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Analysis of Factors Affecting the Open Unemployment Rate Unemployment Rate in Indonesia in 2018-2022

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ABSTRACT

The purpose of this study is to determine the unemployment rate in Indonesia. If unemployment does not improve people's welfare based on per capita income. This study uses the years 2018 to 2022. This study uses panel data analysis. The value of the technical variable is 4.893448, the standard deviation value is 1.080620. Panel data regression is carried out. We test this survey data with data using panel data of dependent variables which include dependent variables, open unemployment rates, and independent variables.

Keywords*: Open Unemployment Rate Unemployment Rate in Indonesia*

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INTRODUCTION

Unemployment is a complex problem because there are many indicators that affect it. Some economic indicators that can affect the unemployment problem are economic growth. With the increase in economic growth of a country, it is expected that the unemployment rate will decrease. Unemployment is also an important factor in explaining the economic development of a country. Overcoming the problem of unemployment can increase the level of community welfare through per capita income (Silaban et al., 2020).

The next indicator that can affect the open unemployment rate is investment, both domestic investment (PMDN) and foreign investment (PMA). Investment itself is the investment of capital such as various production equipment to increase the production of goods and services. If the investment value is exceeded, then the investment has a positive impact on increasing production. It is assumed that after production increases, the demand for labor also increases (Helvira & Rizki, 2020).

According to the United Nations Conference on Trade and Development (UNCTAD, 2016), Indonesia is one of the ten countries with the largest investment potential in the world. Investors in any country face both ease and obstacles in developing their business. Therefore, there is an Ease of Doing Business (EoDB) index. Indonesia's ranking in 2019 was 106th, but rose to 91st in 2020. The more investors invest, creating more industries in Indonesia that can absorb labor.

Another indicator that can affect unemployment is technological development. Rapid technological innovation in the digitalization era brings many changes to daily life. The digitalization era is marked by advances in mobile-only global connectivity, artificial intelligence (AI), and robotics. In the short term, the development of information and communication technology (ICT) will lead to an increase in unemployment due to various changes in economic activity. Aggregate demand itself is influenced by prices according to the law of demand: when prices rise, demand falls.According to Keynesian theory, this was achieved by J.M Keynes, Keynes "stated that in the short run national output and employment are mainly determined by aggregate demand".

Technological innovation impacts every country, with various effects that can be beneficial or detrimental to the country. All outcomes depend on the implementation of government policies and the guarantee of the welfare of its people. Indonesia is a developing country and has a large market that can attract foreign and local investors to encourage investment and technological development to reduce unemployment in Indonesia.

Sembiring and Sasongko (2019) stated that the variables of regional gross domestic product (GRDP), inflation, and minimum wage have a negative and significant influence on the unemployment rate in Indonesia.Sarimuda RB (2014) conducted a study of Java Island provinces and found that GRDP and local minimum wage (UMK) have a negative and significant influence on the open unemployment rate. Oluchukwu and Chinyere's (2019) study on the impact of investment on the unemployment rate in developing countries (Nigeria) shows that public sector investment, domestic investment, and domestic investment have a negative impact on the unemployment rate in Nigeria.

Ferdinan (2013) shows that technological development has a positive impact on the unemployment rate. This is because technological development tends to reduce the use of production factors such as labor. The use of technology increases productivity and improves efficiency. On the other hand, research by Soniansih et al. (2021) shows that technological innovation is negatively correlated

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with the level of employment.H. Technological development will increase the unemployment rate.

METHODOLOGY

This study uses panel data analysis with the following model:

$$Yit = \beta0 + \beta1LOGX1it + \beta2LOGX2it + \beta3LOGX3it + \beta4X4it + eit$$

Where Yit is the published unemployment rate in percent. β0 is the intercept. β1, β2, β3, and β4 are the coefficients of each variable. LOGX1 is the regional gross domestic product of each state i in year t. LOGX2it is the domestic investment of each state i in year t. LOGX3 is foreign direct investment in each state i in year t. X4it is technology for each state i in year t.

RESULTS AND DISCUSSION

Descriptive Analysis

The results of descriptive analysis are shown in table 1 as follows:

Table 1. Descriptive Analysis

Variabel	Average	Standar Deviasi	Minimum	Maximum
TPT(Y)	4,853990	1,818195	0,880000	9,930000
PDRB(X1)	298847,7	423083,9	20380,00	1836240,
PMDN(X2)	8758,216	12411,35	0,000000	62095,00
PMA(X3)	865,8529	1204,435	2,000000	5881,000
TEK(X3)	4,893448	1,080620	2,130000	7,900000

From Table 1, the Publication Unemployment Rate (TPT) variable has the lowest (minimum) value of 0.88% in Aceh Province in 2018 and the highest (maximum) value of 9.93% in Maluku and Aceh Provinces in 2015. The mean value obtained for the TPT variable is 4.85 and the standard deviation value is 1.818195. The lowest (minimum) value of the Variable Gross Domestic Product (GRDP) was IDR 20.380 billion in Maluku Province in 2015, and the highest (highest) value was IDR 1,836,240 million in DKI Jakarta Metropolitan DKI Jakarta Province in 2019. The average value of GRDP fluctuations was 298.847 billion rupiahs, and the standard deviation value was 423,083.9. Domestic investment variable.

(The lowest (minimum) value means no investment in Maluku Province in 2015, and the highest (maximum) value is IDR 62,095 billion in DKI Jakarta Province in 2019. The average value obtained for the PMDN variable is IDR 8,758 million, and the standard deviation value is 121411.35.The minimum value (minimum) of the Foreign Direct Investment (FDI) variable is $2 million in West Sulawesi in 2015, and the highest (maximum) value is $5,881 billion in West Java in 2019.The mean value obtained on the FDI variable is 865.8529 and the standard deviation value is 1204.435. The lowest (minimum) value of

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the technology variable of 2.13% was in Papua province in 2015, and the highest (maximum) value of 7.9% was in DKI Jakarta province in 2018. The mean value obtained from the technical variable is 4.893448 and the standard deviation value is 1.080620.

Panel Data Regression Conducted

In testing this survey data, panel data is used with the dependent variable, namely the Undisclosed Unemployment Rate (TPT), and the independent variables of GRDP (X1), PMDN (X2), FDI (X3), and Technology (X4). Board information relapse comprises of a common impact demonstrate (CEM), settled impact show (FEM), and arbitrary impact show (REMAfter the investigation comes about are gotten, the best model of the three estimation models is selected. Table 2 shows the panel data regression results. Choose the best model between CEM and FEM using the Chow test with a probability score of 0.0000. This rejects the null hypothesis and makes FEM a better model. Next do the Hausman test and choose FEM or SEM . The likelihood esteemof the Hausman test is 0.0000 so the null hypothesis is rejected. FEM is considered a better model and suitable for this study. The coefficient of determination of the FEM model of 0.898978 indicates that 89.8978% of the independent variables in this study can explain the diversity of the dependent variable, namely TPT, and 10.1022% can be explained by other.

Table 2. Panel Data Regression Results

	Common Effect Model		Fixed Effect Model		Random Effect Model	
Variabel	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob
C	-2.393730	0.1249	45.04240	0.0000	2.066254	0.4733
LOGX1	0.853852*	0.0000	-3.152229*	0.0003	0.605214*	0.0243
LOGX2	-0.290243*	0.0104	-0.025350*	0.6772	-0.105894	0.0695
LOGX3	0.008238	0.9381	-0,162893*	0.0364	-0.158093*	0.0351
X4	-0.126756	0.3032	-0.307491	0.0008	-0.538572	0.0000
R-Squared	0.136576		0.898978		0.279953	
Adjusted R-Square	0.119133		0.876325		0.265407	
Prob(F-Statistic)	0.000007		0.000000		0.000000	
Chow Test		0,0000				
Hausman				0,0000		

Catatan: *tingkat signifikansi 5%

Discussion

Based on the results of the analysis conducted, GRDP has a negative impact on the extraordinary unemployment rate in Indonesia. This is in accordance with the research of Sembiring & Sasongko (2019) and Keynes' theory which states that low aggregate demand will also reduce output, because unemployment is the biggest cause of declining aggregate demand. This situation causes depressed labor market demand. PMDN has no effect on published unemployment rate in Indonesia because the realization of domestic investment in Indonesia is mostly in the capital-intensive sector so it does not affect employment (Astrid & Soekapdjo, 2020). FDI has an influence that is consistent with the research of Johan et al. This will have an adverse effect on the open unemployment rate in Indonesia. (2016) and Astrid and Soecapjo (2020), a country's good investment climate will attract investors to invest. The more investors invest in Indonesia, the more industries that can emerge and absorb labor.

Technology has a negative impact on the open unemployment rate in Indonesia. Technological development in Indonesia can reduce unemployment. In other words, factors of ICT development in Indonesia, such as the proportion of households that have access to the Internet, the proportion of Internet users, and the average years of schooling, show that these factors can reduce the unemployment rate.

Research by Aurachman (2018) shows that employment growth is influenced by technological innovation and entrepreneurial business development. Innovative entrepreneurs develop their companies and create jobs that can absorb a large number of workers. For example, online transportation innovation can absorb a lot of labor. In this case, machine power does not completely replace human labor. On the other hand, machine power facilitates human work.

CONCLUSION AND IMPLICATION

The results show that Regional Gross Domestic Product (GRDP), Foreign Direct Investment (FDI), and Innovation have a negative impact on the open unemployment rate, whereas Residential Coordinate Venture (DDI) has no impact on the open unemployment rate. The findings of this think about will empower arrangement producers to create approaches and advancement procedures that increment GDP by optimizing sectoral financial approaches, empowering permitting, making a favorable speculation environment for remote speculators, and encouraging the development of unemployment information in Indonesia. We have implemented communication technology (ICT) infrastructure across all provinces in Indonesia.

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