

The Effect of Population Density, Number of Industries, Education on the Unemployment Rate in Banten Province

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Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh variabel independen diantaranya kepadatan penduduk, jumlah industri besar dan sedang, dan pendidikan terhadap variabel dependen yaitu tingkat pengangguran terbuka pada Provinsi Banten tahun 2005-2021. Penelitian ini menggunakan pendekatan kuantitatif jenis asosiatif dengan menggunakan data sekunder yang diperoleh melalui laman resmi Badan Pusat Statistik Banten. Metode analisis yang digunakan dalam penelitian adalah regresi linier berganda. Hasil penelitian menunjukkan bahwa variabel jumlah industri terdapat pengaruh positif signifikan. Sedangkan variabel kepadatan penduduk dan pendidikan berpengaruh negatif signifikan. Sementara itu, ketiga variabel tersebut secara simultan berpengaruh signifikan terhadap tingkat pengangguran di Banten.

Kata Kunci : Kepadatan Penduduk, Jumlah Industri, Pendidikan, Tingkat Pengangguran Terbuka.

Abstract

This study aims to determine the effect of independent variables namely population density, number of industries, and education on the dependent variable, namely unemployment rate in Banten in 2005-2021. This research uses a quantitative approach using secondary data analysis method used is multiple linear regression. In this study, the result show that the population variable has a significant positive effect, while the number of industries and education variables have a significant negative effect and the three independent variables simultaneously affect the unemployment rate in Banten Province.

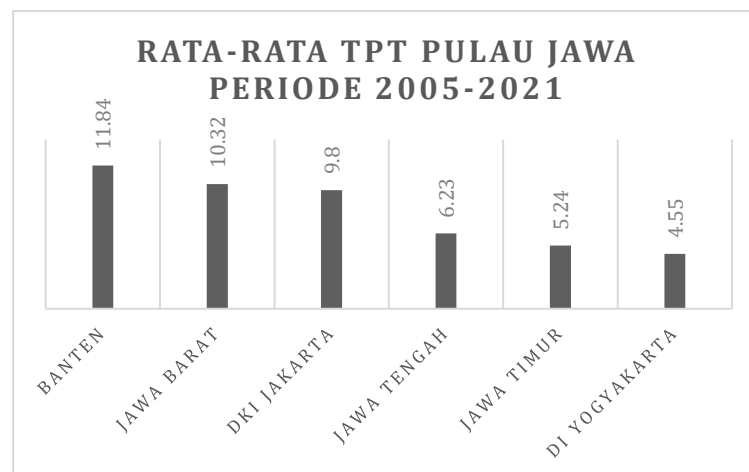
Keywords: Population Density, Number of Industries, Education, Unemployment Rate.

INTRODUCTION

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Unemployment is a macroeconomic problem faced by all developing countries, including Indonesia. The level of economic growth is affected by the problem of unemployment, and it can also have an impact on economic life and the social life of the community. The International Labor Organization (ILO) defines unemployment as a situation where individuals who are not working but still trying to enter the labor market actively (Barus, 2018).

Over time, the unemployment rate in Indonesia is still said to be high (Febriani & Syafitri, 2023). Several factors can cause unemployment, including a low level of education, ineffective government policies, economic conditions, many job seekers who are not commensurate with the availability of jobs, as well as job seekers' skills that do not match the specifications of the job market, etc. (Apriandi & Arindi, 2023). This phenomenon occurs in several provinces in Indonesia, especially in the provinces on the island of Java, in provinces located on the island of Java. The following is the average open unemployment rate on the island of Java during the 2005-2021 period.



The figure above shows that the highest unemployment rate occurs in the province of Banten, which amounted to 11.84 percent. This proves that one of the provinces that contributes greatly to the percentage of unemployment is Banten Province.

Some other factors that can trigger a high unemployment rate include the uneven distribution of jobs available in each region, the large number of people, population density, lack of information because many job seekers do not have access to information on job opportunities (Zekri, 2007). Speaking of population density, one of the factors in the occurrence of a conflict is none other than the problem of unemployment, namely the increasing number of residents. Another study revealed that the greater the population, which results in the population density of an area every year, can increase the number of people looking for work and in line with the increase in labor that is not absorbed in employment, then the individual can be classified as unemployed (Zekri, 2007).

In addition to population density, the factor of the number of industries can also lead to unemployment. The focus of this research is on large and medium industries. Unemployment occurs because the availability of the labor market is not commensurate with demand and can be interpreted as an imbalance (B. R. Afrida, 2003). Where the

demand for labor is done by the company or producer, while the supply of labor is done by the worker (Mankiw, 2003).

One of the other efforts used to build the economy in a sustainable manner is the role of the education sector that can encourage economic activity. The literacy rate indicator is a measurement in an individual's education. According to (Schultz, 1961), human capital is an important thing to increase economic productivity in a country. According to (Becker, 1993) defines that humans are not only a resource, but as a capital that produces returns and any expenditure made to develop the quality and quantity of capital becomes an investment activity.

Based on the background previously described, that the unemployment rate in Banten Province is still high compared to other regions on the island of Java, in line with the many factors that the researcher has explained, the researcher is interested in testing the influence of the variables of population density, the number of large and medium industries, and education to find out further influence on the unemployment rate in Banten Province.

METHODS

This research is included in the type of quantitative research that aims to examine a certain population or sample that can be measured so that it will be processed using statistical methods. Data is taken through the Central Bureau of Statistics with the data source used in the form of secondary data, the data used is in the form of time series during the period 2005-2021.

In this study, the objects chosen by researchers include data on the open unemployment rate (percent) which is influenced by population density (people/km), the number of large and medium industries (units), and the literacy rate (percent) in Banten Province in 2005-2021.

The analysis technique used in this research is multiple linear regression analysis using associative quantitative method to see the effect of Population Density, Number of large and medium industries, and Literacy Rate on Open Unemployment Rate. The multiple linear regression model that has been transformed is :

$$Y = C + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e_i$$

Then transformed so that it is easy to interpret into

$$OUR = C + \beta_1 PD + \beta_2 LMI + \beta_3 LR + e_i$$

Description

OUR : Open Unemployment Rate

C : Constant

PD : Population Density

LMI : Number of Large and Medium Industries

LR : Literacy Rate

e : *Error term*

RESULTS AND DISCUSSION

Research Results

This research is a quantitative research and data testing is done by using Eviews 12 analysis tool with multiple regression annalysis technique. The aim is to determine the effect of population density, number of large and medium industries, and literacy rate on the unemployment rate in Banten Province. The following are the results of the multiple linear regression data test:

1. Multiple Linier Regression Test

The following function equations were determined based on the test results

$$\text{OUR} = 172,3849 - 0,024740 \text{ PD} + 0,001160 \text{ LMI} - 1,385918 \text{ LR} + e$$

This equation explains the effect of the independent variables on the dependent variable under the following conditions:

- A constant of 172.3849 means that if population density, the number of industries, and education are considered constant, the amount of OUR in Banten Province in 2005-2021 is 172.3849 percent.
- The PD coefficient value is -0.024740, which means that if PD increases by one percent, the unemployment rate in Banten Province will decrease by 0.024740 percent.
- The LMI coefficient value is 0.001160, which means that if the number of industries increases by one percent, the unemployment rate in Banten Province will increase by 0.001160 percent
- The LR coefficient value is -1.385918, which means that if education increases by one percent, the unemployment rate in Banten Province will decrease by 1.385918 percent.

2. Statistical Testing

a. Determinant Coefficient R^2 (R-Square)

The coefficient of determination which is closer to the zero value illustrates that the ability of the independent variable in the dependent variable is quite limited. Conversely, a value close to one, the independent variable can provide good information on the dependent variable. Based on the results of the regression calculation, the coefficient of determination is 0.921634. It means that the ability of the model to explain the effect of the independent variable on the dependent variable is 92%. While the remaining 8% is explained by other variables not included in the model equation.

b. Simultaneous Test (F Test)

Based on the findings of the F test, it is known that if the F (Prob) value is $0.000000 < \alpha 0.05$ then H_0 is rejected. This shows that the independent variables affect the dependent variable together (simultaneously).

c. Partial Test (T Test)

Based on the test results above, it can be explained as follows:

- The Effect of Population Density on the Unemployment Rate.
Based on the T test results above, it shows that the partial T (Prob) value is $0.0001 < 0.05$. This means that partially Population Density has a significant effect on the unemployment rate in Banten Province in 2005-2021.
- The Effect of the Number of Large and Medium Industries on the Unemployment Rate.
Based on the T test results above, it shows that the partial T (Prob) value is $0.0477 < 0.05$. This means that partially the number of industries has a significant effect on the unemployment rate in Banten Province in 2005-2021.
- The Effect of Literacy Rate on Unemployment Rate.
Based on the T test results above, it shows that the partial T (Prob) value is $0.0372 < 0.05$. This means that partially literacy rate has a significant effect on the unemployment rate in Banten Province in 2005-2021.

3. Classical Assumption Testing

a. Normality Test

Based on the test results that have been carried out, the Jarque-Bera value is 0.425118 with a p value of 0.808513, so > 0.05 . So that the data in this study are normally distributed.

b. Heteroscedasticity Test

Based on the test results that have been carried out, it is known that the Prob Chi Square (8) value is $0.4265 > 0.05$. So it can be said if heteroscedasticity does not exist in the model.

c. Autocorrelation Test

Based on the test results that have been carried out, it is known that the Prob Chi Square (2) value is $0.2391 > 0.05$. So it means that there is no autocorrelation problem in the data used.

d. Multicollinearity Test

Based on the test results above, it is known that the VIF value is 3.302320, 1.598460, and 3.470227, where the amount is not more than 10 (<10). So it can be said if there is no multicollinearity problem.

Discussion

After testing the hypothesis and estimating the model, the effect of population density, number of industries, and literacy rate on the open unemployment rate in

Banten Province in 2005-2021 will be explained with the following details and explanations:

1. The Effect of Population Density on the Unemployment Rate in 2005-2021.

Based on the test results, it is known that population density has a significant negative effect on the unemployment rate in Banten Province. This result is in line with Tervia and Rositawati (2020) with the result that population density has a significant negative influence on the unemployment rate.

The population in Banten Province is 11.90 million people with an existing area of 9,662.9 km², so the number of densities in Banten is 1,232 people / km. Based on this, it shows that the population density in this province is high. The high level of population density can affect the level of unemployment in the province. Based on theory, the existence of population density will actually trigger an increase in the unemployment rate. This is because if an area experiences density, there will be tight competition for people in entering the labor market.

Based on the test results, OUR is negatively affected significantly, where if the population density increases in a banten region will reduce the unemployment rate. Thus, this is not in line with the theory. This is because the majority of the population in the banten region is in the productive age range of 15 to 64 years old, so that employment opportunities that are useful for improving welfare are still widely open.

2. The Effect of the Number of Industries on the Unemployment Rate in 2005-2021.

Based on the test results conducted, it is known that the number of industries has a significant positive effect on the unemployment rate in Banten Province. These results are supported by Aziz & Julia (2022) which states that the number of industries has a positive and significant effect on the unemployment rate in West Java Province. Likewise, (Pratomo & Setyadharma, 2020) also proved the same result.

The increase in the number of industries is due to adequate infrastructure. The existence of adequate infrastructure plays an important role in terms of industrial and national economic growth because it is able to provide widespread employment. Based on theory, the large number of industries available in a region should be able to absorb a lot of labor and can minimize the problem of unemployment that occurs. However, the significant influence with a positive direction between the number of large and medium industries on the unemployment rate in Banten indicates that although there is an increase in industrial growth, it is still followed by an increase in unemployment.

In Banten Province, the industrial sector is dominated by large and medium industries, most of which are capital intensive. One of these industries is engaged in the manufacturing sector which includes iron and steel production, the chemical industry, and so on. In general, capital-intensive industries themselves emphasize the use of machinery compared to human labor in the production process. Thus, this causes dependence on the industry on the use of machine technology.

That is where the gap begins to occur, as a result of the large number of capital-intensive industries if not accompanied by the ability and skills of the workforce can cause a problem. The dominance of the industry can cause a lot of labor that is not absorbed properly, resulting in a high unemployment rate in Banten due to a mismatch in labor skills that are in accordance with the needs of a company or industry.

Thus it can be concluded that partially the number of industries has a positive and significant effect on unemployment in Banten Province. This means that the growing number of industries will have an impact on increasing unemployment.

3. The Effect of Education (Literacy Rate) on the unemployment rate in 2005-2021.

The result obtained is that the literacy rate has a significant negative effect on the unemployment rate in Banten. This is supported by the research of Putri and Maulida (2022), Furthermore, the research of Suyanto, Purnomo, and Standsyah (2019) also supports the results of this study.

Education is an important indicator in seeing population development. One indicator of education is the literacy rate. The existence of the education factor certainly affects the unemployment rate. In this case, after testing, the result that there is a significant negative effect of literacy on the unemployment rate indicates that an increase in education, especially literacy, is considered capable of reducing the unemployment rate in Banten. Therefore, this is in line with the theory. Education is something that refers to an increase in employment opportunities that ultimately leads to an increase in income. Where the existence of education for a person is also achieved for a higher and decent livelihood.

It can be concluded that the literacy rate has a significant negative effect on the open unemployment rate in Banten. This means that the ability to read and write, which is assembled in a person's literacy rate, will reduce the unemployment rate.

4. The Effect of Population Density, Number of Industries, and Education on Unemployment Rate in 2005-2021.

Based on the test results conducted previously, the results show that Population Density, Number of Industries, and Literacy Rate are factors that can affect the unemployment rate in Banten Province.

The high unemployment rate in Banten is very worrying because it is the highest in Indonesia. The big impact of the unemployment rate is that it affects the welfare of the community. The occurrence of unemployment for an individual in general can cause the loss of income sources for individuals and families.

In this study, the variables of population density, number of industries, and education are used to influence the occurrence of unemployment in Banten Province. The existence of uncontrolled population density in an area can become a burden so that it can trigger unemployment. Likewise, the number of industries located in an area can affect the unemployment rate. Education also plays an important role in influencing unemployment. Educated people are more likely to have employment opportunities and are easier to enter the labor market.

CONCLUSION

The author concludes that Population density has a significant negative effect on the open unemployment rate in Banten Province in 2005-2021. The number of large and medium industries has a significant positive effect on the open unemployment rate in Banten Province in 2005-2021. The literacy rate has a negative and significant effect on the open unemployment rate in Banten Province in 2005-2021. Population density, number of large and medium industries, and education simultaneously have a significant effect on the unemployment rate in Banten Province in 2005-2021.

Referring to the results of research on population density which has a negative effect, the government is expected to be able to organize space by limiting the number of people entering an area. On the other hand, the increase in the number of large and medium industries in Banten Province is expected to be a driving factor for the government in establishing regulations that can balance between capital-intensive and labor-intensive industries. In addition, it is hoped that there will be other strategies in the form of training and workforce development programs that are in accordance with the needs of the labor market, especially for local communities so that later it can reduce the unemployment. And for further research, being able to use other variables that have been used in research.

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