

**Determinants of Open Unemployment Rate in East Java Regencies and Cities from 2017-2021****Devi Wulan Sari<sup>1\*</sup>, Eni Setyowati<sup>1</sup>**<sup>1</sup> Universitas Muhammadiyah Surakarta

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**\*Email:** [b300190041@student.ums.ac.id](mailto:b300190041@student.ums.ac.id)**ABSTRACT**

This study attempts to investigate the relationship between the open unemployment rate and the gross regional domestic product, population, human development index, and average duration of education. 38 regencies and cities in the East Java Province were used as the study's sample from 2017 to 2021. Eviews was used to handle the data in this study along with panel data regression analysis. The Fixed Effect Model (FEM) model was chosen as the best approximated model based on the results of the Chow and Hausman tests. The study's findings indicate that the open unemployment rate is influenced by a number of factors, including gross regional domestic product, population, human development index, and average length of education. In contrast, the gross regional product and the human development index have an impact on the open unemployment rate in the East Java province between 2017 to 2021, while the total population and average length of education have a limited impact. Gross Regional Domestic Product, population, the human development index, and the average number of years spent in school all have a large simultaneous influence, accounting for 73.7% of the total, with other factors outside the model accounting for the remaining 26.3%. The East Java Provincial Government is expected to pay attention to issues that affect the amount of open unemployment in each Regency/City in the East Java Province as a result of this research.

**Keywords:** Open Unemployment Rate, Gross Domestic Product

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**INTRODUCTION**

Economic development is one of the important things in every country and is under the spotlight of the government. Economic development is a process of creating additional inputs to drive the wheels of the country's economy so that there is a continuous increase in output. The output produced by a country can measure the level of prosperity and success of economic development in an area, so that economic development efforts are said to be successful if there is a continuous increase in output over a long period of time, this increase will then encourage employment and increase per capita income. . In other words, the success of a country's economic development is also determined by the productivity of its people, this is because the high or low productivity of society will be directly proportional to the total output produced by a country. But unfortunately the reality that is happening in Indonesia is that there are still many unproductive people due to barriers to employment opportunities. The number of job seekers that is greater than the capacity of the job market then creates a gap which is the root of unemployment (Sembiring et al. 2019).

Unemployment is a common problem in developing countries, one of which is in Indonesia. As the economy develops in a country, the problems that occur become very complex and varied. The problems that arise will not be separated from the relationship with its citizens, especially in a country with a dense population like Indonesia, as well as the problem of unemployment. The many economic problems that exist in Indonesia have caused this country to become a country that is not fast enough to develop economic growth because there are still many Indonesian people who experience poverty, low education, and less supportive jobs so that a person can earn enough wages to fulfill his life. (Prawoto, 2017).

Unemployment occurs because of an imbalance in the labor market where the supply of labor is higher than the demand for labor so that there are workers who do not get jobs and are unemployed. In addition, if the existing employment opportunities are not proportional to the increase in the number of labor force, it will have an impact on the creation of unemployment. A person is said to be unemployed if he has worked for at least one week and gets paid for the job, whereas if a person is not working because he does not have a job, is looking for work, or is waiting for a job call, then he is said to be unemployed. In other words, the unemployed are individuals who do not have a role in the process of producing goods and services within a certain period of time (Mankiw, 2018).

Unemployment is a complex problem that can influence and be influenced by many interrelated factors. If unemployment is not immediately addressed properly, it can lead to social insecurity and will have the potential to increase poverty. The negative impact of unemployment in developing countries causes social isolation such as psychological problems, loss of identity and self-esteem, increased stress from family, and social pressure. So it seems that developing countries must concentrate on the problem of unemployment and create jobs for its citizens in such a way that the economy can grow and citizens can also take advantage of these opportunities (Siddiqa, 2021).

Additionally troubling concerns are understandable given that unemployment creates other socially related problems such as drug abuse and increased general crime rates, both of which slow down economic growth. Therefore, it is imperative for every local government to make policies and strategies that ensure the reduction of unemployment.(Tsaurai, 2020)

Economic growth is a process of long-term per capita output growth that occurs when there is a tendency (per capita output to increase) originating from internal processes, not from outside and is temporary, which means that the growth process itself produces a force

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or momentum for continued growth. in subsequent periods. One indicator of economic growth is shown by GDP (Gross Domestic Product). GDP represents real national income which is calculated from the total output of goods and services produced by a country. A country is said to experience economic growth if the value of GDP or real national income has increased from the previous period. The gross domestic product in the regions is called the GRDP (Gross Regional Domestic Product). GRDP (Gross Regional Domestic Product) is defined as the total added value generated by all business units in a certain area/region, or is the total value of final goods and services produced by all economic activity units in a certain area/region in a certain period (Noviatamara et al., 2019).

Economic growth affects the unemployment rate in an area. The higher the economic growth in an area, the higher the opportunity for companies to develop and the creation of job opportunities for the people of a certain area. In addition, economic growth through increased GRDP is expected to be able to absorb labor in the region, because an increase in GRDP is likely to increase production capacity. This indicates that the decline in GRDP of a region can be attributed to the high number of unemployed in that area. Low unemployment rates can reflect good economic growth (Muslim, 2014).

Malthus' theory explains that when the ratio between other factors of production and population/labor is relative, population and labor growth will increase the level of social prosperity. However, if the population or workforce is excessive when compared to other production factors, it will reduce per-capita production and the level of community prosperity. This will have an impact on increasing unemployment due to an increase in population but not accompanied by an expansion of employment opportunities so that many people do not get a job (Tumilaar et al., 2022).

The high unemployment rate can be due to the still low capacity competition in developing countries including Indonesia to increase output, it must be compared with the decline in population, so that real income will increase. With low capacity it can increase output and if it is not matched by a decrease in the population level, then there can be a delay in economic development.

The quality of human resources can also be a factor causing unemployment and poverty. Unemployment can also be caused by the low quality of human resources (HR) which cannot afford to be left out in today's modern market competition. The quality of human resources can be seen from the quality of life index/human development index. The low Human Development Index (IPM) will result in low work productivity of the population. Low productivity results in low income gain (Latifah et al., 2017).

The Human Development Index (IPM) is a number which states that the achievement of human development is seen from the various fundamental components of the quality of life that can affect the level of productivity produced by an individual. The three basic dimensions that make up HDI include a long and healthy life, knowledge and skills, and a decent standard of living. The Human Development Index (IPM) is a breakthrough in evaluating human development. This human development index is a measure of regional development which is negatively correlated with poverty and unemployment in the region. The area is expected to have a high human development index, the ideal quality of life for its people is also high, or it can be said when the HDI is high (Himo et al., 2022).

Unemployment is also closely related to the quality of human resources through the level of education which is the background for the high and low quality of labor education. The high number of unemployed will reduce the prosperity of people's lives. Unemployment also causes their income to decrease. Income in this case is the dominant factor in improving

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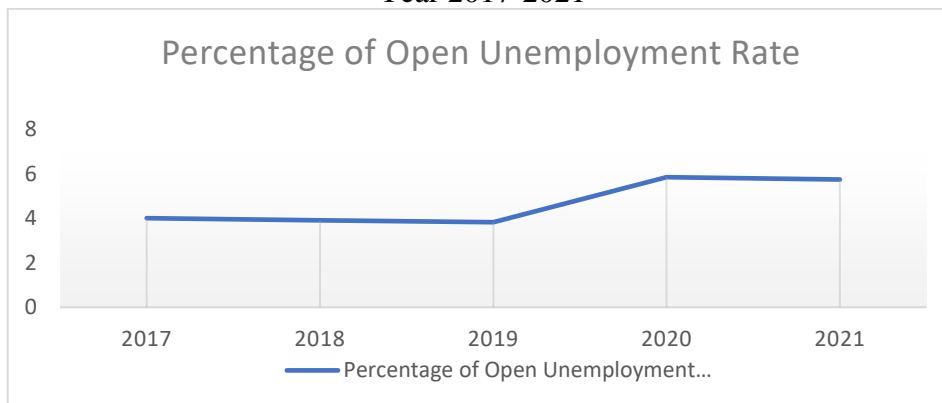
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the quality of human resources which later on the education factor will become an important factor in order to get a decent income. With education, educated people can become capital for economic development. The higher a person's education level, the higher the ability and opportunity to work, so that it will produce good quality human resources and will have an impact on reducing unemployment. The education level of a region can be measured using the average length of schooling.

Based on data from the Indonesian Central Bureau of Statistics, it shows that the open unemployment rate in Indonesia in February 2022 is 8.40 million people or 5.86%. Compared to the number in February last year, the number decreased by around 350 thousand more people or decreased by 0.63%. Even so, the trend of the unemployment rate is always fluctuating. This is also faced by the province of East Java, namely the trend of open unemployment rates as shown in the following table

**Figure 1.** Percentage of Open Unemployment Rate of East Java Province Year 2017-2021



**Figure 2.** Percentage of Open Unemployment Rate of East Java Province Year 2017-2021

Source: BPS East Java 2022

Based on figure 1, in 2020 the highest open unemployment rate that occurred in East Java Province reached 5.84% before the previous three consecutive years had decreased. In 2020 the open unemployment rate has increased, this is due to the pandemic that has hit the world, so that the economy has also been affected, including workers in the East Java Province area.

**METHOD**

The type of research used in this research is a quantitative approach in the form of data measured on a numerical scale such as graphs and figures taken from several reports that have an effect on the problem under study. The population in this study is 38 regencies/cities in East Java in a 5 year period from 2017-2021. The data in this study were obtained from the Central Statistics Agency (BPS), the data used were gross domestic product (GDP), population, human development index, average length of schooling and open unemployment rate in East Java province.

The method used in this study is the panel data method which is a combination of cross section data and time series data. Where the cross section data is in the form of 38 regencies/cities in East Java and the time series data is in the form of 2017-2021. The purpose

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of this study was to determine the effect of GRDP, population, human development index and average length of schooling on open unemployment rates in districts/cities of East Java. To see how much influence the independent variable has on the dependent variable, it can be determined by the analytical method as follows :

$$TPT_{it} = \beta_0 + \beta_1 \log s PDRB_{it} + \beta_2 \log s JB_{it} + \beta_3 IPM_{it} + \beta_4 \log RLS_{it} + \varepsilon t$$

where:

- TPT = Open Unemployment Rate
- GRDP = gross regional domestic product
- JP = total population
- HDI = Human Development Index
- RLS = Average length of schooling
- log = logarithmic operation
- i = cross-section
- t = time series
- $\varepsilon$  = Error term (error factor)
- $\beta_0$  = Constant
- $\beta_1 \dots \beta_4$  = Partial regression coefficient

**RESULT AND DOSICUSSION**

The estimated results of panel data regression in econometric models using the Pooled Least Squares (PLS), Fixed Effect Model (FEM), and Random Effect Molde (REM) approaches are shown in Table 1.

**Table 3.** Panel Data Regression Econometric Model Estimation

Variable	Regression Coefficient		
	PLS	FEM	REM
C	-21.30683	188.7926	-24.87201
LOG GRDP	0.282104	-17.15694	-0.134258
LOG JP	0.614420	-9.086645	0.826921
IPM	0.219569	1.927280	0.252621
LOG RLS	-0.586677	-10.64431	0.689061
$R^2$	0.373497	0.737027	0.238370
adjusted $R^2$	0.359951	0.664176	0.221902
F statistics	27.57252	10.11694	14.47500
Prob. F stat	0.000000	0.000000	0.000000
Model Selection Test			
(1) Chow			
Cross-section F(37,108) = 5.529521 ; Prob. F(37,108) = 0.0000			
(2) Hausman			
Cross-Section random $\chi^2$ (4) = 56.394018 ; Prob. $\chi^2$ = 0.0000			

**Source:** Process eviews 9 data

The Chow test is used to determine the PLS or FEM estimated model . The Chow test results can be seen in Table 1 below. From Table 1 it can be seen that the p -value ( p-value ), probability or empirical statistical significance of F is 0.0000 (<0.05), so  $H_0$  rejected. In conclusion, the estimated model is FEM .

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The Hausman test is used to select the FEM or REM estimated model. The results of the Hausman test can be seen in Table 1. From Table 1, it can be seen that the p-value (p-value), probability or empirical statistical significance of  $\chi^2$  is 0.0000 ( $<0.05$ ), so  $H_0$  rejected. In conclusion, the estimated model is the Fixed Effect Model (FEM). From the Chow test and Hausman test above, the Fixed Effect Model (FEM) model was chosen as the best estimated model.

From Table 1, it can be seen that the p value (p value), probability, or statistical empirical significance of F is 0.000 ( $<0.05$ ); so  $H_0$  rejected. In conclusion, the FEM estimated model is proven to exist. The coefficient of determination ( $R^2$ ) shows the predictive power of the estimated model. From Table 1 it can be seen the value  $R^2$  on the Fixed Effect Model (FEM) of 0.737027 means that 73.7% of the variation in the variable The open unemployment rate can be explained by the variables GRDP, population, HDI, and average length of schooling. While the rest, amounting to 26.3%, is influenced by other variables outside the model.

**Table 2.** Effect Validity Test Results

Variable	Sig. t	Criteria	Conclusion
LOG GRDP	0.0002	$< 0.05$	Significant
LOG JP	0.1323	$> 0.05$	Not significant
HDI	0.0000	$< 0.05$	Significant
LOG RLS	0.1396	$> 0.05$	Not significant

Source: Process eviews 9 data

The effect validity test examines the significance of the effect of the independent variables individually or partially. The results of the influence validity test can be seen in Table 2. This shows that in this study the GRDP and HDI variables have a negative and significant effect on the open unemployment rate variable while the population has a negative but not significant effect on the open unemployment rate variable and the average length of schooling has a positive effect but it is not significant to the open unemployment rate variable from the regression results as evidenced by the results of the individual parameter significance test (t test).

## DISCUSSION

### The effect of GRDP on the open unemployment rate

The GRDP variable (PDRB) has a negative and significant effect on the dependent variable Open Unemployment Rate (TPT) of -17.15694 so that if GRDP (PDRB) increases by 1 percent then the Open Unemployment Rate (TPT) will decrease by 17.15 percent, conversely if GRDP (GRDP) has decreased by 1 percent, so the Open Unemployment Rate (TPT) will also increase by 17.15 percent. The research conducted was in line with the results of the study Arizal & Marwan (2019) that Gross Regional Domestic Product had a negative and significant effect on the Open Unemployment Rate in West Sumatra Province in 2010-2017. In addition to the research conducted by Herniwati & Handayani (2019) that GRDP has a negative and significant effect on the open unemployment rate in Central Java, meaning that an increase in GRDP will reduce the open unemployment rate. While in the research conducted by Romhadhoni et al., (2018) that GRDP has a positive but not significant effect on the open unemployment rate in DKI Jakarta Province.

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**The effect of population on the open unemployment rate**

The population variable (JP) has no effect on the dependent variable open unemployment rate (TPT). The research that was conducted was in line with the results of the study Suhadi & Setyowati (2022) that population size did not affect the open unemployment rate (TPT) in East Java Province. Meanwhile, in research conducted by Setiawan et al., (2017) that the population has a negative and significant effect on the open unemployment rate (TPT) in the province of East Java in 2009-2015. In addition, in research conducted by Astrid & Soekapdjo (2020) population, it has a negative and insignificant effect on the open unemployment rate in Indonesia. Meanwhile, in the research conducted, Kuntiarti (2018) it is known that the population has a negative and significant effect on the open unemployment rate in Banten Province in 2010-2015.

**The effect of HDI on the open unemployment rate**

Variable human development index (IPM) has a positive and significant effect on the dependent variable open unemployment rate (TPT) of 1.927280 so that if the HDI increases by 1 percent, the open unemployment rate will increase by 1.92 percent. This contradicts the theory that the human development index should have a negative effect on the open unemployment rate. Where if the human development index increases, it will result in a decrease in the open unemployment rate. Similar results were found Nurcholis (2014) where the human development index had a positive effect on the open unemployment rate in Jambi Province in 2008-2014. In addition to the research conducted by Zusen & Setyowati (2022) also found that the human development index had a positive effect on the open unemployment rate in the former Pati residency in 2017-2020. Meanwhile, different results were obtained from research conducted by Mahroji (2019), where the human development index has a negative effect on the unemployment rate in Banten Province. This means that if the human development index rises, it can reduce the unemployment rate .

**The effect of the average length of schooling on the open unemployment rate**

The variable average length of schooling (RLS) has no effect on the dependent variable open unemployment rate (TPT) in districts/cities of East Java province in 2017-2021 . Similar results were found by Desembriarto (2021) that the average length of schooling had no effect on the open unemployment rate in Bantul district. In addition, it is in line with research conducted by Meanwhile, the effect that the average length of schooling has on the open unemployment rate is not in accordance with the findings of the study Risal Johar et al., (2023) which states that the average length of schooling has a negative and significant effect on the open unemployment rate, which means that if the average length of schooling is If the average length of schooling goes up, the open unemployment rate will go down. In the research Siskawati et al., (2021) that the average length of schooling has a positive and significant effect on the open unemployment rate in districts/cities in Riau province.

**IMPLICATIONS**

GRDP can affect the level of open unemployment because if the GRDP of an area decreases, production also decreases, meaning that the level of production in that area decreases due to decreased consumption from the community and also the workforce used will also decrease, as a result of reduced company production. In addition, the human development index (IPM) can also affect the open unemployment rate (TPT) in East Java districts/cities in 2017-2021. if the HDI in an area increases, the open unemployment rate will increase , this is because the high quality of human resources makes people prefer to be unemployed rather than working but not in accordance with their field (knowledge gained)

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. Based on the conditions described above, the policy that can be taken by the government to reduce unemployment is that further studies are needed regarding the right policy to increase GRDP, because this study proves that increasing GRDP will reduce unemployment. In addition to increasing human resources not only in terms of the human development index (IPM) but also increasing public awareness to work and find work and fully supported by the government through the provision of jobs and employment opportunities.

**CONCLUSION**

The results of the F test show that GRDP, population, human development index, and average length of school together have an effect on the open unemployment rate in districts/cities of East Java province in 2017-2021. Based on the results of the t test, GRDP has a negative effect on the open unemployment rate and the human development index has a positive effect on the open unemployment rate while the population and average length of schooling do not have a significant effect on the open unemployment rate in districts/cities of East Java province in 2017-2021. In an effort to reduce the open unemployment rate in the districts/cities of East Java province, the government should start paying attention to the GRDP growth rate so that it always increases and balances the human development index so that the increase in HDI can be balanced with the awareness of the people to work so that it can reduce the open unemployment rate. It is hoped that in subsequent research it can add other independent variables or use a different analysis model to further refine the research results.

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