguised unemployment can also occur when people who work are not in accordance with their talents and abilities or do not work optimally.

3. Underemployment

Underemployed workers are workers who are temporarily unemployed because they have completed the work they are responsible for. Some say underemployed workers are those who work less than 35 hours a week or less than 7 hours a day.

Unemployment Concentration

Unemployment concentration is a description and comparison of unemployment as seen from one group of people or region to another group or region. Unemployment concentration views unemployment

as a group of people. Unemployment concentration occurs as a result of an imbalance between the supply of labor and the demand for labor in a certain region, causing the creation of an unemployment base in that region.

Unemployment concentration is the level of unemployment in a certain population community and can provide comparative information between regions/states. By using a concentration index, a concentration index value greater than 1 (one) is classified as a region that has a high concentration of unemployment or a region that is the base of unemployment (Hastuti and Artaningtyas, 2016).

Population Growth

Population growth is the change in the population of a region or country over a period of time. Population growth refers to the change in the number of people living in a particular area, and can be calculated as the difference between the birth and death rates, plus or minus the amount of net migration (the difference between the number of immigrants and emigrants). The higher the population growth in an area, the higher the unemployment rate, this is because the number of jobs available does not meet the requirements of a higher population (Ayuningtyas, 2019).

As the population increases from year to year, this has a positive impact on the guarantee of employment, but on the other hand, many people are unemployed because the number of workers is not as large as the number of jobs, very rapid population growth leads to an oversupply of labor and if this does not lead to expansion of employment opportunities, then unemployment problems can arise (Ayuningtyas, 2019).

Provincial Minimum Wage

Based on Government Regulation Number 36 of 2021, wages are the rights of workers or laborers given by employers or employers to workers or laborers which are determined and paid in the form of money in accordance with work regulations, agreements, or applicable regulations. Wages also include benefits for workers or laborers and their families, as well as for work or services that have been performed. If there is an excess supply of labor, wages will fall and this will result in the company's production decreasing, so the demand for labor will continue to increase because the company is able to expand production due to the benefits obtained from low costs. An increase in labor is able to absorb excess labor in the market, if prices are relatively stable (Egeten et al., 2023).

According to the Law. The Central Government has established a wage policy as one of

the efforts to realize the right of workers/laborers to a decent livelihood. The wage component consists of

a. Basic Wage

This is the basic wage paid to workers based on the type of work or agreement. The basic salary usually refers to the minimum wage in the area.

b. Fixed Allowance

This is an allowance that is not influenced by employee attendance factors. Payment of fixed allowances will be made in the same period as payment of basic wages. The calculation of the fixed allowance will not change if the employee is still working in the same position.

c. Non-fixed allowances

This is a type of allowance whose amount may change and in a fixed period as well. Non-fixed allowances can be paid separately with basic salary.

d. Overtime Pay

Is additional income paid when employees have done work outside of official working hours. The amount of overtime pay will be adjusted by the company and the party concerned.

Economic Growth

Economic growth is a process of changing economic conditions that occur in a region on an ongoing basis towards a situation that is considered better over a certain period of time (Ministry of Finance, 2018). Economic growth occurs when a country or region is able to produce goods and services in greater quantities. Strong economic growth can create new jobs, increase people's income, and improve the overall standard of living. In addition, high economic growth also provides opportunities for investment and the development of other economic sectors. However, it is also important to remember that economic growth is not only related to population growth, but also to the fair and sustainable distribution of economic benefits to the community. Sustainable economic growth must consider social, environmental and overall community welfare factors (Siagian, 2016). In Adam Smith's classical theory, any increase in economic growth is expected to absorb labor, so as to reduce the number of unemployed (Anggoro and Soesatyo, 2015).

Number of Industries (Large and Medium)

In the Republic of Indonesia Law No. 3 of 2014 concerning Industry, it is stated that industry is all forms of economy that process raw materials and / or utilize industrial resources so as to produce goods that have added value or higher benefits, including industrial services.

In classifying the industry, it can be classified based on labor :

a. Household industry, which is an industry that uses less than 4 (four) workers. The characteristics of this

industry have very limited capital, labor comes from family members and the owner or manager of the industry is usually the head of the household himself or his family members.

b. Small industry, which is an industry whose workforce amounts to around 3 to 19 people. The characteristics of small industries are that they have relatively small capital, the workforce comes from the surrounding environment or is still related.

c. Medium industry, which is an industry with a workforce of around 20 to 99 people. The characteristics of medium industry are that it has a large enough capital, the workforce has certain skills and the company leader has certain managerial abilities.

d. Large industries, namely industries with a workforce of more than 100 people. The characteristics of large industries are that they have large capital that is collectively collected in the form of shares, the workforce must have specific skills and the company leader is selected through a fit and proper test.

A company definitely needs labor in its production process to produce the desired output. The growth in the number of industries in an area in a sector will have an impact on increasing the number of absorbed labor. The more the number of companies or business units that stand, the more there will be additional labor (Aziz et al., 2022). The medium and large processing industry is one of the industries that absorbs a large enough workforce so that its application is very suitable in Indonesia, which requires a labor-intensive technology industry to reduce the unemployment rate (Nurulaini et al., 2015).

3. RESEARCH METHODS

The type of research used in this research is descriptive quantitative. Descriptive quantitative is a type of research used to analyze data by describing or describing the data that has been collected as it is. Quantitative research method is one type of research whose specifications are systematic, planned and clearly structured from the beginning to the making of the research design.

The object observed or researched by this research is the influence of Population Growth, Provincial Minimum Wage, Economic Growth, and Number of Industries (large and medium) on Unemployment Concentration in Java Island Provinces. Based on the data that has been obtained, namely Population Growth, Provincial Minimum Wage, Economic Growth, and Number of Industries (Large and Medium), an analysis is then conducted to prove the influence of these independent variables on the Concentration of Unemployment in the Provinces of Java Island.

The data used in this research is secondary data. Secondary data is data obtained from sources that have the right to process or provide data. Data sources are obtained from several official websites of agencies or agencies that have the authority to provide secondary data related to the variables used in the study. The data used in this study is panel data which is a combination of time series and cross section data. The time series data used is the time span 2008-2022 and the cross section data is 6 provinces located on the island of Java, namely DKI Jakarta, West Java, Central Java, DIY, East Java, and Banten. The data obtained is secondary data sourced from the Central Bureau of Statistics (BPS). The data are Population Growth, Provincial Minimum Wage, Economic Growth, and Number of Industries (Large & Medium Industries) in 6 Provinces in Java Island as well as data to find the Concentration of Unemployment, namely data on Unemployment and Labor Force of Provinces in Java Island and data on Unemployment and Labor Force of National Provinces which are then calculated using the Concentration Index formula. Other information is sourced from literature studies of several scientific journals and literature books.

This research uses two analytical tools, namely concentration index and panel data regression. Concentration Index is used to calculate the concentration of unemployment in Java Island provinces in 2008-2022. Furthermore, panel data regression is used to determine the influence of independent variables, namely Population Growth, Minimum Wage, Economic Growth, and Number of Industries on the dependent variable, namely unemployment concentration in Java Island provinces in 2008-2022.

Concentration Index

Concentration Index in this study is used to calculate the concentration value of unemployment in each province in Java Island in 2008-2022. According to Hastuti and Artaningtyas (2016), the Concentration Index (CI) formula refers to the geographical concentration model by adjusting the variable names to be :

$$\frac{(Pp/AKp)}{(Pn/AKn)}$$

Description:

- CI = Concentration Index
- Pp = provincial unemployment rate
- AKp = total labor force of the province
- Pn = national unemployment rate (Indonesia)
- AKn = total national labor force (Indonesia)

From the result of Concentration Index calculation, the value can be divided into 3 (three) categories, namely if :

- a. $CI > 1$: the province concerned has a greater role than the national (Indonesia) in the problem of unemployment and becomes an unemployment base province.
- b. $CI = 1$: the province concerned has the same role as the national (Indonesia) in the problem of unemployment.
- c. $CI < 1$: the province concerned has a smaller role than the national (Indonesia) in the unemployment problem.

Panel Data Regression

Panel data is a combination of cross section and time series data. The advantage of using panel data is that it is more comprehensive because it combines the element of time, which means a larger amount of data and can increase the efficiency of parameter estimation (Kartiasih, 2021).

The method used in this analysis is the panel data regression method with the E-views 12 program or software. The same Cross Section unit will be measured in different time periods assuming the dependent variable Y and the independent variable X so that the model used by this study is as follows:

$$KP = \beta_0 + \beta_1 PP_{it} + \beta_2 UMP_{it} + \beta_3 PE_{it} + \beta_4 JI_{it} + \varepsilon$$

Description:

- KP : Unemployment Concentration
- β_0 : Constanta
- PP : Population Growth
- UMP : Provincial Minimum Wage
- PE : Economic Growth
- JI : Number of Industries
- $\beta_{1,2,3,4}$: Regression coefficient of independent variables
- t : Year
- i : Provinces in Java Island
- ε : Error term

4. RESULTS AND DISCUSSION

RESULTS

Unemployment concentration analysis

Based on the results of the concentration index calculation, there are three provinces that have an average CI value greater than 1, namely DKI Jakarta, West Java, and Banten provinces, which means that these provinces have a greater role than the national level in the unemployment problem and become the unemployment base provinces in Java. These three provinces are provinces with a large number of industries in their respective regions. Thus, the industries in these provinces are estimated that the

labor used is mostly not from the province concerned but from other provinces. This needs the attention of the provincial government concerned so that in making policies regarding the establishment of industry in their area, they prioritize using labor from the local area so as to reduce unemployment in the province concerned and in the future it will no longer be a base for unemployment.

Meanwhile, three other provinces, namely Central Java, DI Yogyakarta, and East Java, have an average CI value of less than 1, which means that these provinces have a smaller role than the national level in the unemployment problem.

Analysis of Determinants of Unemployment Concentration

Panel Data Model Selection Test Results

Hausman Test

Based on the results of the Hausman Test, it is known that the Cross-section random probability value is $0.0000 < \alpha (0.05)$, then reject H_0 or accept H_a so that the best model that can be used is the Fixed Effect Model.

Fixed Effect Model Estimation Results

Based on the results of the panel data regression, the selected model is the Fixed Effect Model, the following equation is obtained:

$$KP = 1.2913 + 0.0220 (PP) - 0.1006 (UMP) - 0.0244 (PE) + 0.0172 (JI) + \varepsilon$$

Description:

- KP : Unemployment Concentration
- PP : Population Growth
- UMP : Provincial Minimum Wage
- PE : Economic Growth
- JI : Number of Industries

Hypothesis Testing and Analysis

T Test

The Population Growth variable has a t-statistic value of $2.869 > t$ table 1.662978 with a probability value of $0.0053 < 0.05$, which explains that the Population Growth variable has a positive and significant effect on Unemployment Concentration in the provinces of Java Island in 2008-2022.

The variable of Provincial Minimum Wage has a t-statistic value of $-4.752 > t$ table -1.662978 with a probability value of $0.0000 < 0.05$ which explains that the variable of Provincial Minimum Wage has a negative and significant effect on the Concentration of Unemployment in the provinces of Java Island in 2008-2022.

Economic Growth variable has a t-statistic value of $-3.649 > t$ table -1.662978 with a probability value of $0.0005 < 0.05$ which explains that Economic Growth variable has a negative and significant effect

on Unemployment Concentration in Java Island provinces in 2008-2022.

The variable of Number of Industries has a t-statistic value of $0.881451 < t \text{ table } 1.662978$ with a probability value of $0.3807 < 0.05$ which explains that the variable of Number of Industries has no significant effect on Unemployment Concentration in Java Island provinces in 2008-2022.

F Test

The regression results on the selected Fixed Effect Model show an F-statistic value of 108.7435. When compared to the F table, the F-statistic value is greater than the F table $108.7435 > 2.479$, meaning that H_0 is rejected and H_a is accepted, so based on these results, the independent variables, namely Population Growth (PP), Provincial Minimum Wage (UMP), Economic Growth (PE), and Number of Industries (JI) together have a significant effect on the dependent variable, namely the concentration of unemployment in the provinces of Java Island in 2008-2022.

Goodness of Fit

It is known that the value of R^2 is 0.915934. This means that the variation of independent variables in this study, namely Population Growth (PP), Provincial Minimum Wage (UMP), Economic Growth (PE), and Number of Industries (JI) is able to explain the unemployment concentration model by 91.59% and the remaining 8.41% is explained by other variables outside the model or outside the study.

Classic Assumption Test

According to Basuki and Prawoto (2015), the classic assumption tests used in panel data with the Ordinary Least Square (OLS) approach are multicollinearity and heteroscedasticity.

Multicollinearity Test

It is known that the PP, UMP, PE, and JI variables are free from multicollinearity, because in the regression model results the correlation value between the independent variables is less than 0.8

Heteroscedasticity Test.

The probability value of each independent variable is greater than alpha 5% or 0.05, meaning that the model in the study is not affected by heteroscedasticity.

DISCUSSION

Influence of Population Growth on Unemployment Concentration

Based on the t-test results, the Population Growth variable (PP) has a positive and significant influence on Unemployment Concentration in provinces in Java Island. The coefficient value is 0.022, meaning that every 1% increase in population

growth will increase the concentration of unemployment by 0.022 with the assumption that other variables remain constant. This result is in line with the research hypothesis proposed that Population Growth (PP) has a positive and significant influence on Unemployment Concentration in provinces in Java Island. This is also in line with research conducted by Rahmanita and Usman (2023) which concluded that Population Growth has a positive and significant effect on the Open Unemployment Rate.

The more widespread population growth in an area, the more people will be unemployed or underemployed because the jobs created do not meet the requirements for the increasing population (Ayuningtyas, 2019). Every country with high population growth needs to expand employment opportunities to increase employment opportunities that make existing unemployment and poor people can be reduced (Rahmanita and Usman, 2023). So this needs to be a concern for all parties because population growth continues to occur every year while the available employment opportunities are not sufficient for the existing labor force. Moreover, Indonesia will face a demographic bonus in the future where the number of labor force increases sharply. If it is not matched with sufficient employment opportunities, the demographic bonus will only be a mere utterance that will cause problems not only economic, but also social, political, and all fields.

Influence of UMP on Unemployment Concentration

Based on the t-test result, the variable of Provincial Minimum Wage (UMP) has a negative and significant influence on Unemployment Concentration in Java Island provinces. The coefficient value is -0.10, meaning that every 1% increase in population growth will decrease the concentration of unemployment by 0.10 with the assumption that other variables remain constant. This result is in line with the research hypothesis proposed that Provincial Minimum Wage (UMP) has a negative and significant influence on Unemployment Concentration in Java Island provinces. This is also in accordance with research conducted by Putra and Suherman (2021), Sahara and Iryani (2023), and Nuzulaili (2022) who concluded that the Provincial Minimum Wage has a negative and significant effect on the Open Unemployment Rate.

The Provincial Minimum Wage is an important factor influencing employers' decisions to recruit and retain employees. High wages can encourage work enthusiasm and labor productivity, so that it will cause the resulting production to increase, so that wage increases result in people offering labor to

companies increasing, and unemployment falls. But it can also be the opposite, the level of wages that rises results in companies having a choice between using labor or using machines or technology. If to increase the same amount of production, the additional costs incurred by the company due to additional use of labor will be higher than the additional costs due to additional use of machinery, then the company will reduce the amount of labor use and unemployment will increase (Yarlina and Maulidah, 2019). The increase in the minimum wage can reduce the number of unemployed when the minimum wage increases, the urge for someone to look for workers is higher and causes the supply of labor to increase. With the increase in labor supply, it encourages a reduction in the unemployment rate. The minimum wage always increases every year but there are still many unemployment rates. Therefore, the government must remain wise in determining the minimum wage in the following years, this is to keep the labor market conditions in good stability.

Influence of Economic Growth on Unemployment Concentration

Based on the t-test result, Economic Growth (PE) variable has a negative and significant influence on Unemployment Concentration in Java Island provinces. The coefficient value is 0.024, meaning that every 1% increase in Population Growth will decrease the concentration of unemployment by 0.024 with the assumption that other variables remain constant. This result is in line with the research hypothesis proposed that Economic Growth (PE) has a negative and significant influence on Unemployment Concentration in Java Island provinces. This is also in accordance with the research conducted by Hastuti and Artaningtyas (2012) which concluded that Economic Growth has a negative and significant effect, while other studies, namely Sahara and Iryani (2023), and Aziz, et al (2022), Rahmanita and Usman (2023), and Cahyo (2016) concluded that Economic Growth has a negative and significant effect on the Open Unemployment Rate.

Balanced or unbalanced economic growth in a region can create an imbalance of employment opportunities. Economic growth will increase employment, which means that it will increase employment opportunities for the community, the existence of employment opportunities will increase employment and of course will have an impact on reducing unemployment (Yarlina and Maulidah, 2019). High economic growth is considered important because it can bring economic and social benefits to countries and regions. Strong economic growth can create new jobs, increase people's income, and improve the overall standard of living. In addition, high economic growth also provides

opportunities for investment and the development of other economic sectors. The effect of economic growth in reducing unemployment can be caused by the fact that economic growth is driven by increased employment. When the economy in a region increases, there is a growth in production and services that will make the demand for labor rise, which causes the unemployment rate to decrease.

Influence of Number of Industries on Unemployment Concentration

Based on the t-test result, the variable of Number of Industries (JI) has no effect on Unemployment Concentration in Java Island provinces. This result is not in line with the research hypothesis proposed that the Number of Industries (JI) has a negative and significant effect on the Concentration of Unemployment in the provinces of Java Island. This is also in accordance with research conducted by Aziz, et al (2022), which concluded that the Number of Industries has no effect on the Open Unemployment Rate.

Although large and medium industries have the potential to create wider employment opportunities, the distribution of these industries is often only in certain areas, such as urban centers or special industrial areas, as a result other provinces have not felt the economic benefits and job creation generated by these industries. In addition, government policies that favor the development of industries only in certain areas and inefficient transportation infrastructure to distribute economic benefits evenly across Java Island create economic disparities between provinces and trigger inequalities in employment opportunities and unemployment rates.

5. CONCLUSION

The result of this study shows that the provinces of DKI Jakarta, West Java, and Banten have a bigger role than the national in the unemployment problem and become the unemployment base provinces in Java Island. Meanwhile, the panel data regression results show that the population growth variable has a positive and significant effect on unemployment concentration, the provincial minimum wage variable and economic growth have a negative and significant effect on unemployment concentration, but the number of industries variable has no effect on unemployment concentration in the provinces of Java Island in 2008-2022.

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