ANALYSIS OF MEANS YEARS SCHOOLING AND REGIONAL MINIMUM WAGE TO OPEN UNEMPLOYMENT RATE IN THE REGENCY/CITY OF THE RIAU ISLANDS PROVINCE

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Abstract

Background - The Riau Islands province has a relatively high open unemployment rate compared to other provinces in Indonesia. In fact, the open unemployment rate in the Riau Islands Province is higher than the open unemployment rate at the national level

Purpose – This research aims at investigating the effect of the average educational background and the minimum wage in regencies/cities on the open unemployment rate in the regencies/cities of the Riau Islands Province

Research methodology – The data used in this study were obtained from seven regencies/cities in the Riau Islands Province, with the total sample of 70 data from 2011 to 2017 provided by the Central Statistics Agency. The sampling method used in this research was a non-probability sampling, with saturated sampling technique. Furthermore, the data analysis used a panel data analysis method with Random Effect Model (REM).

Findings – The research results revealed that the average educational background had a significant effect on the open unemployment rate due to low levels of education, which is not in accordance with the company's demand. In addition, unwillingness of employees with high levels of education to be paid with low salaries and the minimum wage in regencies/cities did not have a significant effect on the open unemployment rate because they believed that machines would eventually replace people due to the rapid development of the latest technology.

Research limitations– This research is still limited to predicting the factors that affect the open unemployment rate. Meanwhile, there are variables outside of this research affecting the open unemployment rate.

Originality/value – Novelty of the research is regional minimum wage has no effect on the open Unemployement rate, which means that no matter how large the MSE is, it will not have an impact on the Unemployement rate. This is due to the rapid increase in technology, the existence of machines/robots that can shift human labor as labor, the results of this research are contrary to the results of previous research (Santoso & Kristiyanto, 2021) and Prayitno & Kusumawardani (2022)

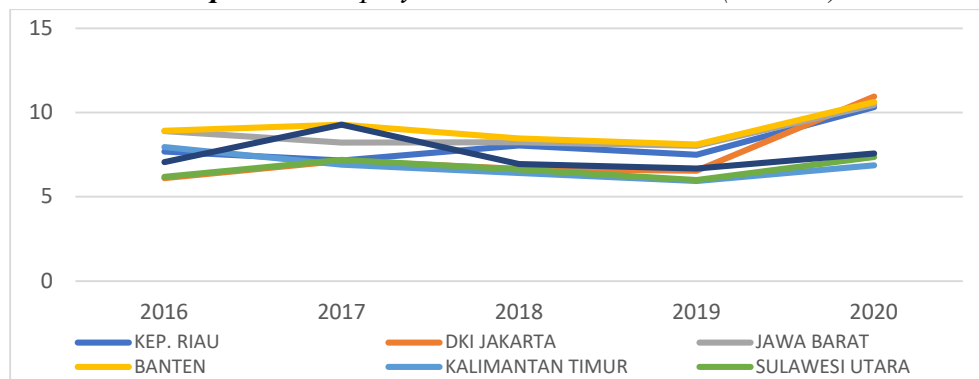**Keywords:** mean years schooling, open unemployment rate, regional minimum wage

1. Introduction

Unemployment is a parameter of economic development, if unemployment is low then it can be said that the economic development is successful, therefore Indonesia is a country that still requires a development process (NurAfiat et al., 2020). According to Sukirno, 2008, Unemployment is a

person who does not have a job and has not obtained it and is included in the labor force (Febrianti et al., 2021). The open unemployment rate is a problem caused by the imperfect use of human resources. To see the severity of the unemployment problem, the parameter that is seen is the open unemployment rate. The range of the open unemployment rate is considered reasonable when it is 4% (Filiasari & Setiawan, 2021). To create a low unemployment rate, the government is required to formulate appropriate policies (Shinta et al., 2021). As affirmed by Keynes's theory, it was 1936 if it was low aggregate demand that caused the unemployment rate to be high, so it was not low production but low consumption that led to the inhibition of economic growth. When wages increase, the workforce also increases, which causes a loss, because unemployment will increase which has an impact on the decline in the purchasing power of the population.

The decrease in labor demand is also due to the incompetent human resources in Riau Islands Province so they are eliminated in the job-seeking competition compared to prospective workers in other provinces to get a job, this is when viewed from the education of the community which is seen from the mean years schooling which is still low. The increase in the district/city minimum wage every year also affects the level of employment in the Riau Islands Province, because the minimum wage is increasing every year, high wages cause companies to decide to terminate their employment because the costs incurred by the company will be higher.

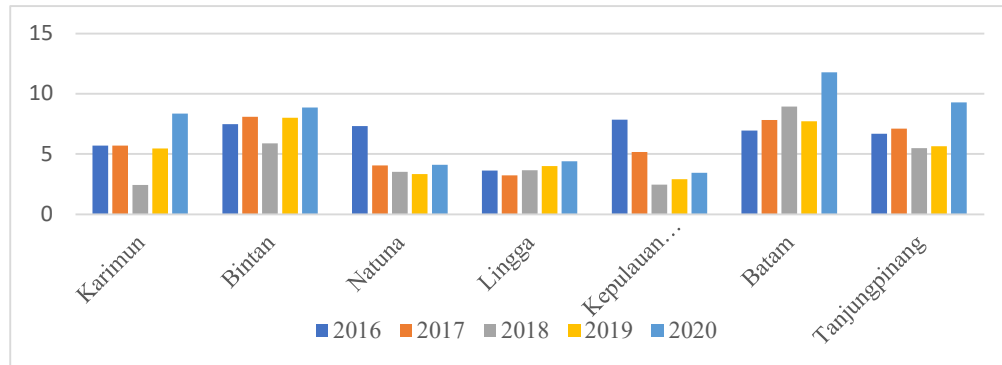**Graph 1.** *Unemployment Rate in Indonesia (Percent)*

Source: Central Bureau of Statistics

Graph 1 shows that the open unemployment rate in the Riau Islands Province is fluctuating but tends to rise. As can be seen from the graph, the open unemployment rate is still quite high. The open unemployment rate in the Riau Islands Province also beats the open unemployment rate in Indonesia. Even though Riau Islands Province is known as a province that has a good cross-trade route because of its location close to Singapore and Batam City which is known as an industrial city because of the large number of foreign investors who invest in the area and Batam is included in the 5 cities with the most industrial estates in Indonesia, which according to data from the Ministry of Industry there are as many as twenty-seven industrial estates located in the Riau Islands Province which has an area of more than 2000 Ha and also an increase in GRDP, which means when the added value of the resulting output increases, it will affect production factors to reduce

the unemployment rate in this context is the absorption of labor, but with this incident it does not necessarily reduce the open unemployment rate in the Riau Islands Province. The high open unemployment rate indicates that the central government's programs and efforts to reduce the open unemployment rate in the region have not been fully implemented (R. Putra et al., 2021).

Graph 2. *Open Unemployment Rate in Regency/City of Riau Islands Province (Percent)*
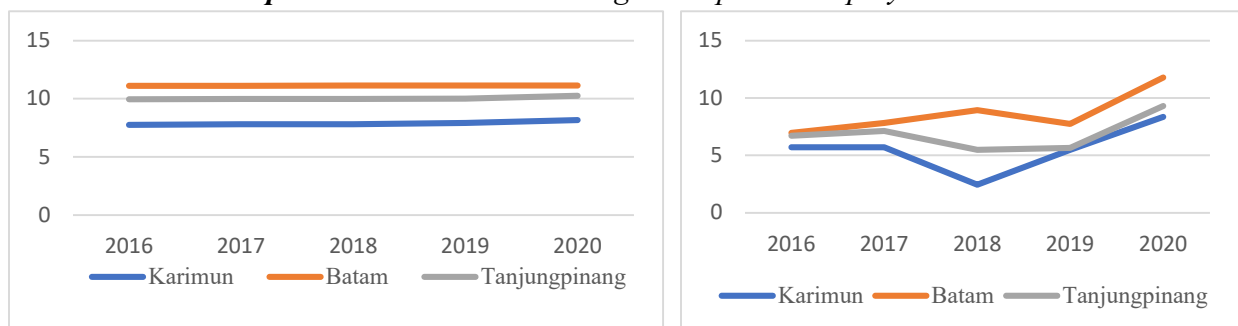

Source: Central Bureau of Statistics

From graph 2, it is known that the open unemployment rate in 7 regencies/cities in the Riau Islands Province has fluctuated, as for Batam as the area with the highest average open unemployment rate and Lingga has the lowest average open unemployment rate in the Riau Islands Province. The low open unemployment rate in Lingga is because this region has a large area with a low population density compared to other districts/cities in the Riau Islands Province.

As for education, the absorption of labor cannot be separated from the role of education (Muin, 2020). The open unemployment rate is also strongly influenced by education, the quality of human resources is one of the determining factors for the economic condition of a region (Nurrahmah et al., 2020), which in this case is determined by the average length of schooling. Schools are a place to increase knowledge and are also supported by technological advances (Zahro et al., 2021). The average length of schooling can be used as a benchmark for a society to take the length of formal education. Residents who take formal education are at least able to read and write and can even make residents in search of information to increase knowledge in themselves that can be applied in daily activities.

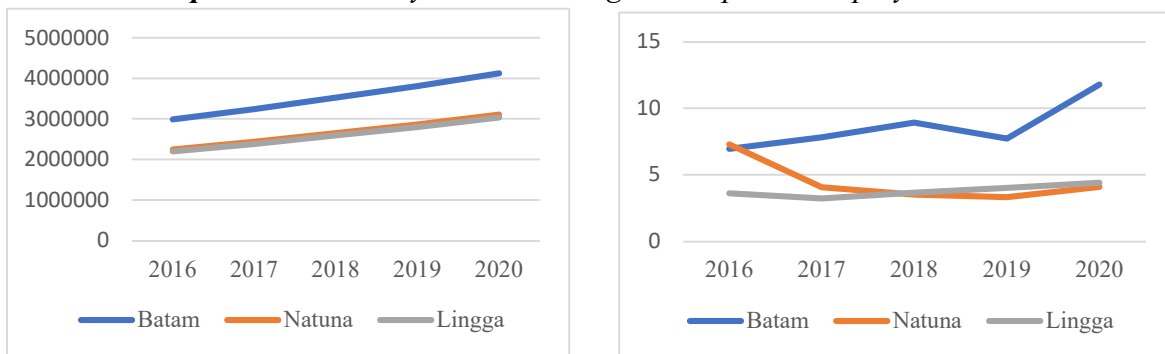**Graph 3.** *Mean Years Schooling and Open Unemployment Rate*

Source: Central Bureau of Statistics

In graph 3, it can be seen that the mean years schooling in all districts/cities has increased slightly, but as the mean years of schooling does not always result in a decrease in the open unemployment rate as happened in Karimun in 2017, where the mean years schooling in 2017 increased to 7.92 years, but the unemployment rate also increased by 5.46%. This situation is caused because the population who are able to read and write even those who have taken education do not have the skills required by companies where it is not in accordance with the theory of human capital, the assumption is that education can make people get a higher income.

Wages can also affect the open unemployment rate in an area, with rising wages, the available jobs will decrease. This is in accordance with keynes theory which reveals that low or declining wages can have an impact on increasing the level of employment opportunities (Prawira, 2018). Hotchkiss and Kaufman said the unemployment rate was influenced by the district/city minimum wage set by the local government because the decline in the total working population was caused by the district/city minimum wage level. (Hartanto & Masjkuri, 2017)

Graph 4. *District/City Minimum Wage and Open Unemployment Rate*

Source: Central Bureau of Statistics

Viewed in chart 4, it shows that the Minimum Wage rate for regencies/cities of Riau Islands Province has continued to experience an increasing condition in the last five years. This increase in the minimum wage does not necessarily result in an increase in the Open Unemployment Rate. As happened in 2019 in Batam, when wages increased to Rp3,806,358 but the open unemployment rate decreased to 7.72%. The increase in the regency/city minimum wage is due to an increase in the price of basic commodities which also increases every year, the wage set by the government if it is too large for the company can also have a negative impact, if the company is not able to pay wages in accordance with government regulations, the company causes layoffs. which is inconsistent with the Keyness theory which states that the unemployment rate will increase if the wages are set high as well.

There are several studies that look at the effect of Mean Years Schooling and District/City Minimum Wages on the Open Unemployment Rate. namely by focusing on connecting these variables with their influence on the open unemployment rate. The research was conducted by Dwi Mahroji & Saiful Anwar (2020), Valentine Brahma Putri Sembiring & Gatot Sasongko (2019),

Nelva Siskawati, dkk (2020), Muhamad Fathul Muin (2020) and Edo Permadi & Eko Chrystanto (2021). Based on the explanation above, the formulation of the problem is obtained how the influence of mean years schooling and regency/city minimum wage on open unemployment rate. Therefore, the research objective is to find out how much influence mean years schooling and district/city minimum wages have on the open unemployment rate.

1. Literature Review

1.1. Keynes' Theory of Unemployment

The Open Unemployment Rate is the total unemployed people divided by the total existing labor force (Noviatamara et al., 2019). The view of Keynes theory (1936) says that aggregate demand is the cause of the problem of the unemployment rate (Minarni, 2021), so that it is not low production but low consumption that causes hampering economic growth. Keynes added that the need for government measures in getting workers to get jobs and creating economic development because the full use of labor has not been systemized in the free market. Furthermore, his theory says that in the short term the problem of the unemployment rate can be resolved if there is government participation, but in the long time the unemployment problem can be handled without government policy. Keynes also said that unemployment is a problem that arises due to low labor demand which is also due to low production due to low demand as well (Sembiring & Sasongko, 2019).

1.2. Educational Theory

Mean years schooling is the majority of time spent in formal education or the length of schooling by the community which is calculated for 12 years at the age of 15 years and over (Alhudhori, 2017). Human Capital Theory (1776), whose basic assumption is that education can make people earn higher incomes, which means an increase in ability and income along with an increase in each school year. Formal school level and labor insight are often equated in human capital theory (Filiasari & Setiawan, 2021). In line with this, Keynes in his book states that the quality of the workforce can be judged by the length of schooling or the level of education of an individual who can improve his skills (Sang, 2017)

1.3. Wage Theory

Wages or salaries are payments that the company distributes to its workers (Kurnia & Septiani, 2021). In the second theory of efficiency wages, Keynes said that this wage provision can affect the productivity of workers. In this case, the increase in wages, there is a lack of turnover in labor, the higher the company provides wages to its workers, the greater the workers to remain in the company (Putra, 2018). Keynes said that employment opportunities can only occur if the wage rate decreases and with high wages it can spend the time used to accept workers again and provide training to new workers. (Priyono & Ismail, 2016)

2. Research Methodology

2.1. Population and Sample

In this research, the population used is all districts/cities in the Riau Islands Province using data on the open unemployment rate, mean years schooling and the district/city minimum wage. Sampling in this study used non-probability sampling, with saturated sampling technique. This technique is a method of determining the sample when all members of the population are sampled. The sample in this study took data from all districts/cities of the Riau Islands Province consisting of 2011 - 2020, so the total number of research samples became 70 data.

2.2. Data Collection Techniques

In this study, the data used were obtained through BPS publications and consisted of the open unemployment rate, mean years schooling and the district/city minimum wage data in the 2011-2020 period. Data research is carried out in several ways, including data collection through documentation techniques and data collection through a theoretical study or other references related to values, culture, and norms embedded in relevant social situations because research cannot be separated from scientific literature.

2.3. Data Analysis Techniques

Panel data analysis is a regression model used in this study which consists of combining information that is unified in a time period into a time series and that is unified in a period of time to a cross section. The formulation is as follows:

$$OUR_{it} = \alpha + \beta_1 MYS_{it} + \beta_2 CMW_{it} + + \varepsilon_{it} \qquad (1)$$

Information:

OUR = The Open Unemployment Rate
MYS = Mean Years Schooling
CMW = District/City Minimum Wage
α = Constant
$\beta_1 \beta_2$ = Regression Coefficient
i = Regency/City in Riau Islands Province
t = Period (Year) 2011 - 2020
εit = Error term

As for the estimation of the panel data regression model through the selection of the most suitable model from the three models. In choosing the estimated panel data, chow and hausman tests are used. Also with use through tests of normality, heterokedasticity, multicolinearity and autocorrelation (classical assumption test). Proof of the relationship between the significance level of the regression coefficient of the independent variable on the dependent variable which consists of the t-statistical test in looking at the influence of individuals on the independent variable on the dependent variable. The f-statistical test in knowing the effect of all independent variables on the dependent variable and the coefficient of determination is a test aimed at explaining how high the proportion of the independent variable is able to explain the dependent variable.

3. Results and Discussion

3.1. Panel Data Regression Analysis

Based on understanding, these results are free from the classical assumption test problem, so there are regression results below:

Table 1. Regression random effect model

Variable	Coefficient	t-Statistic	Prob
C	-3.348824	-1.052941	0.2966
MYS	4.151343	2.742465	0.0080
CMW	2.13E-06	1.043883	0. 3007

Source: Output Eviews 12

Referring to the table above, the panel data regression equations in this study are:

OURit = -3.348824 + 4.151343MYSit + 2.13E-06CMWit + eit

The explanation of the regression equation in table 1 means that:

a. The constant value of -3.348824 means that if the MYS and CMW variables are considered unchanged, the OUR value is -3.348824

b. The regression coefficient for the mean years schooling is 4.151343, so each change in one unit of the MYS variable will increase the OUR by 4.151343

c. The regression coefficient for the district/city minimum wage is 2.13E-06, so every change in one unit of the CMW variable will increase the OUR by 2.13E-06

3.2. Hypothesis Testing and Analysis

It is useful to see the extent to which the independent variable is able to define the variation of the dependent variable. The benchmark in making the basis for the decision if sig < 0.05 and t-count > t-table (Ghozali & Ratmono, 2020).

Table 2. T-statistical Test

Variable	t-Statistic	Prob
C	-1.052941	0.2966
MYS	2.742465	0.0080
CMY	1.043883	0. 3007

Source: Output Eviews 12

The value of df = n-k so that df = 70 – 2 = 68 with a significance of five percent so that the t-table number is 1.66757, then:

a. The mean years schooling has t-count (2.742465) > t-table (1.66757) while the prob value of 0.0080 <0.05 indicates that according to statistics H0 is rejected, meaning that MYS has a

significant effect on OUR, or in other words, H1 of this study is accepted so that conclusions can be drawn. the mean years schooling has an effect on the open unemployment rate

b. The district/city minimum wage has t-count (1.043883) > t-table (1.66757) while the probability value of 0.3007 > 0.05 indicates that according to statistics H0 is accepted, meaning that the CMY does not have a significant effect on OUR, or in other words, H1 of this study is rejected so that it can be concluded. Conclusion District/city minimum wages have no effect on the open unemployment rate

The purpose of this test is to prove the regression coefficient (slope) simultaneously and to see the effect of the independent variable on the dependent variable based on a significance value of 5%. The test parameters in this F test if accepted are F-count > F-table or prob < 0.05 (Ghozali & Ratmono, 2020)

Table 3. *F-statistical Test*

Name	Score
F-statistic	4.364918
Prob(F-statistic)	0.016989

Source: Output Eviews 12

The value of F-table (df1=1, df2=68) was obtained at 3.98, so the value of F-count (4.364918) > F-table (3.98) while the prob value of 0.016989 < 0.05 together with the conclusion that the mean years schooling and the regency/city minimum wage had a simultaneous effect on the level of open unemployment

This coefficient of determination proves the extent to which the appropriateness of the model in describing the variation of the dependent/dependent variable

Table 4. *R-squared Test*

Name	Score
R-Squared	0.127017

Source: Output Eviews 12

Based on the results of data processing, it is known that the R-squared value of 0.127017 means that the dependent variable (open unemployment rate) can be explained by the independent variables (mean years schooling and regency minimum wages) of 12.7%, the remaining 87.3% is explained from other variables outside this study.

3.3. Discussion

Mean years school has a positive effect on the level of open unemployment, which means that every increase in mean years schooling will also increase the level of open unemployment. The cause of this increase in the open unemployment rate occurs because in the Riau Islands Province, although there is an increase in the average length of schooling, the increase is still not significant,

this tends to be difficult to get a job because companies need skilled workers. However, the average length of high school can also be the cause of rising unemployment rates. This happens because of the incompatibility with the low wages offered by the company to prospective workers with high education and it is better for them to be temporarily unemployed until they get a job whose wages match the level of education taken. This study obtained similar results with previous research by Feriyanto (2018) and Muin (2020). In addition, the results of this research contradict the results of previous research by Manaa & ul Haq (2020) and Hindun (2019)

The regency/city minimum wage has no effect on the level of open unemployment, which means that whatever the regency/city minimum wage is, it will not affect the level of Open Unemployment. This is due to the rapid increase in technology, such as the existence of machines/robots that can shift human labor as labor so that companies do not need a lot of manpower anymore and can cause a decrease in demand for labor and also many who set up their own businesses so that regardless of the regency/city minimum wage which will have no effect on the open unemployment rate. This study obtained similar results to the previous journal by Puspadjuita (2017) and Damaianti & Chaerudin (2021). In addition, the results of this research contradict the results of previous research by Santoso & Kristiyanto (2021), Prayitno & Kusumawardani (2022) and Adzim & Prajanti (2021)

4. Conclusion

Based on the results of the analysis and discussion of this study, it can be concluded that mean years of schooling have a significant effect on the level of Open Unemployment, because the level of education is relatively small and does not match the desired criteria and is demanded by industry and workers with higher education do not want to be paid low salaries and wages. District/city minimum has no significant effect on the level of Open Unemployment caused by the rapid increase in technology that replaces human labor.

The suggestions in this study are to encourage the central and local governments to provide counseling and training related to entrepreneurship so that the community does not depend on the provision of jobs, the community can create the work itself so that these numbers can be reduced.

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