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Analysis of Factors Causing Unemployment in Central Java in 2021

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ABSTRACT

This study aims to determine the effect of the GRDP of the industrial sector, the GRDP of the agricultural sector, Minimum Wage, Human Development Index (HDI), and the size of the workforce on the level of open response in Central Java in 2021 by using analysis Ordinary Least Square regression. The regression results show that the GRDP of the agricultural sector and HDI have a positive effect on the level of open responses. GRDP of the industrial sector and the labor force have a negative effect on the open response rate. While minimum wage has no effect on the response rate of open responses. The government is expected to pay more attention to the industrial sector and support various economic infrastructure. In addition, the government is expected to improve the quality of the workforce so that it is easier for them to get decent jobs and reduce the unemployment level.

Keywords : Analysis, Unemployment, Central Java

INTRODUCTION

Economic growth is a goal for every region or country. With sustainable economic growth, the community or population will be able to live more decently and prosperously (Todaro & Smith, 2014). Indonesia is a country that has natural wealth and a large population, this is the main capital for spurring economic activity and spurring economic growth (Syahputra, 2020).

Economic growth is the result of economic development, where economic development includes preparations for improving or building infrastructure to support economic activity, as well as preparing for human quality in the region (Fajar & Azhar, 2018). In an effort to achieve sustainable economic growth, various economic challenges and problems will always arise, one of which is the high number of unemployed (Mishkin, 2012).

Unemployment is a condition in which the population entering the labor force are in a position to be looking for work or not working at all (Todaro & Smith, 2014). Unemployment is a very difficult problem to avoid because it can reduce people's welfare and purchasing power, so that it will slow down economic performance (Utami, 2018).

Central Java Province is one of the important regions that supports the national economy. Various traditional economic sectors in this region also supply national needs such as agricultural and fishery products. In addition, several manufacturing and processing industry sectors are now also starting to establish their production processes in Central Java Province (Purnamawati & Khoirudin, 2019). However, the problem of high unemployment rates is still experienced by Central Java. The profile of the labor force in Central Java Province in 2021 is presented in Table 1.

Table 1 shows that in 2021, Cilacap and Tegal Regencies have the highest unemployment rates compared to other regions in Central Java with an open unemployment rate of 9.97%. This value is very far from the average open unemployment rate of Central Java Province which is only 5.95%. Meanwhile Wonogiri Regency is the region with the lowest open unemployment rate of 2.43%. The increase in MSME activities and the tendency of the Wonogiri people to migrate to trade turned out to be able to open new jobs and be effective in reducing the unemployment rate in the region.

Mishkin (2012) argues that a high population will not always guarantee success in development, it can even become a burden for sustainability development. Population growth that is not proportional to the availability of employment will cause a part of the population who are of working age not to get a job and will eventually be unemployed (Ningrum, 2017).

The main factor causing the high unemployment rate in a region is low aggregate expenditure which ultimately affects demand as well as production levels. If demand continues to decline, then employers will cut production costs, one of which is by reducing the number of their workforce, so unemployment will rise. Keynes' theory in Mishkin (2012) argues that as the number of workers increases, then wages will fall. This condition is a loss and not a benefit, because a decrease in wages means a decrease in people's purchasing power for goods. Eventually, producers will lose money and cannot absorb labor.

Table 1. Profile of the WorkForce in Central Java Province by Regency/City in 2021

Regency/City	Work	Unemployment	Force Work	Level Unemployment
Cilacap	747.329	82.714	830.043	9,97
Banyumas	813.592	52.390	865.982	6,05
Purbalingga	473.232	30.450	503.682	6,05
Banjarnegara	470.460	29.281	499.741	5,86
Kebumen	582.719	37.408	620.127	6,03
Purworejo	400.401	14.898	415.299	3,59
Wonosobo	405.526	22.527	428.053	5,26
Magelang	735.613	38.976	774.589	5,03
Boyolali	559.932	30.009	589.941	5,09
Klaten	596.661	34.584	631.245	5,48
Sukoharjo	476.867	16.391	493.258	3,32
Wonogiri	559.093	13.932	573.025	2,43
Karanganyar	487.270	30.517	517.787	5,89
Sragen	483.592	24.160	507.752	4,76
Grobogan	748.718	34.317	783.035	4,38
Blora	467.018	18.507	485.525	3,81
Rembang	348.727	13.293	362.020	3,67
Pati	662.492	31.935	694.427	4,60
Kudus	501.443	19.651	521.094	3,77
Jepara	658.208	29.076	687.284	4,23
Demak	563.708	31.403	595.111	5,28
Semarang	598.413	31.627	630.040	5,02
Temanggung	443.009	11.918	454.927	2,62
Kendal	493.732	40.298	534.030	7,55
Batang	402.320	28.370	430.690	6,59
Pekalongan	465.460	20.788	486.248	4,28
Pemalang	601.815	43.288	645.103	6,71
Tegal	644.499	71.346	715.845	9,97
Brebes	793.289	85.969	879.258	9,78
City of Magelang	60.317	5.769	66.086	8,73
Surakarta City	260.025	22.153	282.178	7,85
Salatiga City	103.979	8.145	112.124	7,26
Semarang city	936.076	98.718	1.034.794	9,54
Pekalongan city	168.725	12.485	181.210	6,89
Tegal City	121.510	10.930	132.440	8,25
Central Java	17.835.770	1.128.223	18.963.993	5,95

Source: Central Bureau of Statistics (2022)

The high unemployment rate in a region can also be caused by the low quality of education and health available in that region (Sukirno, 2014). Both are indicators of economic development that should be improved by the government as a public policy maker. If the level of education is high, then the labor force in the region will have productivity also

high, so they will find it easier to get a job according to the skills they have. Meanwhile, qualified health facilities make residents able to work in prime conditions and carry out good work (Todaro & Smith, 2014).

According to Mankiw (2007) slow economic growth will have a negative impact on the economy, one of which will increase the unemployment rate. Like during the global economic crisis due to the Covid-19 pandemic, where the world economy weakened, many companies lost money and reduced their production processes. This directly increases unemployment. Thus, economic conditions determine the high or low number of unemployed.

William Phillips in Curve theory Philips explains the relationship between the unemployment rate and inflation, where when inflation occurs, producers increase their production because they want more profits which directly require more labor to carry out this production. Thus, inflation which is still within the reach of people's purchasing power can reduce the number of unemployed (Mishkin, 2012).

According to Keynes' theory in Todaro & Smith (2014), an increase in people's purchasing power, which is an indicator of a decent life, shows an increase in aggregate demand and can create jobs. Human development plays a key factor in shaping the ability of a country or region to absorb modern technology in order to create job opportunities to reduce the number of unemployed.

Malthus in Todaro & Smith (2014) states that the high rate of population growth will increase competition among them in meeting their needs, especially food sources. Rising population means increasing competition in finding work. Thus, the workforce needs to improve the quality of themselves, especially education. With a qualified education, the workforce is able to adapt to the needs of the labor market and in the end it is easier to get a decent job. Especially in the modern era like now, where the industrial sector is very focused on developing efficient production processes, it will really need a workforce that is competent and has specialization.

Abugamea (2018) found that the Gross Domestic Product (GDP) and labor force variables had a negative effect on the open unemployment rate in Palestine in 1994-2017. Trimurti & Komalasari (2014) found that inflation had a positive effect on the open unemployment rate in 7 provinces in Indonesia during 2004-2012. Meanwhile, Gnjatović & Leković (2019) in their research found that the GDP of the tourism industry sector had a negative effect on the unemployment rate in Serbia in 2002-2017.

Salsabella, et al. (2020) found that population size and education level had a positive effect on the open unemployment rate in 34 provinces in Indonesia in 2013-2017. In line with this, Wibisono & Purtomo (2017) also found population size and minimum wages had a positive effect on the unemployment rate in Banten Province in 2008-2013. Muslim (2014) found that population growth and the labor force have a positive effect on the open unemployment rate. Meanwhile, education and government spending had a negative effect on the open unemployment rate in the Province of the Special Region of Yogyakarta in 2007-2012.

Soyl, et al. (2018) found that GDP and HDI had a negative effect on unemployment in Eastern European countries from 1992-2014. Meanwhile, during the 2007-2016 period in every province on the island of Java, Amrullah, et al. (2019) in his research found that GRDP has a negative effect on the unemployment rate.

Corolina & Panjawa (2020) found that the inflation rate and minimum wage had a positive effect on the unemployment rate in the Purwomanggung region in 2012-2019.Puspa

Juita (2017) found that the labor force had a positive effect on the open unemployment rate in Indonesia in 2000-2015. Meanwhile, during the 1985-2014 time period in Malang, Zahroh (2017) found that the labor force and minimum wage had a positive effect on the unemployment rate.

Sari (2020) found that foreign investment and per capita expenditure had a negative effect on the youth unemployment rate in Indonesia in 2016-2019. Ernanda, et al. (2021) also found the same thing, namely investment had a negative effect on the open unemployment rate in Banten Province in 2010-2019.

Based on the background above, this study will observe the effect of the Industrial Sector GRDP, Agricultural Sector GRDP, District/City Minimum Wage, Human Development Index, and the Labor Force on the open unemployment rate in each or city in Central Java in 2021.

METHOD

The tool used in this research is regression analysis*Ordinary Least Square* (OLS) with the following econometric model.

$UNMP_i = \beta_0 + \beta_1 PDRBSI_i + \beta_2 PDRBSP_i + \beta_3 UMK_i + \beta_4 IPM_i + +\beta_5 AND_i$..... (1)

where:

$UNMP_i$: Open Unemployment Rate (%)
$PDRBSI_i$: GRDP of Industrial Sector (million rupiah)
$PDRBSP_i$: GRDP of Agriculture Sector (million rupiah)
UMK_i : Regency/City Minimum Wage (rupiah)
IPM_i : Human Development Index (index)
AND_i : Work Force (soul)
ε_t : *Error term* (error factor)
β_0 : Constant
$\beta_1 \ldots \beta_5$: Regression coefficient of the independent variable
i : Regency/City i

The econometric model above is a modification of the modelAbugamea (2018). The labor force is hypothesized to have a positive effect on the open unemployment rate. While it is suspected that the GRDP of the Industrial Sector, the GRDP of the Agricultural Sector, the District/City Minimum Wage, and the Human Development Index are thought to have a negative effect on the open unemployment rate.

The type of data used in this research is secondary data with data cross *section* in 35 Regencies/Cities in Central Java Province in 2021. Data will be obtained from the Central Bureau of Statistics.

Stages of model estimation econometrics in this study include: parameter estimation of econometric models: classical assumption tests namely multicollinearity test, residual normality test, heteroscedasticity test, model specification test, model goodness test, which includes model existence test and interpretation of the coefficient of determination; ends with influence validity test.

RESULTS AND DISCUSSION

The results of the above econometric model estimates and their complementary tests are summarized in Table 2.

Table 2. Model Estimation ResultsEconometrics

$\widehat{UNMP_i}$= 14,728 - 0,562 $MSMEs_t$ $LOGPDRBSI_i$ + 0,779 $LOGPDRBSP_i$ + 0,739 $LOGIC_i$ (0,060)*** (0,042)** (0,748) + 0,306 IPM_i - 1,236 LOG_i (0,000)* (0,033)**
R^2 = 0.733; DW stat. = 1.379; F stat. = 14.258; rehearsal F stat. = 0.000
Diagnostic Test (1) Multicollinearity (VIF) *LOGPDRBSI* = 3,262; *LOGPDRBSP* = 6,625; *LOGIC* = 2,087; *IPM* = 3,996; *LOG* = 4,733 (2) Residual Normality JB(2) = 0,682; Prob. JB(2) = 0,711 (3) Heteroscedasticity □^{2}(19) = 15,728; Prob. □^{2}(19) = 0,675 (4) Linearity F(2,24) = 2,859; Prob. F(2,24) = 0,077

Source: BPS, processed. **Information**: *Significant at□ = 0,01; **Significant at□ = 0,05; ***Significant at□ = 0.10. The numbers in brackets are the empirical probability (*p value*) t-statistics.

The diagnostic test shows that the estimated model does not experience any violation of the classical assumption test at all. All values*VIF* < 10, so the estimated model is free from multicollinearity problems. Probability value empirical statistical tests for residual normality, heteroscedasticity, and linearity tests, which are 0.711 (> 0.10), 0.675 (> 0.10), and 0.077 (> 0.05) respectively, indicating that the estimated model has a normal distribution of residuals, free from heteroscedasticity problems, and precise (linear) model specifications.

The goodness-of-fit statistics show that the model exists, in terms of probability empirical statistics*F*, which is 0.000 (< 0.01), with R^2 of 0.733. This means that as a whole the independent variables, Industrial Sector GRDP, Agricultural Sector GRDP, Minimum Wage, Human Development Index, and Labor Force can explain 73.3% of the variation in the Open Unemployment Rate.

Separately, the GRDP of the Industrial Sector, the GRDP of the Agricultural Sector, the Human Development Index, and the Labor Force have a significant effect on the Open Unemployment Rate, each with an empirical probability t of 0.060 (<0.10); 0.042 (< 0.05); 0.000 (< 0.01) and 0.033 (< 0.05). The District/City Minimum Wage has no significant effect on the Unemployment Rate, because it has an empirical probability of 0.748 (> 0.10).

The Industrial Sector GRDP variable has a regression coefficient of -0.562. The relationship pattern between the GRDP of the Industrial Sector and the Open Unemployment Rate is linear-logarithmic, so that if the GRDP of the Industrial Sector increases by 1%, then the Open Unemployment Rate will decrease by 0.562/100 = 0.006%. Conversely, if the GRDP of the Industrial Sector decreases by 1%, then the Open Unemployment Rate will increase by 0.006%.

The agricultural sector GRDP variable has a regression coefficient of 0.779. The pattern of relationship between the GRDP of the Agricultural Sector and the Open Unemployment Rate is linear-logarithmic, so that if the GRDP of the Agricultural Sector increases by 1%, then the Open Unemployment Rate will also increase by 0.779/100 = 0.008%. Conversely, if the GRDP of the Agricultural Sector decreases by 1%, then the Open Unemployment Rate will also decrease by 0.008%.

The Human Development Index variable has a regression coefficient of 0.306. The relationship pattern between the Human Development Index and the Open Unemployment

Rate is linear, so that if the Human Development Index increases by 1 index, then the Open Unemployment Rate will also increase by 0.306%. Conversely, if the Human Development Index falls by 1 index, then the Open Unemployment Rate will also decrease by 0.306%.

The Labor Force variable has a regression coefficient of -1.236. The relationship pattern between the Labor Force and the Open Unemployment Rate is linear-logarithmic, so that if the Labor Force increases by 1%, then the Open Unemployment Rate will decrease by 1.236/100 = 0.012%. Conversely, if the Labor Force decreases by 1%, then the Open Unemployment Rate will increase by 0.012%.

DISCUSSION

Sector GRDPIndustry has a negative effect on the open unemployment rate, so that if the GRDP in that sector increases, it will absorb more labor and reduce the unemployment rate. The industrial sector is an economic sector that is believed to continue to grow along with the development of technology and information in the modern era as it is now. In addition, developments in this sector are also supported by the ease of making investments, so that there will be more companieseasy developing its production in Central Java which has the advantage of low wage rates and the availability of an abundant workforce.

GRDP of the Agricultural Sector was actually found to have a positive influence on the open unemployment rate. Thus, progress in this sector will actually increase the unemployment rate. This is due to the advancement of agricultural supporting infrastructure technology. For example, when harvesting rice, farmers used to do it traditionally by relying on human labor. Meanwhile, at present, there are many tools such as tractors that can harvest rice quickly and are believed to be more efficient. Thus, advances in agricultural tools will directly increase agricultural production and lower production costs. However, it will cause human labor to become obsolete or at least reduce the amount of labor in a modern agricultural system as it is now.

District/City Minimum Wage was found to have no effect on the unemployment rate. This condition is reasonable because wage rates in districts/cities in Central Java still tend to be lower when compared to other provinces in Java. Wages to be paid is one of the main factors in the calculation of production costs. If wages are high, companies will tend to consider production in that region. What's more, the traditional economy still dominates economic activities in most areas in Central Java, so there are many non-formal workers such as breeders, traders, farmers and fishermen. Thus, the prevailing wage rate does not affect economic activity and the unemployment rate that occurs.

The Human Development Index (IPM) has a positive influence on the unemployment rate. This means that the increase in human quality actually causes the unemployment rate to increase. The increase in HDI is an indicator of increasing levels of education and health in the region. Thus, the competition in finding a job will also be more stringent. These results are also convincing about the GRDP of the agricultural sector which has a negative effect on the number of unemployed. The increase in human quality will bring renewal to the economic system and increase production unit efficiency, so as to cut production costs by reducing the number of workers by replacing it with the latest technology.

The labor force has a negative effect on the open unemployment rate. Thus, increasing the number of the labor force will reduce the unemployment rate. Labor is the main factor for production activities, if the number of labor force in an area is sufficient, it will be easier for companies to find workers for their business units or production activities. The availability of a sufficient number of workforce is also a consideration for companies to

carry out production in Central Java. In addition, the wage rate which is still relatively low seems to be an added value for the company in building its factories in Central Java. As with the areas in Central Java which are now the destination for many companies to establish their production activities in the Central Java region.

IMPLICATIONS

It turns out that the open unemployment rate in Regencies/Cities in Central Java in 2021 is influenced by the GRDP of the Industrial Sector, GRDP of the Agricultural Sector, Human Development Index, and the Labor Force, while the District/City Minimum Wage has no influence.

CONCLUSION

Based on regression analysis*Ordinary Least Square* (OLS), no serious classical assumption violations were found in the model. The estimated model exists, withR^2 of 0.733. This means that as a whole the independent variables, Industrial Sector GRDP, Agricultural Sector GRDP, Minimum Wage, Human Development Index, and Labor Force can explain 73.3% of the variation in the Open Unemployment Rate. While the remaining 26.7% is explained by other variables not included in the study. The results of the influence validity test stated that the regression results showed that the GRDP of the agricultural sector and HDI had a positive effect on the open unemployment rate. GRDP of the industrial sector and the labor force have a negative effect on the open unemployment rate. Meanwhile, the UMK has no effect on the open unemployment rate.

It is hoped that the Regency/City Government and the Provincial Government of Central Java can use this research as material for consideration in making policies that support activities in the industrial sector. The government is expected to facilitate all development activities and investment activities in the new industrial sector so that many companies will establish their industrial centers in Central Java. It is hoped that the industrial sector will be able to absorb more workers and reduce the unemployment rate in Central Java. Meanwhile in the agricultural sector, the government is expected to pay attention to local farmers and encourage them to increase their production, so that more workers are involved in the agricultural sector in the regions. It is hoped that improvements in human capital will continue to be carried out by both local and provincial governments so that the quality of the workforce and their productivity will increase, so that it will be easier for them to find work and the unemployment rate can be reduced. Meanwhile, for future researchers of this kind, it is hoped that they can add other variables to measure the level of open unemployment in the province of Central Java so that the problem of unemployment in Central Java can be analyzed more deeply and find other solutions to overcome it.

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