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Effect of Economic Growth on Unemployment Rate in Indonesia

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Abstract

This study aims to analyze and empirically prove the effect of economic growth and wages provincial minimum (UMP) to the unemployment rate in Indonesia econometric model multiple regression for panel data. Results the study found that economic growth was proven to have a negative (decreasing) and significant effect on the unemployment rate. Meanwhile, the provincial minimum wage is proven to have a positive (increasing) and significant effect on the unemployment rate. This research has limitations, that is, using only two independent variables (economic growth and the provincial minimum wage) so that there are other factors or variables outside the model that can also affect the dependent variable (unemployment rate). The contribution given from this research is as input as well as evaluation for interested parties in making policies (Government and Regional Government) so that they can produce more targeted policies in an effort to reduce unemployment rates, especially for Regional Governments in Indonesia.

Keywords
unemployment; minimum wage; economic growth; real GDP per capita

I. Introduction

The unemployment phenomenon that has occurred in Indonesia has shown that Indonesia is still facing the problem of inequality in people's welfare. In addition, this phenomenon also shows that the economic development carried out by the Government has not yet been completed. According to Djojohadikusumo (1994) The problem of open and covert unemployment is the main problem in the economic development of developing countries. The success or failure of an effort to overcome this big problem will affect the socio-political stability in people's lives and the continuity of long-term economic development.

Indonesia's unemployment rate in 2020 was recorded at 7.07% or as many as 9,767,754 people who are unemployed (BPS, 2021). This figure represents the labor force that cannot be absorbed in the available jobs. On the other hand, the proportion of Indonesia's working age population is increasing, which in this case is better known as the "*demographic bonus*". Of course, this is a problem for the Indonesian economy because the increase in the productive age group can potentially increase the number of unemployed if it cannot be absorbed by the capacity of the economy. The implication of the higher unemployment rate is that more and more people do not work and have no income so that they cannot meet the necessities of life. Thus, the absence of income causes the welfare of unemployed people to decline because they do not have purchasing power.

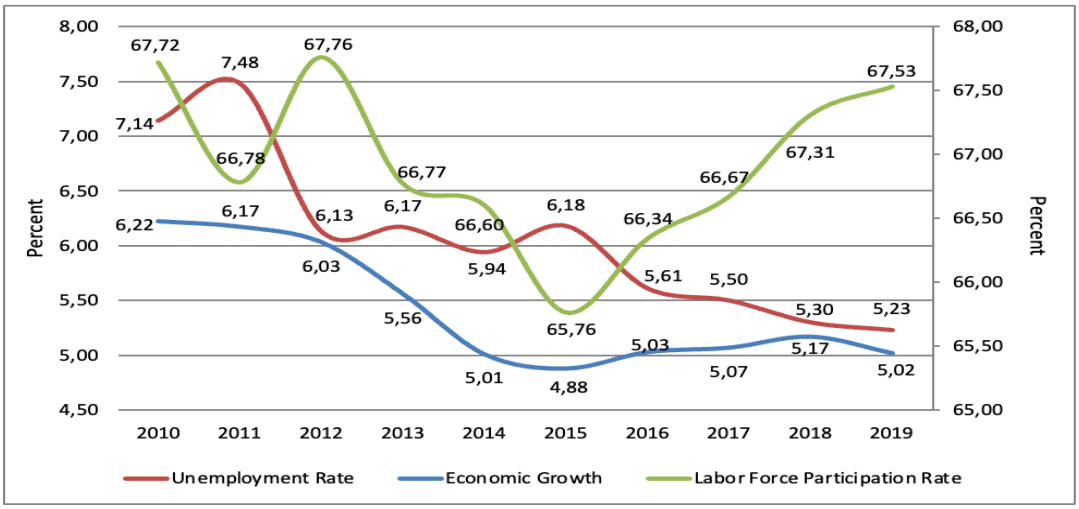
The problem of unemployment is essentially multidimensional. This means that unemployment is not only an economic problem but also a social and even political problem. The condition of not working (unemployment) can lead to vulnerability to crime and crime in the community. Research by Grönqvist (2011) and Fougère (2006) shows that

high unemployment is associated with an increase in crime cases in Sweden and France. Therefore, this will disrupt the stability of the economy. Meanwhile, according to Dornbusch (2011) the main impact of unemployment on the economy is the loss of production and worsening income distribution. Unemployment indicates the unused human resources, this is a form of wasting resources. Resources that exist but are not used for the production process will result in output not being at its optimal value.

One of the stable and good economic conditions is characterized by an economic situation that is in a state of *full employment*. The absorption of labor in the economy will certainly make a major contribution to the progress of the economy. This is because the unemployment rate is one of the main macroeconomic subjects that is important and is an indicator of the progress of a country's economic development. Therefore, the performance of the unemployment rate is also closely related to other macroeconomic indicators such as economic growth. Economic growth is still an important goal in a country's economy, especially for developing countries like Indonesia (Magdalena and Suhatman, 2020).

Economic growth is a very important thing in seeing the progress of economic development in a region. Economic growth shows the extent to which economic activity will generate additional community income in a certain period (Susanti, 2007). However, in addition to pursuing economic growth, the Government needs to pay attention to other aspects in achieving development goals. During the 1970s, economic development underwent a redefinition of eliminating or reducing poverty levels, reducing income inequality, and providing employment. The adjustment of the definition of economic development is now based more on the concept of "redistribution of growth results" (Todaro, 2006).

During the period 2010 to 2019 Indonesia experienced a downward trend in the unemployment rate, during which the unemployment rate fell by 1.91 percentage points (from 7.14% in 2010 to 5.23% in 2019) as shown in Figure 1 The downward trend in the unemployment rate turned out to be less relevant to the relatively fluctuating trend of Indonesia's labor force participation rate (TPAK). LFPR is the proportion of the labor force population to the working age population. On the other hand, Indonesia still gets a positive growth rate every year despite experiencing a slowdown during the 2010-2019 period. During this period, Indonesia's economic growth averaged 5.42%. This condition implies that economic growth has a relationship with the unemployment rate.



Source: Central Bureau of Statistics, 2013-2020

Figure 1. *Open Unemployment Rate, Economic Growth, and Participation Rate of the Indonesian Labor Force in 2010-2019*

Unemployment is actually an imbalance phenomenon, namely more labor supply than labor demand (*excess supply*). Unemployment arises when the growth of the labor force is too fast or the growth of employment is too slow. The growth of the labor force represents the supply of labor. Meanwhile, employment growth represents the demand for labor. The demand for labor is determined by the demand for goods and services. This means that *input* depends on *output*. In other words, *input* derived from *output* is called *derived demand* (Case & Fair, 2012). Therefore, the demand for labor is related to the output *of* the economy.

Based on the description above, it is necessary to analyze the labor market. Labor market imbalances are more influenced by demand for labor that grows too slowly or supply of labor that grows too fast. The interaction between supply and demand for labor is affected by the efficiency of the labor market. One that affects the labor market to work efficiently is the level of wages. Whether the wage rate is determined entirely by the market mechanism or not. Wage levels that are not fully determined by the market will disrupt the achievement of labor market balance. One example of a wage that is determined outside the market mechanism is the minimum wage whose amount is determined by the Government.

The provincial government in Indonesia determines the minimum wage level to ensure the welfare of workers. On the other hand, an increase in wages is an increase in the company's production costs. If the production costs are felt to be too high, the company can make policies to reduce workers. Therefore, it is feared that an increase in the provincial minimum wage (UMP) will increase the number of unemployed. Thus, the main objective of this research is to examine the effect of economic growth and the provincial minimum wage on the unemployment rate in Indonesia.

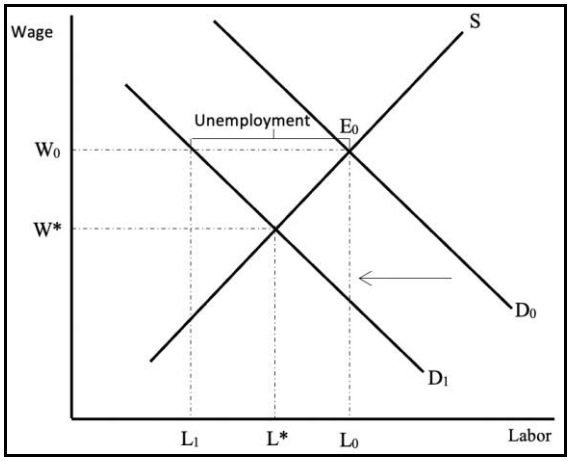
II. Review of Literature

Unemployment is one of the main subjects of macroeconomics (Romer, 2012). According to the ILO (1982) unemployment is one of the components in the workforce, namely those who are not working, ready to work and in an active effort to find work but have not found work for a certain period of time. The indicator that describes the condition of unemployment is the unemployment rate, which is the percentage of the number of unemployed to the labor force. While the labor force is the sum of unemployed and working people. The labor force is a source of labor supply in the labor market.

According to the Keynesian view, the labor market is not always in equilibrium.of labor supply(Romer, 2012). Figure 2 shows the market in a state of *disequilibrium*, when there is a decrease in demand from D_0 to D_1 the wage rate remains at W_0 (above the market equilibrium wage, i.e. *W**). At the wage level W_0, the number of people who want to work is L_0, while the market requires only L_1. There is an excess supply of labor, then unemployment appears at a distance of $L_0 - L_1$. The interaction of labor supply and demand cannot achieve a balance.

The cause of the imbalance is the level of wages determined by intervention from outside the market. Wages like this are called wage *rigidity*. Intervention from outside the market usually causes the wage level to be above the market equilibrium wage. There are four forms of wage intervention, namely employment contracts, minimum wage regulations,*labor unions and* efficiency wage theory. Employment contracts and minimum wages result in fixed wages at levels that have been agreed and set by the government. Therefore, wage rates cannot be adjusted immediately when there is a change in the labor market.

According to Mankiw (2000) wages are one of the factors that affect the unemployment rate. In addition, wages are also compensation received by one unit of labor in the form of the amount of money paid to him. Kaufman & Hotchkiss (1999) states that the determination of the wage rate by the government in a country will have an influence on the magnitude of the existing unemployment rate. The higher the wage set by the government, the lower the number of people working in the country.



Source: Case & Fair, 2012

Figure 2. *Wage Rigidity and Labor Market Imbalance*

The main assumption of the wage efficiency model is that there is an advantage for firms to pay higher wages. There are several reasons that explain this, *first*, high wages can increase the consumption of workers. Thus workers will be more productive. *Second*, higher wages can keep workers from moving to another place of work. *Third*, paying higher wages can boost the competence of workers and at the same time improve their quality. *Finally*, high wages can build loyalty among workers, and then generate high effort. Conversely, low wages can lead to anger and a desire for revenge, and then workers will be able to sabotage or neglect work (Romer, 2012).

Based on the causes, unemployment is divided into four types, namely seasonal, frictional, structural and cyclical unemployment. The first three types of unemployment affect the natural rate of unemployment in an economy (*Natural Rate of Unemployment*). The sum of the three is the natural rate of unemployment. The three types of unemployment will still exist in the economy, even though the economy is in *full employment* (Stiglitz, 2006).

One of the macroeconomic performances that can affect the unemployment rate is economic growth. Okun*'s law introduced* by Arthur Okun (1962) states that there is a linear negative relationship between unemployment and economic growth (Kuncoro, 2013). Economic growth is defined as a long-term increase in a country's ability to provide its population with a wider variety of economic goods; this ability grows according to technological advances, and the institutional and ideological adjustments it requires (Kuznets in Jhingan, 2003).

Economic growth shows the extent to which economic activity will generate additional income for the community in a certain period. Because basically economic activity is a process of using production factors to produce *output*, this process in turn will result in a flow of remuneration for production factors owned by the community. With economic growth, it is expected that the income of the community as the owner of production factors will also increase (Susanti, 2007).

Frenkel & Ros (2006) examined the effect of RER (*Real Exchange Rate*) on unemployment rates in 17 Latin American countries during the period 1990-2002. The results showed that GDP, RER and the Industrial Sector had a negative effect on the unemployment rate. Meanwhile, the labor force has a positive effect on the unemployment rate. Eita & Ashipala (2010) conducted a study that aims to find the determinants of unemployment in Namibia during the period 1971-2007 using *The Engle-Granger two-step Economic Procedure*. The results showed that inflation and investment have a negative effect on unemployment, real wages have a positive effect on unemployment. Meanwhile, productivity does not significantly affect unemployment and actual GDP is smaller than the potential GDP to increase unemployment.

Panjawa & Daryono (2014) conducted a study that aims to analyze the determinants of the unemployment rate in the Surakarta Residency. The study used panel data from seven districts/cities in the Surakarta Residency during the period 1999-2013. The results showed that GRDP had a significant negative effect on the unemployment rate. Meanwhile, the minimum wage and population have a significant positive effect on the unemployment rate. Meanwhile, inflation has no significant effect on the unemployment rate.

Research conducted by Syahril (2014) aims to examine whether economic growth and employment opportunities affect the unemployment rate in West Aceh Regency during the period 2002-2011. The research results show that only economic growth has an effect on the unemployment rate. The higher the rate of economic growth, the lower the unemployment rate. A study conducted by Amir (2007) on the effect of inflation and economic growth on unemployment in Indonesia during the period 1980-2005 provides evidence that economic growth has a significant negative effect on the unemployment rate. Meanwhile, inflation has no significant effect on unemployment.

Based on the theoretical basis put forward, the hypothesis formulated in this study is that economic growth and the provincial minimum wage are thought to have a significant influence on the unemployment rate.

III. Research Method

The data used for this study is secondary data which includes data on the open unemployment rate, provincial minimum wage data, and per capita GRDP data based on 2010 constant prices from all provinces in Indonesia from 2010 to 2016 which are sourced mainly from the Central Statistics Agency. . The data processing technique used in this study uses an econometric model of multiple linear equations (*multiple regression*) for panel data which is a combination of *cross sections* , namely 33 provinces in Indonesia with a *time series* of seven years (2010-2016). Data processing is aimed at finding the best model. To obtain estimates of each variable and parameter, statistical data and models were processed using *software* Stata 12

The form of the multiple linear regression model used in this study was multiple linear regression with the *dependent variable* being the unemployment rate variable, while the *independent variable was* the growth variable. economy and the variable of the provincial minimum wage using per capita GRDP. The equation function of the formulated model is as follows.

$$UNEMP = f(PDRBPK, UMP)$$

Where:
$UNEMP$: Open Unemployment Rate
$PDRBPK$: Real GDP per Capita
UMP : Provincial Minimum Wage

Statistical results obtained from data processing are used to test hypotheses. This hypothesis test is useful for checking or testing whether the regression coefficient obtained is significant (significantly different). The meaning of this significance is a regression coefficient value which is not statistically equal to zero.coefficient *slope* is equal to zero, it means that there is not enough evidence to state that the independent variable has an influence on the dependent variable (Nachrowi, 2006). Thus, in detail the test of the criteria is carried out with the following stages.

a. Economic criteria (signs and quantities) of economic theory;
b. Statistical criteria consisting of: t test (test the significance of individual parameters/partial test); Fisher/F test (simultaneous significance test); and R2(coefficient of determination test).

IV. Results and Discussion

Based on the results of data processing that has been done, this research produces an equation which is formulated as follows.

$$UNEMP_{it} = \beta_0 + \beta_1 PDRBPK_{it} + \beta_2 LOG\,(UMP_{it}) + \varepsilon_{it}$$

Where:
$UNEMP$: Unemployment Rate (%)
$PDRBPK$: GRDP per Real Capita (Million Rupiah)
UMP : Provincial Minimum Wage (Million Rupiah)

After obtaining the equation After this model, the right approach for panel data must then be determined, namely using *pooled least squares, fixed effect model* (FEM) or *random effect model* (REM). Therefore, the first step to take is to choose between *pooled least square* or *fixed effect model* (FEM). Based on the results of the F-test performed, the *probability* F-statistic is 0.0000, which is smaller than the 5% real level. This means that the *fixed effect model* (FEM) approach is more appropriate to choose than *pooled least squares*.

After the results of the F test indicate the correct FEM method, the next step is to choose between FEM or REM which is carried out with the Hausman test (Hausman*test*). Based on the Hausman test, the *p-value* is 0.0000. This indicates that the test results are significant (*p-value* < 5%), which means that the correct approach is *Fixed Effect Model* (FEM). The results of the regression carried out briefly can be shown in Table 1.

Table 1. Estimation Results of Equation Model

Variable	Coefficient	P>|t|
GRDP per Capita	-0.13	0.000 (***)
UMP Growth	0.08	0.003 (***)
C	9.86	0.000 (***)
R-squared	0.2894	

Prob > F	0.0000
Total Observations	231

Sources: Data processed using Stata version 12

Description: * significant at α 10% (p < 0.1); ** significant at α 5% (p < 0.05); *** significant at α 1% (p < 0.001)

Based on the results of data processing carried out on the equation model using the *Fixed Effect Model* (FEM) approach, the coefficients of the independent variables individually (t test) and jointly (F test) significantly affect the unemployment rate. *The probability* of the variable GRDP per capita and the growth of the provincial minimum wage is less than 1% so that these variables significantly affect the unemployment rate at the 99% confidence level. Meanwhile, based on the tests conducted, the results obtained that the *probability* is less than 1%, which means that the regression model used is good/significant or in other words, the independent variables have a significant effect on the dependent variable. As for the test based on the *R-squared* . It was found that the model was able to explain the variation of the unemployment rate of 28.94 percent.

4.1 Analysis of the Effect of Economic Growth on the Unemployment Rate

The estimation results show a negative relationship between GRDP per capita and the unemployment rate. The coefficient value of GRDP per capita is -0.13. This has an interpretation, namely if GRDP per capita increases/grows by 1 million rupiah, the unemployment rate will decrease by 0.13 percentage points (*percentage points*), assuming that other factors outside the model are considered constant (*ceteris paribus*). The decline in the unemployment rate is in accordance with the theories and the results of previous research that have been previously stated in which economic growth has an impact on reducing unemployment. Thus, the economic growth variable in this study has a negative and significant effect on the unemployment rate in Indonesia.

GRDP growth that continues to increase every year is considered important for economic progress and is ultimately reflected in real terms in people's income (GRDP per capita). For this reason, GRDP growth must be maintained so that it continues to increase and the figure is higher than population growth. Because if population growth is higher than GRDP growth, then GRDP growth will not have a positive impact on people's welfare.

Economic growth shows the addition of Gross Domestic Product (GDP) or Gross Regional Domestic Product (GRDP) for regional/regional scale. Economic growth seen from the side of aggregate supply (*aggregate supply*) certainly shows the performance of an increase in production capacity. With the increase in aggregate supply side performance, it is expected to absorb more labor so that unemployment will be reduced. Conversely, if the economy is sluggish, especially on the aggregate supply side, it is certain that production capacity will decrease and cause symptoms of an increase in the number of unemployed. This indicates that the slowdown in a country's economic growth can be associated with the high number of unemployed in a country.

Theoretically, the rate of economic growth indicates that there is investment in the national economic system. This investment will encourage demand for production factors in the form of labor and land/natural resources. The need for manpower will certainly increase the demand for labor which in turn will increase the absorption of labor. This process will continue as long as there is economic growth driven by investment in the real sector.

On the other hand, the increase in production capacity will certainly be driven by an increase in aggregate *demand*. The growth of aggregate demand is influenced by one of the factors of people's purchasing power (such as household economic actors). If aggregate demand grows well, this will spur an increase in aggregate supply through increased production so that *output* will increase. As a result, the demand for labor as *input* will increase. Thus, the implication is that the unemployment rate is decreasing.

4.2 Analysis of the Effect of the Minimum Wage on the Unemployment Rate

The estimation results show a positive relationship between the growth of the UMP and the unemployment rate. The UMP growth coefficient value is 0.08. This has an interpretation, namely if the UMP increases by 1 percent, the unemployment rate will increase by 0.08 percentage points (*percentage points*), assuming that other factors outside the model are considered constant (*ceteris paribus*). Because the coefficient is less than 1, the change in the unemployment rate is inelastic to changes in the UMP. The increase in the unemployment rate is in accordance with the theories and the results of previous research that have been previously stated in which the minimum wage has an impact on increasing unemployment. Thus, the variable of the provincial minimum wage in this study has a positive and significant influence on the unemployment rate in Indonesia.

The positive influence between the minimum wage and the unemployment rate is in line with the theory of labor demand. If the wage rate (labor price) is high or increased it will result in a decrease in the demand for labor. In other words, job providers will demand less labor than before. In this case, wage rigidity occurs due to the determination of the minimum wage, namely the inability of wages to make adjustments to the equilibrium point, where the supply of labor equals the demand for labor.

In essence, wages are very important for employers and workers. A high wage level will create an increase in the supply of labor because workers expect higher income or remuneration for factors of production. But on the other hand, an increase in wages has implications for rising *costs* for the company. This is because labor is one of *the inputs to* important productionIf the company is burdened with *costs* , it can have an impact on increasing *output*. Furthermore, if the output price increases significantly then the implication is a decrease in the demand for goods.

To maintain the stability of *output* and demand for goods, including reducing production costs, companies must reduce or limit the number of workers. Therefore, in the end the demand for labor is a derivative of the demand for *output*, which is called *derived demand.* The company's action to reduce the demand for labor is relevant to do because *input* labor variable *costs*). On the other hand, with the wage rigidity that occurs, the company hopes that worker productivity will also be higher and maintain the level of worker loyalty to the company.

In Indonesia, the minimum wage is determined by each province every year through the Governor's Decree on the Provincial Minimum Wage (UMP). However, there are also a number of regencies/municipalities that adjust the provincial minimum wage through a Decree of the Regent/Mayor to determine the district/city minimum wage (UMK). Of course, the level of the provincial minimum wage in each region is different because calculating the UMP uses a formula that refers to the conditions of each region. In general, every year the UMP tends to increase.

The efforts of the Regional Government in setting the provincial minimum wage are aimed at ensuring the welfare of workers. However, this policy can have an impact on decreasing demand for labor because companies must take into account production costs so as not to *collapse and* on the one hand there is an increase in the supply of labor. Thus,

there is a surplus of labor or unemployment. In other words, an increase in the provincial minimum wage will lead to an increase in unemployment.

V. Conclusion

The conclusion that can be drawn in this study is that economic growth has been shown to have a negative (decreasing) and significant effect on the unemployment rate in Indonesia. The estimation results show the coefficient value of the per capita GRDP variable is -0.13, which means that if the per capita GDP increases/grows by 1 million rupiah, the unemployment rate will decrease by 0.13 percentage points (*percentage points*), *ceteris paribus*. Meanwhile, the provincial minimum wage (UMP) has been shown to have a positive (increasing) and significant effect on the unemployment rate in Indonesia. The estimation results show the coefficient value of the UMP growth variable is 0.08, which means that if the UMP increases by 1 percent, the unemployment rate will increase by 0.08 percentage points (*percentage points*), *ceteris paribus*.

Limitation and Study Forward

This study has limitations, namely it only uses two independent variables (economic growth and the provincial minimum wage) so that there are other factors or variables outside the model that can also affect the dependent variable (unemployment rate). This assumption is supported by the *R-squared* obtained in the model equation, which is 28.94%. Therefore, for further research, it is better to be able to conduct research by using or adding variables other than those in this research model in order to see other variables that also have an influence on the unemployment rate.

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