

## **Analysis Of The Effect Of GDRP, Wage, Domestic Investment, Population On Open Unemployment Rate In Six Provinces Of The Island Of Java for the 2015-2020 Period**

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**ABSTRACT** - *This research treats the problem of unemployment which is still an important problem for the government and society in Indonesia. High unemployment rates can bring problems that are difficult to avoid. This research aims to analyse the effect of GDP, minimum wage, domestic investment, population on the open unemployment rate in six java provinces for the 2015-2020 period. Multiple regression quantitative model is the model used in this study. The data used is panel data with secondary data types for the 2015-2020 period obtained from the Central Statistics Agency (BPS). The results of the research show that the variables of GRDP, Minimum Wage and Population have a significant effect on open unemployment in 6 Java Province*

**Keywords:** *GRDP, Wage, Population, Domestic Investment, Unemployment*

**ABSTRAK** - *Riset ini mengolah permasalahan pengangguran masih menjadi masalah penting bagi pemerintah dan masyarakat di Indonesia. Tingginya tingkat pengangguran dapat membawa masalah yang sulit untuk dihindari. Riset ini punya tujuan menganalisis pengaruh GDRP, upah minimum, DI, jumlah penduduk terhadap tingkat pengangguran terbuka di enam provinsi pulau jawa periode 2015-2020. Model kuantitatif regresi berganda merupakan model yang digunakan dalam penelitian ini. Data yang dipakai adalah data panel dengan tipe data sekunder periode 2015-2020 yang di dapat dari Badan Pusat Statistik (BPS). Hasil dari riset menunjukkan variabel GDRP, Upah Minimum dan Jumlah penduduk berpengaruh signifikan terhadap pengangguran terbuka di 6 Provinsi Pulau Jawa.*

**Kata Kunci:** *GDRP, Upah, Jumlah Penduduk, DI, Pengangguran Terbuka*

### **INTRODUCTION**

Employment is an important aspect of the Indonesian economy. Indonesia's large population is a challenge for the government in terms of employment. Based on data released by the Central Statistics Agency (BPS) in 2016 entitled the Central Statistics Agency (BPS), Indonesia's population in 2015 reached 255,461,700 people. Meanwhile, Indonesia's population growth rate is still 1.38% per year. According to the BPS population forecast, in 2035, the total population of Indonesia will reach more than 300 million people, of which the majority of the Indonesian population is in the productive age group, namely from 1564. This puts Indonesia in a demographic bonus period, where the production age can be used for encourage development or become a burden on the economy, such as increasing unemployment.

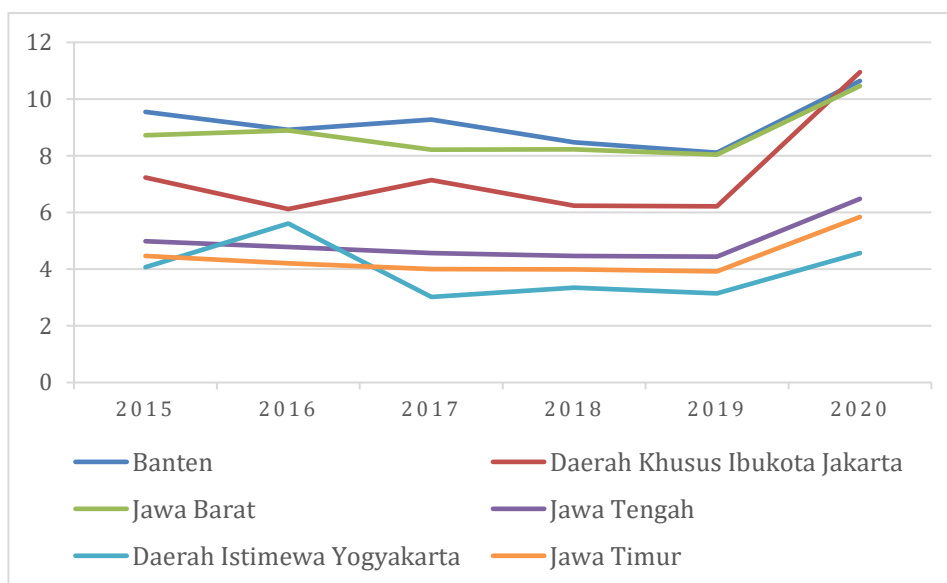
Unemployment is one of the main employment problems faced by developing countries, including Indonesia. Unemployment is a social problem that almost all countries in the world face, especially in developing countries like Indonesia. Unemployment has a high impact on the economy, individuals, and problems that occur in society inability to maximize the potential of wealth to achieve and reduce people's productivity and income Poverty, crime and other social problems (Herman, 2021).

Unemployed is defined as a person who is part of the labor force and is actively looking for work at a certain wage level but is unable to find the desired job. The large population of an area is not a problem that only affects the economic zone. On the other hand, this problem is also closely related to the social and educational fields. As it is today, not only people with low education are unemployed, but people with high education are also unemployed (Fathi, 2021). When unemployment occurs, some of the available labor inputs are not used, which means a loss of production. As a result of this increase in the number of unemployed, the country's economy can decline, and if not managed properly, unemployment can have a detrimental impact, such as indirectly increasing the poverty rate in the long term. Unemployed without a stable income gradually becomes poorer socially, but poverty is also an economic phenomenon and we need to find appropriate solutions, such as providing wide job opportunities for productive job seekers (Mar'afiah, 2017).

High unemployment is generally caused by the high standards expected of companies seeking to hire workers. The unemployment rate and the labor force as a whole indicate the large number of people who need to be involved in the development process. In short, unemployment and the labor force are part of the population that can drive economic processes. This makes it clear that the dynamics of the development process must be able to involve the entire workforce, which can hinder a large number of workers in economic development (Shun, 2019).

Quick and precise handling is needed because someone needs work to earn a living. Unemployment itself is residents who are not working but are looking for work or preparing for a new business, or residents who are not looking for work because they have worked but have not started working. The indicator to see the unemployment rate is to use the open unemployment rate (Marliana, 2022).

Table 1  
Unemployment in Provinces in Java Island 2015-2020



Source: BPS, 2022

Based on BPS data, the number of unemployed in all provinces on the island of Java, which tends to experience stability from 2015-2019, in 2020 has increased quite drastically. The increase was due to the COVID-19 pandemic which was followed by a reduction in employees by several companies. At the beginning of 2020, global economic growth was experiencing a decline, including Indonesia. This is due to an epidemic that has hit all of Indonesia, namely the corona virus disease.

## **LITERATURE REVIEW**

### ***Unemployment***

According to the Central Statistics Agency (CSA) in employment indicators, unemployment is a population who does not work but is looking for work or is preparing for a new business, or has been accepted but has not started work. Unemployment is a reality faced not only in developing countries but also in developed countries. Unemployment is generally defined as a condition where a person in the labor force category is unemployed and is actively looking for work (Nanga, 2001). People who are not working but are actively looking for work cannot be classified as unemployed. In addition, unemployment is defined as a situation in which a person in the labor force wants to find a job but cannot find one (Johan et al., 2016).

Open unemployment results from an increase in vacancies, which is lower than an increase in the labor force. As a result, more and more workers will not be able to find work in the economy. The result of this situation is that they do not work for a long time. So they are unemployed for real and full time and hence it is called open unemployment. Open unemployment can also occur as a result of a decline in economic activity, technological advances that reduce labor input, or a decline in industrial development (Vidyattama, 2010).

According to Anggraini et al., (2022), unemployment is defined as a condition in which a person belonging to the labor force category does not have a job and is actively looking for work. To measure unemployment in a country, the unemployment rate is usually used, namely unemployment which is expressed as a percentage of the total workforce. Anggraini et al., (2022) explained that Edgar Edwards distinguishes the types of unemployment, especially those that often occur in developing countries, into the following forms:

1. Underemployment

Underemployed are workers who work fewer hours than they would like (mostly only working daily, weekly or seasonally).

2. Open Unemployment

Open unemployment are those who really do not work either voluntarily or because they are forced and are actively looking for work (Resika, 2020).

### ***Gross Regional Domestic Product (GRDP)***

GRDP (Gross Regional Domestic Product) is the added value generated by all business units in a region, or is the total value of final goods and services produced by all economic units of an area within a period of one year (Putro & Setiawan, 2013).

Gross Regional Domestic Product (GDP) is a macroeconomic indicator that can provide an image of the state of the economy of a region. In calculating the Gross Regional Domestic Product (GDP) generated from a region, there are 3 approaches used, namely:

1. GRDP based on production approach

Is the total value of the final goods or services produced from various production units in an area at a certain time.

2. GRDP based on income approach

It is remuneration used by production factors that participate in the production process in an area at a certain time.

3. GRDP based on expenditure approach

Consists of all components of final expenditure such as: consumption expenditures for households and non-profit private institutions, government consumption, gross fixed capital formation, changes in stock and net exports within a certain period of time (Prishardoyo, 2008). Vidyattama, (2010) conducted research on the factors that influence the growth of GRDP in Indonesia, including investment, human capital (human capital), population, local government spending, infrastructure and open trade. The results show that investment and population have no significant effect on GRDP growth in Indonesia. Local government spending contributes positively to GRDP growth in Indonesia, while human resources, infrastructure, and open trade make a positive contribution to GRDP growth in Indonesia (Silaban et al., 2020).

### **Wage**

Regulation of the Minister of Manpower and Transmigration number 7 of 2013 regulates the minimum wage, which consists of a basic wage including a fixed allowance set by the Governor as a safety net. In the labor market, it is very important to determine the level of wages that companies must pay for a job. The Minimum Wage Law stipulates the minimum price for labor that must be paid.

In the Government Regulation of the Republic of Indonesia Number 78 of 2015 concerning Wages article 1 paragraph (1), wages are defined as the rights of workers/laborers received and expressed in the form of money as a reward from the entrepreneur or entrepreneur to the worker/labourer which is determined and paid according to the agreement. work, agreement, or statutory regulations including allowances for workers/laborers and their families for a job or service that has been or will be performed. Wages are rewards received by a worker or employee for one month in the form of money or goods paid by the company/office/employer (Vidyattama, 2010).

The minimum wage is a monthly minimum wage consisting of basic wages including fixed allowances and is valid for workers under one year according to Eni, (2013), the minimum wage is the minimum wage determined by region, regional sector, and sub-sector. In this case, the minimum wage is the basic wage and allowances. The minimum basic wage is the basic wage that is regulated at least regionally, regionally, and sub-sectorally. Well-regulated state regulations do not only include allowances in basic wages (Herman, 2021).

According to research by Lukis Panjawa and Soebagiyo, (2014), the minimum wage has a significant positive effect on the unemployment rate. When raising the minimum wage causes an increase in unemployment under investigation. The root cause of unemployment due to wage rigidity is the inability of wages to adapt to the equilibrium point where supply and demand for labor equal (Sarimuda, 2014).

### **Domestic Investment**

Domestic Investment is an investment activity to conduct business in the territory of the Republic of Indonesia carried out by domestic investors using domestic capital. According to Law no. 25 of 2005 concerning Investment, domestic investors can be made by individual Indonesian citizens, state business entities, and/or the state government investing in the territory of the Republic of Indonesia. In Presidential Regulation No. 36 of 2010 concerning Changes in the List of Business Fields Closed and Business Fields Open with Conditions in the Investment Sector, business activities or types of business open to investment activities, except for business fields or types of business which are declared closed and open with requirements and limitations. ownership of state capital in the field of business (Putri et al.,2021).

According to UURI No. 25 (2007:5), the objectives of implementing investment include: (1) increasing national economic growth; (2) creating job opportunities; (3) promote sustainable economic development; (4) increase the competitiveness of national businesses; (5) increase the capacity and capability of national technoi; (6) encourage the development of the people's

economy; (7) transforming the potential economy into real economic strength by using funds originating, both from within the country and from abroad; and (8) improve the welfare of the community.

1. Foreign Investment (PMA)

According to RI Law no. 25 of 2007 concerning Investment (2007: 2) states that: Foreign Investment is an investment activity to conduct business in the territory of the Republic of Indonesia carried out by foreign investment, both using fully foreign capital and the Economix Journal Volume 4 Number 1 June 2016 92 joint ventures with domestic investors. Or Foreign Investment (PMA) is an individual foreign citizen, and/or foreign government that invests in the territory of the Republic of Indonesia.

2. Domestic Investment (DI)

According to RI Law no. 25 of 2007 concerning Investment (2007: 3) states that: Domestic Investment is an investment activity to conduct business in the territory of the Republic of Indonesia carried out by domestic investors using domestic capital. Or domestic investment is an individual who is an Indonesian citizen, an Indonesian business entity in the state of the Republic of Indonesia, or an area that invests in the territory of the Republic of Indonesia (Kalasha Anajman Fathi, 2021).

Investment itself has two types, namely Foreign Investment (PMA) and Domestic Investment (DI). Based on Law Number 1 of 1967, PMA is a foreign capital financing carried out under the provisions of the Act and used to run a business in Indonesia. Meanwhile, based on Law Number 6 of 1968 Article 2, DI is the use of wealth as described in Article 1 either directly or indirectly to run a business that refers to the Act (Sarimuda, 2014; Faizah et al., 2019).

**Population**

According to Silaban et al., (2020), a large population reduces per capita income and creates employment problems. High population growth will increase the number of the workforce. The population problem will increase the number of unemployed, because it is not balanced with the creation of new jobs (Hinestroza, 2018).

Muslim, (2014) researched based on a narrower framework, the number of employees, and the results agreed with the two predecessors. As the population and labor force increase, so does the unemployment rate. Because the number of existing jobs cannot be accommodated by the entire workforce (Indayani and Hartono, 2020).

Hinestroza, (2018) states that as the population increases, so does the workforce. This means that more and more people are looking for work or are unemployed. Malthus thought that there was a positive correlation between unemployment and population. If labor grows faster than food production, real wages will fall because of rising costs.

**METHODS**

The data used in this study is secondary data including time series data for the 2015-2020 period and cross-sectional data covering 6 provinces on the island of Java. This study uses panel data analysis tools to see the direction and variables of Gross Regional Domestic Product (GRDP), Provincial Minimum Wage (UMP), Domestic Investment (DI) and Total Population (JP) on the open unemployment rate (TPT). panel. The analytical tools that will be used in this research are Pooled Least Squares (PLS), Fixed Effect Model (FEM), and Random Effect Model (REM) analysis with the following econometric models:

$$TPT = \beta_0 + \beta_1 GDRP_{it} + \beta_2 UMP_{it} + \beta_4 DI_{it} + \beta_5 JP_{it} + \varepsilon$$

The analysis technique in this study uses panel data regression which is processed with the Eviews 9 program. Tpt is open unemployment with units of percent, GRDP is Gross Regional

Domestic Product in billions of units, Ump is the provincial minimum wage in rupiah units. DI is a domestic investment with units of billions, Jp is the number of people with units of people.

### ESTIMATED RESULTS

The results of the panel data regression estimation on the econometric model using the Pooled Least Squares (PLS), Fixed Effect Model (FEM), and Random Effect (REM) approaches are shown in Table 2.

**Table 2. Panel Data Regression Results**

Variable	Regression Coefficient		
	CEM	FEM	REM
<i>C</i>	-101,7422	-121,4894	-101,7422
<i>GDRP</i>	-0,294375	-0,352209	-0,294375
<i>UMP</i>	6,370418	7,579158	6,370418
<i>DI</i>	-0,212260	0,022279	-0,212260
<i>JP</i>	2,187741	2,250872	2,187741
$R^2$	0,523232	0,734414	0,523232
Prob. Statistik <i>F</i>	0,000094	0,000014	0,000094

Model Selection Test

(1) Chow

Cross-section  $F(5,26)= 4,134809$ ; Prob. $F(5,26)=0,0068$

(2) Hausman

Cross-section random  $\chi^2(4)= 20,523404$ ; Prob. $F \chi^2=0,0004$

**Source:** Data processed, *Eviews 9*

### ESTIMATED MODEL SELECTION TEST

Chow test and Hausman test were used to select the best estimated model between CEM, FEM, and REM. If in the Chow test the selected model is FEM and in the Hausman test the selected model is also FEM, the best estimated model is FEM.

### CHOW TEST

Chow test is used to determine the estimated model between CEM (PLS) or FEM.  $H_0$  on the Chow test states that the estimated model is the Common Effect Model (CEM), and  $H_A$  on the Chow test states that the estimated model is the Fixed Effect Model (FEM) provided that if the probability value of Prob  $F > 0.05$  then  $H_0$  is not rejected with the model conclusion Common Effect Model (CEM) was chosen, while if the probability value of Prob. $F < 0.05$  then  $H_0$  was rejected with the conclusion that the Fixed Effect Model (FEM) was chosen.

Based on Table 2, it can be seen that the results of the Chow Test Analysis of the influence of GRDP, Minimum Wage, DI, population on the open unemployment rate in Banten Province for the 2017-2020 period show the prob. $F$  model value of  $0.000 < 0.05$ , so  $H_0$  is rejected, thus it can be concluded that the selected model is the Fixed Effect Model (FEM).

### HAUSMAN TEST

Hausman test is used to determine the estimated model between FEM or REM.  $H_0$  on the Hausman Test states that the estimated model is a Fixed Effect Model (FEM), and  $H_A$  on the Hausman Test states that the estimated model is a Random Effect Model estimated model provided that if the probability value of Prob Chi-Sq  $> 0.05$  then  $H_0$  is not rejected with the

conclusion the selected model is Random Effect Model (REM), whereas if the probability value of Prob Chi-Sq < 0.05 then H<sub>0</sub> is rejected with the conclusion that the model is selected Fixed Effect Model (FEM)

Based on Table 2, it can be seen that the results of the Hausman Test. Analysis of the influence of GRDP, Minimum Wage, DI, population on the open unemployment rate in Banten Province for the 2015-2020 period shows that the Prob Chi-Sq value is 0.0004 < 0.05 so H<sub>0</sub> is rejected. Thus it can be concluded that the model chosen is the Fixed Effect Model (FEM).

## CHOOSEN MODEL

**Table 3**  
**Fixed Effect Model (FEM) Estimation Results**

TPTit = -121,4894 – 0,3522GDRPit + 7,5791 UMPit + 0,0222 DIit				
	(0,0096)*	(0,3894)	(0,0000)*	(0,0000)*
$R^2 = 0,734414$ ; DW = 2,481253; F.Stat = 7,988535; Prob F-Stat = 0,000014				

**Note:** \*Significant at = 0.01; \*\* Significant at = 0.05; \*\*\* Significant at = 0.10; The number in brackets is the probability value of the t statistic.

## COEFFICIENT OF DETERMINATION (R<sup>2</sup>)

The magnitude of the coefficient of determination (R<sup>2</sup>) Analysis of the influence of GRDP, Minimum Wage, investment, population on the open unemployment rate in Banten Province for the 2017-2021 period is 0.734414, meaning that 73.44% of the variation in the open unemployment variable can be explained by GRDP, Minimum Wage, investment, population and the remaining 26.56% are influenced by other variables not included in the research model.

## PARTIAL SIGNIFICANCE TEST (T TEST)

The t-test was conducted to determine whether each independent variable had a significant effect on the dependent variable by assuming the other variables were constant. For the first econometric model, H<sub>0</sub> partial significance test in this study is  $\beta_1, \beta_2, \beta_3, \beta_4 = 0$ , or, GRDP, UMP, DI, and JP have no effect on TPT. Meanwhile, H<sub>A</sub>, stated that  $\beta_1, \beta_2, \beta_3, \beta_4 > 0$ , GRDP, UMP, DI, and JP had an effect on TPT. H<sub>0</sub> is not rejected if the t-statistical probability is > and H<sub>0</sub> is rejected if the t-statistical probability is .

**Table 3**  
**Effect Validity Test (t Test)**

Variable	t-statistic	Prob	Alfa	Conclusion
GDRP	-3.821897	0,0000	< 0,01	Significant at = 0.01
UMP	4.580576	0,0000	< 0,01	Significant at = 0.01
DI	-0.408469	0,9608	> 0,10	Not significant
JP	2.846759	0,0019	< 0,01	Signifikan pada $\alpha = 0,01$

Source: Data processed, Eviews 9

Based on the effect validity test (t test) it can be seen that the t-statistical probability for GRDP is 0.0000 ( $\leq 0.01$ ), (UMP) 0.0000 ( $\leq 0.01$ ), and (JP) 0.0019 ( $\leq 0, 01$ ) so that H<sub>0</sub> is rejected or GRDP, (UMP), and (JP) have an effect on the Open Unemployment Rate (TPT), while (DI) is 0.9608 ( $> 0.10$ ) so that H<sub>0</sub> is accepted or (DI) has no effect on the Unemployment Rate Open (TPT). Thus GRDP, (UMP), and (JP) have a

significant effect on the Open Unemployment Rate (TPT), while (DI) has no significant effect on the Open Unemployment Rate (TPT).

## DISCUSSION

Gross Regional Domestic Product has a regression coefficient of -0.3522 with a linear-linear relationship between the Open Unemployment Rate and Gross Regional Domestic Product, so that if the Gross Regional Domestic Product (GRDP) increases by 1 billion, the Open Unemployment Rate will decrease by 0,3522 percent as well as if the Gross Regional Domestic Product (GDP) decreases by 1 billion, the Open Unemployment Rate will increase by 0.3522 percent.

The results of the effect validity test (t test) on the econometric model show that the Gross Regional Domestic Product has a significant effect on the Open Unemployment Rate (TPT) in 6 Java Provinces. High economic growth must be balanced with equitable social welfare. For this reason, the government is expected to be able to further optimize the sectors in the GRDP so that these sectors are able to increase employment and reduce unemployment. This is in accordance with the initial hypothesis that GRDP has a significant effect on the Open Unemployment Rate in Java, and is in line with research conducted by R.B, Sarimuda & Soekarnoto (2014), Hinestroza, (2018), and Prishardoyo, (2008) regarding the Effect of GRDP, UMK, Inflation, and Investment on Open Unemployment in the Regency/City of East Java Province in 2007-2011 which shows that GRDP has a significant effect on the Open Unemployment Rate in the Regency/City of East Java Province in 2007-2011.

The Provincial Minimum Wage has a regression coefficient of 7.5791 with a linear-arithmetic relationship between the Open Unemployment Rate and the Provincial Minimum Wage, so that if the Provincial Minimum Wage (UMP) increases by 1 percent, the Open Unemployment Rate will increase by  $7.5791/100 = 0.0757$  percent as well as if the Provincial Minimum Wage (UMP) decreases by 1 percent, the Open Unemployment Rate will decrease by 0.0757 percent. The results of the effect validity test (t test) on the econometric model show that the Provincial Minimum Wage has a significant influence on the Open Unemployment Rate (TPT) in Java. Educated unemployment is different from open unemployment. Educated workers are more difficult to find work, not because no company is willing to accept them but because educated workers are more selective in getting jobs. If this is related to wages, educated workers have a minimum wage value, where if the higher the level of wages offered, the supply of educated workers will increase (many who offer to work) so that educated unemployment will decrease. This is in accordance with the initial hypothesis that the Provincial Minimum Wage has a significant effect on the Open Unemployment Rate in Java, and is in line with research conducted by Hajji & SBM, Nugroho (2013), Shun, (2019) and Marlina, (2022) which analyzed the GRDP, Inflation, Provincial Minimum Wage, and Literacy Rate on Open Unemployment Rates in Central Java Province 1990-2011. Which shows that the Provincial Minimum Wage has a significant effect on the Open Unemployment Rate in Central Java Province.

Total Population has a regression coefficient of 2.2508 with a linear-linear relationship between the Open Unemployment Rate and Total Population, so that if the Total Population (JP) increases by 1 percent, the Open Unemployment Rate will increase by  $(2.2508/100) = 0.0225$  percent as well as if the Total Population (JP) decreases by 1 percent, the Open Unemployment Rate will decrease by 0.0225 percent.

The results of the effect validity test (t test) on the econometric model show that the population has a significant influence on the Open Unemployment Rate (TPT) in Java. Because the population in 6 provinces on the island of Java is dominated by productive ages, job opportunities to improve life welfare are still wide open. This is because uncontrolled



population growth can result in not achieving the goals of economic development, namely the welfare of the people and suppressing the unemployment rate. With the increase in population as a driver of development so that it will move various kinds of economic activities and ultimately improve the welfare of the community so that the unemployment rate will decrease. Aisyah, (2021), Pramudjasi et al., (2019) and Resika, (2020) where the population has a significant positive effect on the unemployment rate in Paser Regency in 2007–2015.

## CONCLUSION

Based on the results of research that has been done with panel data regression testing, it can be concluded, among others:

1. The GRDP variable has a significant effect on the Open Unemployment Rate (TPT) variable in 6 provinces on the island of Java.
2. The Minimum Wage variable has a significant effect on the Open Unemployment Rate (TPT) variable in 6 provinces on the island of Java.
3. The Variable Population has a significant effect on the Open Unemployment Rate (TPT) variable in 6 provinces on the island of Java.
4. Domestic Investment Variables show no significant effect on the Open Unemployment Rate (TPT) in 6 provinces in Java.

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