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## Indicators of the association of Unemployment in Indonesia with the Level of Employment Opportunity, GDP, and SER

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### Abstract

Population inequality and the unequal distribution of income are indicators of unemployment in Indonesia, while unemployment plays an important role in economic growth. The increase in Gross Domestic Product (GDP) means that the level of public welfare improves in direct proportion to the gross domestic product (GDP) which is used as a measuring tool for economic conditions. School Enrollment Rates (SER) and employment opportunities are also identified as having an effect on economic growth, so it is important to conduct research using the ECM method using time series data for 1990-2019 sourced from the Central Statistics Agency (CSA). Based on the results of data processing, it can be seen that in the short and long term employment opportunities and GDP have a positive effect on unemployment. However, in the long term GDP and SER have no significant negative effect on unemployment.

### Keywords

Unemployment, Economic Growth, Job Opportunities.

## 1. Introduction

Unemployment is a rife in Indonesia. Every level of society with various educational backgrounds has the same problem, namely it is difficult to get a job. The necessities of life that continue to run require the community to always be able to meet the needs of life, both clothing, food, and shelter (Franita, 2016). The government's program to reduce the unemployment rate in Indonesia from the village level to the national level through training centers to job fairs is the government's effort to reduce the unemployment rate in Indonesia. Amri (2017) said that the economic growth of a country or a region that continues to show improvement illustrates that the economy of the country or region is developing well. This good development of economic growth can be seen by the decreasing number of unemployment rates and the increase in the regional minimum wage (UMR) for workers.

According to Soleh (2017), the problem of unemployment has always been the biggest problem in the economy and will always exist in the long term, with a situation like this education is the most basic foundation in an effort to solve the unemployment problem in Indonesia. One of the government's efforts to promote the value of education in Indonesia is by imposing compulsory schooling at the high school level. With the implementation of compulsory schooling at the final level, it is expected to reduce the number of unemployed in productive age or working age.

Output growth assessed in terms of production factors include the availability of natural resources, the quality of human resources as the main factor in development and output growth, to the availability of capital to carry out production in an effort to increase more optimally (Nizar et al., 2013). The addition of job opportunities is also an important indicator in addition to increasing economic growth so that it will reduce the amount of inequality in the distribution of income that causes social classes to occur. The creation of social classes in society also has an impact on the desire and motivation to increase the capacity of a more optimal life.

Economic growth with an increase in GDP is used as an indicator of economic success, which means that people's welfare is improving. Adam Smith's classic theory identifies that rapid and high economic growth can reduce unemployment in the region. When economic growth in a region increases, it shows that the production process in that region is also increasing, thus identifying that unemployment is decreasing. Where when the amount of production increases, companies and industries will absorb more than usual absorption (Ramadhan, 2017).

The gap in the distribution of income received by the community can also be an important indicator in estimating the condition of unemployment in the region. Because the inequality of income distribution is the most obvious benchmark that is easy to identify. With the increasing economic growth in Indonesia, it is identified that the quality of industries and companies in Indonesia is increasing so that the level of available job opportunities is also getting bigger.

Education is also a benchmark for companies or industries in the absorption of labor in an effort to reduce unemployment in Indonesia. So the quality of education also needs to be improved so that the output produced is better than before. Sumitro Djojohadikusumo (1994) identified that the problem of unemployment, openly or covertly, became the main problem in the economic development of developing countries. Unemployment is also an indicator of a country's economic success seen from developing or experiencing a setback in the country's economic problems.

The increase in the labor force in the absence of job openings is the reason why there is an increasing number of unemployed in Indonesia. According to Acumpeter, economic growth is more focused on its influence on the importance of the role of entrepreneurs. In the form of renewal of innovation, creativity, and opening up new job opportunities that can help Indonesia to reduce unemployment. Many studies have raised issues related to unemployment, such as the example of Ganie (2017) which analyzes wages, education level, population, and GDP absorption of labor in Berau district, East Kalimantan. Furthermore, research from Anggoro, (2015) analyzed unemployment by raising economic growth and labor force growth as the variables used.

This research is expected to provide an answer whether there is an effect of school enrollment rates, employment opportunities, economic growth (GDP) on unemployment using time series data obtained from the Central Statistics Agency (CSA) and then analyzed using the Error Correction Model (ECM). That is one method to avoid spurious regression in dynamic linear models (Gujarati & Ambika, 2014).

Error correction models are widely used to correct long-term and short-term imbalance conditions. The advantage of using the Error correction model method is that it can overcome the problems contained in the non-stationary time series research data. So that by using this method, it is expected to be able to draw decisions both in the short and long term regarding the resolution of the unemployment problem and things that affect the occurrence of unemployment in Indonesia based on processed basic ingredients sourced from the Central Statistics Agency (CSA) 1990-2019.

## **2. Literature Review**

### **2.1 Unemployment**

Open unemployment are those who want to work, are trying to get (or develop) a job but have not been able to get it (Djohanputro, 2006; Putri, 2016). Meanwhile, according to Budhi & Twins (2013); Marhaeni & Sirait (2013), any country in the world, both those categorized as soon to be developed and developing countries always face the problem of unemployment, the difference is that developing countries are unable to provide benefits to their citizens who are unemployed while developed countries are able to provide such guarantees.

A person of productive age and not in education or have a job can be categorized as unemployed, in Indonesia the number of unemployed is still quite large because of the dense population of Indonesia. Meanwhile, according to CSA in the employment indicator, unemployment is a population who does not work but is looking for work or is preparing a new business or residents who are not looking for work because they have been accepted to work but have not started work.

**Tabel 1.** Unemployment Rate in Indonesia 1990-2019

Year	Open unemployment (%)	Year	Open unemployment (%)
1990	2.54	2005	7.94
1991	2.62	2006	7.55
1992	2.73	2007	8.06

1993	2.78	2008	7.21
1994	4.37	2009	6.11
1995	6.80	2010	5.61
1996	4.86	2011	5.15
1997	4.68	2012	4.47
1998	5.46	2013	4.34
1999	6.36	2014	4.05
2000	6.08	2015	4.51
2001	6.08	2016	4.30
2002	6.60	2017	3.88
2003	6.66	2018	4.40
2004	7.30	2019	3.62

Source: World Bank

Based on the data presented above, it can be seen that the number of unemployed in Indonesia fluctuates always up and down every year, this kind of unemployment occurs due to several factors that may indeed be happening at that time. Layoffs, employee reductions, industrial closures and pandemic conditions that cause companies, industries or other employment fields to be deliberately closed because they cannot survive to compete with other companies or because they are bankrupt. Circumstances like this are one concrete example of the cause of unemployment in the territory of Indonesia which always fluctuates every year because there are always unexpected causes for companies to close their businesses (Alghofari & Pujiyono, 2011).

Of course, this kind of unemployment is one of the first steps towards poverty and the emergence of social classes where a person cannot fulfill his life needs and depends a lot on the job where he is accepted but due to certain conditions the company or industry is forced to close. Unemployment always arises in the economy because of effective public demand or aggregate expenditure from the ability of factors of production available in the economy to produce goods and services (Suyuthi, 1989).

## 2.2 Job Opportunity Rate

The level of job opportunity is the availability of jobs for the workforce and those who need work. In line with the growth of educators, the number of the workforce is the same. the more available employment opportunities, the higher the level of available job opportunities (Arifin & Firmansyah, 2017). Employment opportunities as an indicator of a broad economy to reduce the number of unemployed people, increase population productivity and increase production and national income. Job opportunities or demand for labor is a derivative demand (devide demand) from the demand for goods and services (Situmorang, 2005).

Tjiptoherijanto et al. (1982) wrote about the importance of job opportunities with five things, namely (1) job creation and payment of wages may be the only mechanism that can redistribute income to those who were previously without work. (2) unemployment is demoralizing, someone without a job can lose his self-esteem. (3) in essence work is good, whatever the impact on morale,

self-esteem or other feelings. (4) socio-political unrest arises if a large number of people do not find work. (5) every year will appear a large number of new job seekers.

### **2.3 GDP (Gross Domestic Product)**

GDP is the value of goods and services produced in a certain time (Meyliana & Mulazid, 2017). According to Sunyoto et al. (2014), GDP is an output product in the form of goods and services in an economy produced by inputs or production factors owned by the citizens of the country concerned as well as by foreign nationals who live geographically in the country. Benefits of calculating PDV according to Raharja & Manurung (2008): (1) Analyzing the level of prosperity of a country; (2) Analyzing the level of social welfare of a society; (3) Reflecting the level of productivity of a country; and (4) Calculation of GDP and unrecorded economic activities (Underground Economy).

So that economic growth (GDP) is a measure of the success or failure of an economy, especially in the territory of Indonesia, thus the higher the number of GDP indicates that the economy is getting better, it indicates that unemployment in Indonesia is decreasing. This indicator of economic success through GDP is the simplest and universally applicable benchmark in the economic context. When the Indonesian economy is able to compete at the same time the level of the economy is getting better and indicates that unemployment is decreasing.

### **2.4 School Participation Rate**

Education is a conscious and planned effort in the process of mentoring and learning for individuals to grow and develop into independent, responsible, creative, knowledgeable, healthy, and noble human beings according to Law No. 20 of 2003.

Law No. 2 of 1989 states that the national education system seeks to develop human beings of high quality and capable of being independent, as well as to provide impetus for the development of the Indonesian people, nation and state with national resilience. Meanwhile, education in general according to Notoatmodjo (2003) is any planned effort to influence other people, either individuals, groups, or communities so that they do what is expected by education actors.

The school enrollment rate through education is very important considering that schools are the most basic thing in the economy, which is the main benchmark for economic growth. So that the level of education is the reason for the need to be the main focus in economic development in the context of development that begins with the development of human resources (Rahmatin & Soejoto, 2017). From some of the definitions above, it can be concluded that education is guidance or assistance given or delivered by adults to the development of children to reach maturity with the aim that children are capable enough to carry out their own life tasks without the help of others (Gazali, 2013).

### **2.5 Elements of Education**

As students who need education, they will usually enter the desired institution. In the input or process of entering an educational institution, it is divided into four levels based on the age and thoughts of the children who will be educated.

- a. Kindergarten this level is not an important level in the educational process because at this level, children are only introduced to the attitude of knowing each other. Does not include formal educational material.
- b. Elementary School level where children are introduced to new teaching materials, this is where Formal education is being started.
- c. Junior high school level of children begins to know the world around education, although it is not so broad and the teaching materials for formal education are emphasized more deeply.
- d. High School in this level of education or school is further divided into two, namely SMK and SMA itself. The difference is, Vocational Schools emphasize vocational education in their respective fields. Meanwhile, the education applied for SMA is still the same as for SMP.

It is hoped that someone who follows education starting with the initial level until the completion of compulsory schooling will help to increase school participation rates in accordance with government recommendations with output results that will be as expected. So it is hoped that after the completion of education, up to the mandatory high school level according to the criteria, it can make an effort to get a more decent job. So that education directly affects the determinants in competing for jobs as expected (Wijastuti & Nurhayati, 2021).

Education is the initial basis for a person to learn about life and prepare for goals and directions after completing compulsory schooling up to high school level, so that someone understands and understands how to pursue according to his competence which can be used up to the job level so that it will improve basic abilities which are expected to affect positions in the workforce. employment, so that it affects income which will increase the economy (Marwiyah, 2012).

Because not only as an employee but there are many efforts to free unemployment such as by opening up business fields, this kind of thing is widely trained and taught in schools so that when they graduate, they become mature and able to compete together in looking for work. This kind of school enrollment rate is a must for the government's main focus in improving the quality of the economy starting from the bottom through increasing human resources.

### **3. Methods**

This study uses secondary data. According to Kuncoro (2002), secondary data is data that has been collected by data collection agencies and published to the public using data. In this study, the data used are (1) unemployment data in Indonesia for 1990-2019 sourced from the Central Statistics Agency (CSA), (2) Gross Domestic Product (GDP) data in Indonesia for 1990-2019 sourced from the Central Statistics Agency. (CSA), (3) data on employment opportunities in Indonesia for 1990-2019 sourced from the Central Statistics Agency (CSA), and data on School Enrollment Rates (SER) in Indonesia for 1990-2019 sourced from the Central Statistics Agency (CSA).

#### **3.1 Research variable**

The research variable is the form of everything chosen by the researcher which aims to be studied and thus can obtain various information regarding related matters so that conclusions can

be drawn (Sugiyono, 2012). In this study, two data variables are used, namely the dependent variable or dependent variable whose value is based on the value of another variable, namely unemployment, as well as independent or independent variables whose results can affect other variables, namely GDP, employment opportunities, and SER.

The data is then processed and managed using quantitative methods and time series data with error correction model (ECM) regression analysis using eviews10 software. Time series data is used to get more accurate data because it uses data that is updated every year, samples are taken for 30 years, it is hoped that the results obtained will be maximal. Using the ECM analysis method for variables owned or called cointegration. Stiawan (2018) states that the ECM method is used to balance the long-term economic relationship of variables that already have a balance or long-term economic relationship.

The writing system for this research is done by:

- (1) Provide a descriptive description of unemployment, gross domestic product (GDP), school enrollment rate (SER), availability of job opportunities,
- (2) Further analysis is carried out using a stationary test on the variables that have been determined to obtain stationary results
- (3) Testing the degree of integration through expansion to what degree the data is stationary,
- (4) Cointegration test to see if the data is residual. Performed when the data are at the same degree. To see if the data is co-integrated or not, it can be done by means of the ECT test or error correction term in the ECM model,
- (5) ECM analysis in the form of dependence with cointegration. This method is used to determine the short-term economic relationship of variables that already have a balance or long-term relationship,
- (6) Interpretation of the estimation results.

The estimation of the short-term and long-term ECM models is explained as follows:

Long-term estimation model:

$$\text{Unemployment} = \beta_0 + \beta_1 \text{GDP.t} + \beta_2 \text{Chance.t} + \beta_3 \text{USER.t} + e$$

Meanwhile, the short-term estimates used are as follows:

$$\Delta \text{Unemployment} = \beta_0 + \beta_1 \Delta \text{GDPt} + \beta_2 \Delta \text{Chancet} + \beta_3 \Delta \text{USERt} + \beta_4 \text{ECTt-1} + e_t$$

Keterangan :

$\beta_0$	= Intercept or Constant
$\beta_1, \beta_2, \beta_3, \beta_4$	= Coefficient
Unemployment	= Open Unemployment Rate (%)
SER	= School Participation Rate (%)
Chance	= Job Opportunity Rate
GDP	= GROSS Domestic Product
ECT	= Error Correction Variable
t	= Year
e	= Error

Dengan langkah-langkah analisis sebagai berikut :

### **1. Stationerity Test**

In this test, analysis is used with the aim of knowing whether the data is stationary data so that it can be estimated or the data contains an element of trend (Random walk). By doing this stationarity test, if the data used shows that it is not stationary, then the available data needs to be differencing so that the data will become stationary as expected.

## 2. Cointegration Test

Cointegration test is a test used to identify the relationship between related variables whether they have cointegration or non-stationary data dependence which can be said to have cointegration if the variables have the same trend. Thus, the regression of these cointegrated variables does not result in a spurious regression. When the variables used have cointegration, it can be ascertained that these variables have a long-term relationship, so that regression between variables can be justified.

## 3. Error Corection Model (ECM)

ECM is an analysis used on time series data to show cointegration, when the variables used have dependencies. In ECM as a counterweight to short-term economic relations in the form of variables with a balance or long-term relationship.

According to Qolbi et al. (2020), there are 4 procedures in the ECM model, including the following:

- a. If all of the variables contained in the study are stationary at the "level", then the usual regression model is used.
- b. If there is one variable from the study which is stationary at the "level" level, then a regression model using difference is used.
- c. If none of the variables from the study are stationary at the "level", then do a stationary test using difference.
- d. If all the variables from the study are stationary at the same "difference" level, for example at difference 1, then there is a possibility of regression using the ECM model.

## 4. Classic assumption test

The Statistical consultant in 2011 said that the classical assumption test of ECM (Error Correction Model) is very necessary. By doing 4 tests, among others are:

### a. Normality test

This test is used to show the residual value in the normal distribution variable or not. This Normality Test shows the residual value.

### b. Multicollinearity Test

This test is used with the aim of knowing the difference in variants from one residual to another fixed or referred to as homoscedasticity so that the regression model shows that it meets the requirements.

### c. Heteroscedasticity Test

The test used is variance from one residual to another whether there is a difference. If there is a similarity of residual variance from one to another, it is still referred to as homoscedasticity, then the regression model shows that it meets the requirements.

d. Autocorrelation Test

In this test, it is used to show the relationship between a period (t) and the previous period (t-1) whether there is a correlation.

## 4. Results and Discussion

### 4.1 Stationerity Test

In the Stationerity Test there are two methods that can be used to analyze, namely the Augmented Dickey Fuller Test (ADF Test) and Phillip Perron Test (PP Test) methods. The current method is using the Augmented Dickey Fuller Test (ADF Test). Ordinary VAR can be used when the data is stationary at the level level. If there is no stationary level at the level, it is necessary to test at different levels until the data shows stationary.

a. Data Stationary Test Results at Level

**Tabel 2.** Stationary Test Results of Unemployment Level Variable Data Level

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.767889	0.3882
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

\*MacKinnon (1996) one-sided p-values.

Source: Eviews 10 (processed 2021)

**Tabel 3.** Stationarity Test Results for Chance Variable Data Level

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.648157	0.0983
Test critical values:		
1% level	-3.752946	
5% level	-2.998064	
10% level	-2.638752	

\*MacKinnon (1996) one-sided p-values.

Source: Eviews 10 (processed 2021)

**Tabel 4.** Results of Stationarity Test of GDP Variable Data Level Level

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.854796	0.0065
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	

10% level -2.622989

\*MacKinnon (1996) one-sided p-values.  
Source: Eviews 10 (processed 2021)

**Tabel 5.** Stationarity Test Results for SER Variable Data Level

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.439527	0.8893
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

\*MacKinnon (1996) one-sided p-values.  
Source: Eviews 10 (processed 2021)

By using the Stationary Test with the levels of the four tables above, namely tables 2,3,4 and 5, it is found that the only stationary variable at the level level is the Chance variable and the GDP variable. It can be said to be stationary when the probability value is less than 0.05 or 5%. Due to the Unemployment variable and the SER variable the probability value exceeds 0.05, it is necessary to carry out further testing by testing in the first difference.

b. Stationarity Test Results at the First Difference Level

**Tabel 6.** Stationarity Test Results for First Difference Level Unemployment Variable Data

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.793508	0.0006
Test critical values:		
1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

\*MacKinnon (1996) one-sided p-values  
Source: Eviews 10 (processed 2021)

**Tabel 7.** Stationarity Test Results for First Difference Level Chance Variable Data

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.644799	0.0009
Test critical values:		
1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

\*MacKinnon (1996) one-sided p-values.

Source: Eviews 10 (processed 2021)

**Tabel 8.** Results of Stationarity Test of GDP Variable Data Level First Difference

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.083718	0.0414
Test critical values:		
1% level	-3.737853	
5% level	-2.991878	
10% level	-2.635542	

\*MacKinnon (1996) one-sided p-values.

Source: Eviews 10 (processed 2021)

**Tabel 9.** Stationarity Test Results for First Different Level of SER Variable Data

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.249319	0.0026
Test critical values:		
1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

\*MacKinnon (1996) one-sided p-values.

Source: Eviews 10 (processed 2021)

From the results of the analysis using the first different from the four tables above, namely tables 6, 7, 8 and 9, it shows that these variables have a probability below 0.05 or it can be concluded that the data with the Unemployment, Chance, GDP, and SER variables are stationary data at the first level. differences.

## 4.2 Cointegration Test

Cointegration Test is conducted to see whether the variable data has balance or cointegration over a long period of time and can be cointegrated, with the following results:

**Tabel 10.** Cointegration Test Results

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized	Trace	0.05		
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.552326	53.63753	47.85613	0.0130
At most 1 *	0.497238	31.93790	29.79707	0.0279
At most 2	0.387944	13.37168	15.49471	0.1019
At most 3	0.004306	0.116517	3.841466	0.7328

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: Eviews 10 (processed 2021)

### 4.3 Test ECM Error

Correction Model (ECM) is often referred to as the error correction model, which is a model contained in the independent variable and the dependent variable which aims to see the long-term and short-term effects (Yasar et al., 2006).

Long Term Model:

$$PE = \beta_0 + \beta_1GDP_t + \beta_2Chance.t + \beta_3U\ SER.t + e$$

Short Term Model:

$$\Delta PE = \beta_0 + \beta_1\Delta GDP_t + \beta_2\Delta Chance.t + \beta_3\Delta U\ SER.t + \beta_4ECT_{t-1} + et$$

From the two equations using the first differene analysis, the results are stationary. This ECM method can combine short-term and short-term ECM results as follows:

**Tabel 11.** Long Term ECM Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CHANCE	-0.661236	0.047849	-13.81933	0.0000
GDP	-0.038225	0.029581	-1.292199	0.2077
SER	-0.032603	0.010961	-2.974554	0.0063
C	69.06434	4.631265	14.91263	0.0000
R-squared	0.881827	Mean dependent var		5.237333
Adjusted R-squared	0.868192	S.D. dependent var		1.616236
S.E. of regression	0.586782	Akaike info criterion		1.895238
Sum squared resid	8.952132	Schwarz criterion		2.082064
Log likelihood	-24.42857	Hannan-Quinn criter.		1.955005
F-statistic	64.67207	Durbin-Watson stat		1.053913
Prob(F-statistic)	0.000000			

Source: Eviews 10 (processed 2021)

**Tabel 12.** Short Term ECM Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D1_CHANCE	-0.600771	0.104875	-5.728465	0.0000
D1_GDP	0.001207	0.021219	0.056874	0.9551
D1_SER	-0.059996	0.072969	-0.822215	0.4190
ECT(-1)	-0.549297	0.190125	-2.889135	0.0081
C	0.058169	0.130216	0.446707	0.6591

R-squared	0.700050	Mean dependent var	0.037241
Adjusted R-squared	0.650058	S.D. dependent var	0.834103
S.E. of regression	0.493421	Akaike info criterion	1.580679
Sum squared resid	5.843149	Schwarz criterion	1.816419
Log likelihood	-17.91984	Hannan-Quinn criter.	1.654510
F-statistic	14.00330	Durbin-Watson stat	1.694062
Prob(F-statistic)	0.000005		

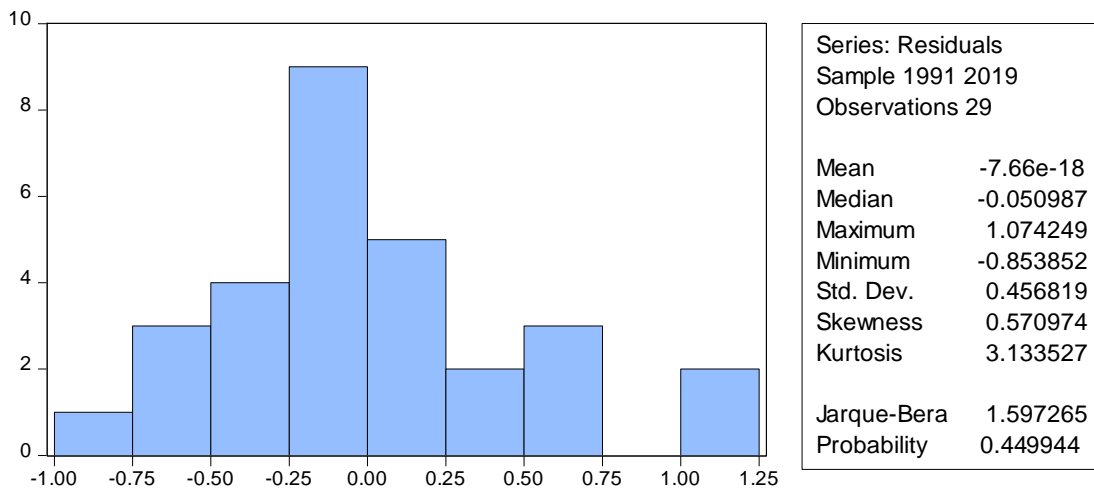
Source: Eviews 10 (processed 2021)

- a. From the main variable, namely the Chance variable on unemployment in Indonesia in the long-term analysis and short-term analysis, it shows that Chance has a significant negative effect on Unemployment, it can be proven by the results of the t-statistic value in the long term of -13,81933 and the probability value of 0.0000 which is less significant in = 5% or 0.05. Meanwhile, in the short term, the t-statistic value is -5.728465 with a probability value of 0.0000 which is significantly smaller at = 5% or 0.05. With the results of the analysis, in the long-term and short-term ECM test the Chance variable increases, the Unemployment decreases and vice versa.
- b. The Gross Domestic Product (GDP) variable on Unemployment in Indonesia in the long term with a t-statistic value of -1.292199 and a probability of 0.2077 which means that in the long term GDP does not have a significant negative effect on Unemployment. Meanwhile, in the short term, GDP has a t-statistic value of 0.056874 with a probability value of 0.9551, which means that in the short term, GDP has no significant positive effect. With the results of the ECM test, it can be concluded that Gross Domestic Product (GDP) has no effect on Unemployment as evidenced by exceeding the significance level at = 5% or 0.05.
- c. The SER variable on Unemployment in Indonesia in the long term with a t-statistic value of -2.974554 with a probability value of 0.0063 which means that in the long term SER has a significant negative effect as evidenced by the significance value at = 5% or 0.05. Meanwhile, in the short term, it shows an insignificant negative effect with the t-statistic result of -0.822215 and a probability value of 0.4190 which means that it has no significant effect because the value exceeds = 5% or 0.05. It can be concluded that SER in the long term has an effect on Unemployment while in the short term it has no effect.

#### **4.4 Classic Assumption Test**

##### **a. Normality test**

In the analysis of the normality test, it is useful to find out whether the residual value of the variable is normally distributed or not with the following results:



**Fig 1.** Normality Test Results  
Source: Eviews 10 (processed 2021)

With the results of the normality test as above, the Jarque-Bera statistic value is 1.597265 and the probability value is 0.449944 greater than 0.05 or 5% indicating that the normality test is normal or meets the requirements.

b. Multicollinearity Test

This test is carried out with the aim of knowing whether or not there is a correlation between variables in the regression model. Shown with the following results:

**Table 13.** Multicollinearity Test Results

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
D1_CHANCE	0.010999	1.221455	1.210266
D1_GDP	0.000450	1.015583	1.015270
D1_SER	0.005325	2.384385	1.476869
ECT(-1)	0.036148	1.320430	1.320130
C	0.016956	2.019730	NA

Source: Eviews 10 (processed 2021)

Based on the Multicollinearity Test presented above, it can be concluded that the VIF value for the Chance variable is 1.210266, the GDP variable has a VIF value of 1.015270 and the SER variable has a VIF value of 1.476869. With the VIF value of the variable indicating that the VIF value is less than 10, it is concluded that the model does not have multicollinearity.

c. Heteroscedasticity Test

This test is carried out to determine whether there is a difference in variance from one residual to observations.

**Tabel 14.** Heteroscedasticity Test

F-statistic	2.054008	Prob. F(4,24)	0.1186
Obs*R-squared	7.395850	Prob. Chi-Square(4)	0.1164
Scaled explained SS	5.403594	Prob. Chi-Square(4)	0.2483

Source: Eviews 10 (processed 2021)

From the results of the heteroscedasticity test above, it is shown that the value of Prob. The chi-square of 0.1164 is greater than = 5% (0.05) which is significant and the regression model is free from heteroscedasticity problems.

#### d. Autocorrelation Test

The Autocorrelation Test is carried out to find out whether there is a correlation between one period (t) and the previous period (t-1) with the following results:

**Tabel 15.** Autocorrelation Test

F-statistic	1.136838	Prob. F(2,22)	0.3390
Obs*R-squared	2.716384	Prob. Chi-Square(2)	0.2571

Source: Eviews 10 (processed 2021)

Based on this autocorrelation test, it is concluded that the Chi-Square probability value of 0.2571 is greater than = 5% or (0.05) meaning that it is free from autocorrelation problems.

## 5. Discussion

### a. Effect of Opportunity on Unemployment

Based on the Short-Term ECM Test in table 12 with a coefficient value of -0.60771. Thus, it means that a decrease in Chance of one billion will result in an increase in the number of Unemployment by 0.60771 billion. With this, the Chance variable has a significant negative effect on Unemployment in Indonesia with a probability value of 0.0000 less than = 5% or (0.05). In accordance with Sukirno (2008), employment opportunity is the number of workers who are working for other people or other companies and for their own business on a full-time basis. So that when the number of work opportunities decreases, it will cause an increase in Unemployment because there are no work activities.

### b. Effect of GDP on Unemployment

Based on the Short-Term ECM Test in table 12 with a coefficient value of 0.001207. This shows that if there is a decrease in GDP of one billion rupiah, it will result in a decrease in Unemployment of 0.001207 billion rupiah. GDP has no significant positive effect with

probability results above 0.05, supported by research. GDP growth is always related to the level of unemployment. This stems from the main goal of GDP growth, namely, providing employment opportunities and the prosperity of its population. So that in carrying out economic activities, it is closely related to the use of labor which affects the amount of labor absorption and the impact is in the form of unemployment (Samuelson and Nordhaus, 2004). So that GDP can be stated to have an effect but not significant to Unemployment in Indonesia.

c. Effect of SER on Unemployment

Based on the Short-Term ECM Test in table 12 with a coefficient value of -0.059996. That is, when there is a decrease in SER of one billion rupiah, it results in a decrease in education changes of one billion rupiah, it will result in a decrease in Unemployment of 0.059996. SER has a negative and insignificant effect on Unemployment with a probability value of 0.4190 which is greater than a significant level of 0.05. Thus, in this short-term ECM test, SER has no effect on Unemployment.

## 6. Conclusion

a. Variable Chance

From the data processing that has been done, it shows that the ECM estimation in the long term and short term, the Chance variable has an effect on Unemployment.

b. Variable Gross Domestic Product (GDP)

From the data processing that has been carried out on the ECM estimation, the results show that the long-term GDP variable has a negative and insignificant effect, while in the short term it has a positive and insignificant effect.

c. Variable School Participation Rate (SER)

From the data processing that has been carried out with the ECM estimation, it is obtained that the short-term and long-term results have a negative and insignificant effect. So that SER has no effect on Unemployment.

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