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## THE INFLUENCE OF EDUCATION AND INFLATION ON THE UNEMPLOYMENT RATE IN RIAU PROVINCE 2009-2023



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### Abstract

This study aims to analyze the influence of education and inflation on the open unemployment rate in Riau Province from 2009 to 2023. This research applies a quantitative approach using time series data obtained from the Central Statistics Agency (BPS) of Riau Province. The analytical method used is multiple linear regression to determine both partial and simultaneous effects of the independent variables on unemployment. The results of the t-test indicate that education has a negative and highly significant effect on the open unemployment rate, meaning that an improvement in educational attainment contributes to a reduction in unemployment. Inflation also shows a negative and significant effect, suggesting that increases in inflation within a reasonable range are associated with higher labor absorption. Furthermore, the F-test results demonstrate that education and inflation simultaneously have a significant influence on the unemployment rate. The model is supported by an R-Squared value of 0.748, indicating that 74.8% of the variation in unemployment can be explained by the variables included in the model. These findings highlight the importance of improving educational quality and maintaining stable macroeconomic conditions to reduce unemployment in Riau Province.

**Keywords:** Unemployment, Education, Inflation

## INTRODUCTION

Unemployment is an urgent problem and must be solved immediately because the impact of unemployment will be very dangerous for the social and economic order. When someone becomes unemployed, then there is no income or funds that he obtains even though the needs of life and living expenses must still be met, so that person will try to meet his needs by any means, one of which is crime. Various facts of social crimes such as theft, mugging, murder, and various forms of crime and criminal acts are the impact of unemployment., unemployment has become a social germ that will ultimately reduce the quality of human resources, dignity, and human self-esteem..

Unemployment is a parameter of economic development, if unemployment is low then it can be said that economic development is successful. According to Sukirno, unemployment is a person who does not have a job and has not found one and is included in the workforce (Febrianti et al., 2021). Unemployment is a complex problem and can affect other socio-economic problems. To see the severity of the unemployment problem, the parameter that is looked at is the open unemployment rate (TPT). The TPT range can be said to be reasonable when it is 4% (Filiasari & Setiawan, 2021).

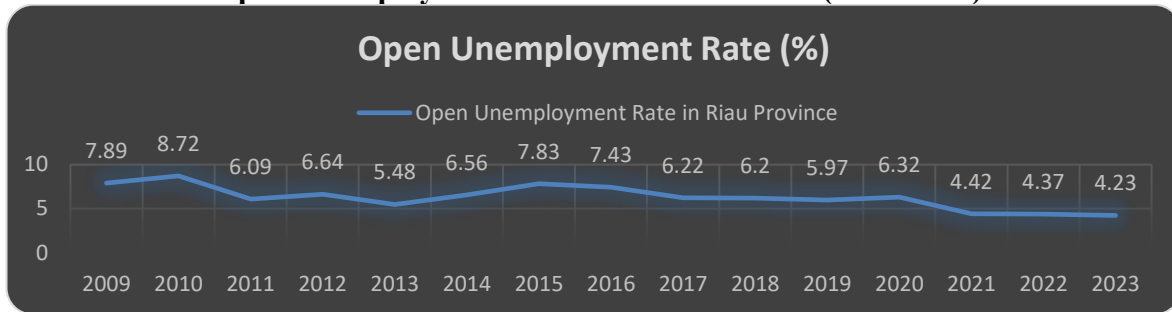
One of the richest provinces in Indonesia is Riau province, the wealth of Riau province is dominated by natural resources, especially petroleum, natural gas, rubber, palm oil, fiber plantations and fisheries, The wealth of these natural resources is the main pillar of the economy in Riau province. Although it has abundant natural resources, Riau province also has a fairly high unemployment rate, the high unemployment rate is influenced by many factors such as education and inflation.

The unemployment rate reflects how effective a region is in providing jobs for the working-age population. Unemployment not only impacts individuals, such as loss of income and potential productivity, but also has broad consequences for the regional economy, such as increased social burdens, decreased purchasing power, and weakened economic stability. Reducing the unemployment rate is a strategic step in economic development because unemployment is not only an economic problem, but also a social one.

Education level is one of the variables that affect unemployment, education is one of the basic human capital that must be met to achieve sustainable economic development. The higher the education level of a person, the higher the working capacity or productivity of a person in working. The inflation rate also affects the unemployment rate, low inflation rates can lead to reduced job openings and reduced labor absorption, and high inflation can lead to increased operational costs of companies and reductions in labor, therefore education and inflation variables have an effect on unemployment.

In addition, prolonged unemployment can also hinder regional development because it reduces the productivity base needed to drive economic growth. When a large portion of the workforce is not absorbed into the labor market, the region loses potential contributors to tax revenues, innovation, and overall economic activity. This condition can create a cycle of economic stagnation that becomes increasingly difficult to break, especially if the quality of human capital is low and macroeconomic stability is not maintained. Therefore, understanding the factors that influence unemployment, such as education and inflation, is crucial for designing effective policies that can stimulate job creation and strengthen regional economic resilience.

**Tabel 1.**  
**Open Unemployment Rate in Riau Province (2009-2023)**

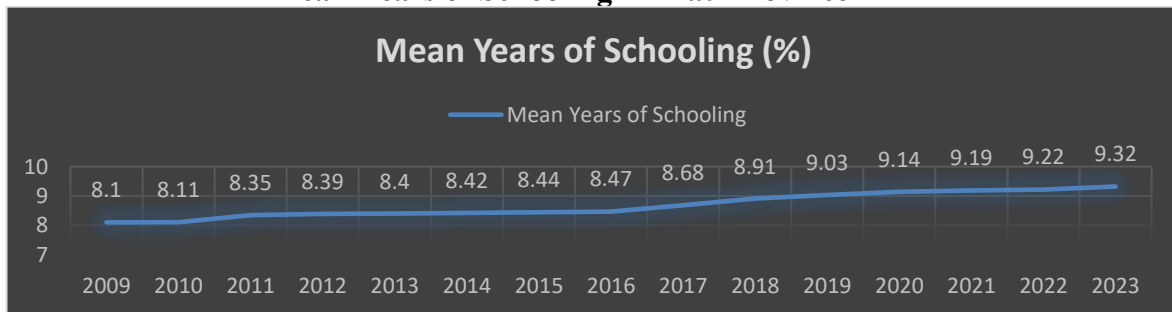


**Source: Central Statistics Agency of Riau**

From Table 1. it can be seen that the open unemployment rate in Riau province has fluctuated over the past 15 years. The highest figure was in 2010 with a figure of 8.72% and the lowest figure was in 2023. The low unemployment rate in 2023 indicates that the government has succeeded in opening up many job opportunities and absorbing its workforce. The unemployment rate table presents the annual changes in the Open Unemployment Rate (TPT) in Riau Province during the observation period.

The values shown in the table illustrate how the labor market responds to economic conditions each year. Higher unemployment rates indicate that the labor market is unable to absorb the available workforce optimally, while lower rates reflect better employment opportunities and stronger economic activity. The variation in unemployment figures across different years also suggests that external shocks—such as economic slowdowns, policy changes, or shifts in industrial activity—have influenced labor absorption

**Tabel 2**  
**Mean Years of Schooling in Riau Province**



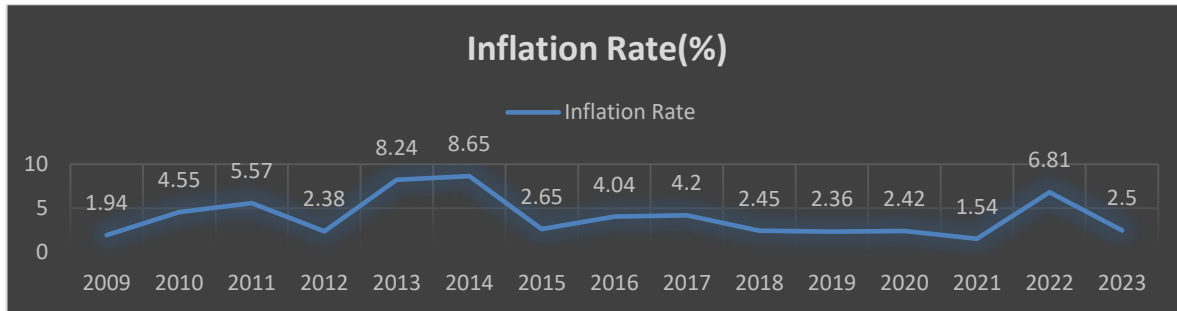
**Source: Central Statistics Agency of Riau**

From table 2 we can see that the mean years of schooling in Riau province from 2009 to 2023 continues to increase to 9.32%. The increase in the mean years of schooling indicates that more and more people are getting better education, the more people are getting education, the lower the unemployment rate will be. This table reflects improvements or fluctuations in human capital quality from year to year.

A higher level of education generally indicates that more individuals possess the skills and qualifications required to compete in the job market. When education levels increase, the workforce becomes more productive and adaptable, which contributes to lower unemployment. The trends shown in the table help explain why education has a significant

negative effect on unemployment in the regression results. The education data thus plays an important role in understanding how human capital contributes to labor market performance.

**Tabel 3**  
**Inflation Rate in Riau Province**



**Source: Central Statistics Agency of Riau**

From Table 3 we can see that the inflation rate in Riau province from 2009 to 2023 has fluctuated. The lowest inflation rate was at 1.54% which occurred in 2021 and the highest inflation rate was at 8.65% which occurred in 2014. The low inflation in 2021 was caused by Covid-19 which hit Indonesia which caused low economic activity in that year. Inflation data is crucial for understanding the economic environment faced by firms and households. Moderate levels of inflation typically encourage production and investment, which leads to increased labor demand. However, excessively high inflation can increase operating costs and reduce hiring capacity. The inflation fluctuations shown in the table allow us to observe how price stability influences employment conditions..

Previous research found that the Education variable has a negative effect on the open unemployment rate. Which means that every increase in the level of education will decrease the open unemployment rate assuming other independent variables are considered constant. The results of this study are in line with previous research on the Effect of Economic Growth and Education on the Open Unemployment Rate of 4 Cities in North Sulawesi Province, the education variable partially affects the open unemployment rate of 4 cities in North Sulawesi Province (Roring, Kumenaung & Lapian, 2020)

Open Unemployment Rate is a method of calculating the unemployment rate by comparing the number of unemployed with the workforce. The decline in the unemployment rate in general in Riau province shows that there is an improvement in the regional economy, especially in terms of job creation which shows that more and more workers are being absorbed, this decline indicates that more and more working age residents are successfully getting jobs both in the formal and informal sectors. The increase in the number of workers absorbed can be caused by several factors, such as the last education factor of the workforce and the inflation rate in the area.

In order for the workforce to be absorbed more effectively, not only the number of jobs must be considered, but also the suitability between workforce qualifications and labor market needs. The level of education plays a primary role in improving the quality of human resources (HR). Education also functions to create a more productive and innovative workforce. The higher the level of education, the greater the opportunity for workers to occupy strategic positions that require greater expertise and responsibility. This not only

benefits the individual, but also has a positive impact on the productivity and competitiveness of the company and regional economic growth.

Almost every country faces problems with inflation rates, inflation can be used as a unit of measurement to measure whether a country is good or bad in dealing with economic problems. An area with an inflation rate of between 2.5% per year can be said to have a good economy. The Phillips curve illustrates the correlation between unemployment and inflation based on the assumption that inflation illustrates that aggregate demand is increasing, in the short term, there is a negative relationship between inflation and unemployment: when inflation increases, unemployment tends to decrease. According to demand theory, an increase in aggregate demand will cause prices to rise as well.

Based on the above explanation, a hypothesis was formed which is suspected of the influence of education and inflation on the open unemployment rate.

## **REVIEW OF LITERATURE**

### **Unemployment Rate**

Unemployment that continues to increase is an indicator that economic growth in a country is not good. According to Nanga (2005:249) Unemployment is a reality faced not only by developing countries, but also by developed countries or a situation where someone who is included in the workforce category does not have a job and is actively looking for work. Someone who is not working but is actively working cannot be classified as unemployed. Unemployment is a situation where someone who is included in the workforce wants to get a job but has not yet obtained it (Sukirno 2004).

Unemployment is a measure taken if someone does not have a job but they are actively trying to find a job in the last four weeks (Kaufman and Hotchkiss, 1999). The workforce is the number of workers in an economy at a certain time. And the unemployment rate is obtained from the comparison between the number of workers and the number of unemployed in the country in a certain year. Asfia Murni (2006:197) the workforce is the population aged 15 to 65 years. However, not all residents aged 15 to 65 years are included in the workforce, because they do not want to work. Sukirno (2001:14) Unemployment is a condition where someone who is included in the workforce wants to get a job but has not been able to get it.

Keynes' theory (1936) states that aggregate demand is the cause of the unemployment problem (Minarni, 2021), so it is not low production but low consumption that hinders economic growth. Keynes added that government steps are needed to create jobs for the workforce and create economic development because full utilization of the workforce is not yet consistent in a free market. Furthermore, his theory states that in the short term the unemployment problem can be resolved if there is government involvement, but in the long term the unemployment problem can be handled without government policy. Keynes also said that unemployment is a problem that arises due to low demand for labor which is also caused by low production which is caused by low demand, in (Sembiring & Sasongko, 2019).

### **Education**

Law of the Republic of Indonesia Number 20 of 2003, Article 1, defines education as a planned effort to create a learning environment. The goal is for students to actively develop

their potential, including spiritual aspects, personality, morals, self-control, intelligence, and skills needed for themselves, society, nation, and state. Education is a process of increasing knowledge, skills, independence, and forming individual personality (Arfid, 2003:77).

According to Elfindri, Ekswarso and Zamzami (2019) education is one of the main targets of regional development. Education is very important because it has a role in determining the fate of a nation in the future as seen from the quality of human resources, workforce, contributing added value to goods and services and fostering innovation initiatives and increasing entrepreneurship of the educated generation. In this study, in measuring the progress of the level of education in Sibolga City, it is known from the average length of schooling.

Human Capital Theory (1776), The basic assumption is that education can make people get higher incomes, which means increasing abilities and income along with the increase in each year of schooling. The level of formal schooling and workforce insight are often equated in Human Capital theory (Filiarsari & Setiawan, 2021).

### **Inflation**

Suseno and Astiyah (2009) define inflation as a tendency for prices of goods and services to increase in general and continuously. According to Budiono (2008: 155) inflation is the process of increasing general prices of goods continuously. While Sukirno (2008: 14) defines inflation as the process of increasing prices that apply in an economy. Based on the definition of inflation above, it can be concluded that inflation is a tendency for prices of goods to increase in general and occurs continuously.

According to Sukirno (2006: 333) Demand-pull inflation, namely this inflation usually occurs during a period of rapid economic growth. High employment opportunities create income levels that cause high spending and which then exceed the economy's ability to produce goods and services. While cost-push inflation, namely inflation that occurs during a period of rapid economic growth and very low unemployment. If companies are still facing increasing demand, they will try to increase production by providing higher salaries and wages to their workers. This move increases production costs, which ultimately leads to an increase in the prices of various goods.

Keynes' theory of inflation is based on his macro theory, and highlights other aspects of inflation (Boediono, 1998: 170-171). According to this theory, inflation occurs because a society wants to live beyond its economic capabilities. The inflation process, according to this view, is nothing other than the process of fighting for a share of fortune among social groups who want a larger share than the society can provide. This fighting process is finally translated into a situation where the public's demand for goods always exceeds the number of goods available (the emergence of what is called an inflationary gap).

### **RESEARCH METHOD**

This study uses a quantitative approach with secondary data, during the period of 2009-2023 in Riau. The data obtained is official publication data from the Source Statistics Indonesian Center. This study uses the analysis method time series with the help of software Eviews 12. Meanwhile, to analyze the Influence of education and inflation on the unemployment rate in Riau, a multiple regression model with the following equation is used:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + e_i$$

Where Y is the Open Unemployment Rate,  $\alpha$  is Constant,  $\beta_1$  to 2 are Regression Coefficients, X1 is the Education variable, X2 is the Inflation variable and  $\epsilon$  is an error.

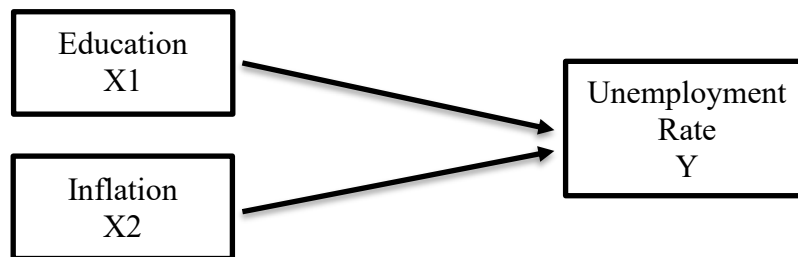
### Research Hypothesis

This study aims to analyze the influence of education and inflation on the open unemployment rate in Riau Province. Based on a literature review and previous research, the following hypotheses are proposed:

- H1: Education significantly influences the unemployment rate in Riau Province.
- H2: Inflation significantly influences the unemployment rate in Riau Province.
- H3: Education and inflation simultaneously influence the unemployment rate in Riau Province.

### Research Model

This research model describes the relationship between the independent variables (education and inflation) and the dependent variable (unemployment rate). This model can be illustrated as follows:

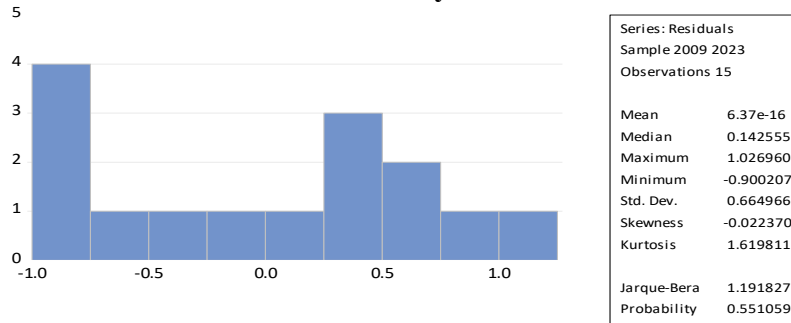


The research model shows that the two independent variables have a direct relationship with the unemployment rate, which will be tested through multiple linear regression analysis. This study uses a quantitative approach with a multiple linear regression method, where data is collected through secondary data obtained from the Indonesian Central Statistics Agency (BPS). The data analysis technique used is regression analysis to test the influence of each variable on the unemployment rate. The results of this study are expected to provide the local government with a deeper understanding of the issue of unemployment in the province of Riau, enabling them to make informed decisions on policies to address it.

**RESULTS AND DISCUSSION**

Based on the results of the classical assumption test, namely:

**Figure 1.**  
**Normality test**



**Source: Data processed (2025)**

The normality test is aimed at determining whether the data distribution in a study is normally distributed or vice versa with the Jarque Bera graph method. This method basically aims to measure the skewness and kurtosis of data for comparison if the data is normally distributed. The results of the acquisition of data analysis in Figure 1 are stated if the Probability Jarque Bera value is 0.551 (>0.05) indicating that the value is greater than 0.05 and the data is confirmed to be normally distributed

**Table 4.**  
**Multicollinearity test**

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	17.97602	522.6840	NA
X1	0.226558	497.1701	1.076074
X2	0.007413	4.559614	1.076074

**Source: Data processed (2025)**

The multicollinearity test is a test aimed at understanding the relationship found to exist and not in the dependent variable with the independent variable in a study. The acquisition of the output above shows that the Variance Inflation Factor (VIF). This is indicated by the acquisition of the VIF value of education (X1) worth 1.076074, Inflation (X2) worth 1.076074. The findings indicate that there are no multicollinearity symptoms, meaning that the independent variables in this regression do not have a strong linear relationship with each other.

**Table 5.**  
**Heteroscedasticity test**

Heteroskedasticity Test: Harvey			
Null hypothesis: Homoskedasticity			
F-statistic	1.078357	Prob. F(5,9)	0.4329
Obs*R-squared	5.619648	Prob. Chi-Square(5)	0.3450
Scaled explained SS	1.114598	Prob. Chi-Square(5)	0.9528

**Source: Data processed (2025)**

The heteroscedasticity test is defined as a test conducted to understand and determine

the pattern of variance and residual unlikeness in this study through several observations. Heteroscedasticity testing is obtained by comparing the prob. chi square on orb r-square with a sig level of 0.05 by using the Harvey test. Harvey's test is calculated through the squared residuals generated in the sum and multiplication of the independent and dependent variables. Based on the acquisition of the Chi-Square probability value of 0.3450 in Table 2 has a value higher than 0.05. Then it can be stated that this modeling does not occur heteroscedasticity, meaning that this regression model fulfills the assumption of homoscedasticity, which means that the variance of the residuals (errors) in the regression model remains constant for all values of the independent variable.

**Table 6.**  
**Autocorrelation test**

Statistic	Value
R-square	0.748054
Adjusted R-square	0.706063
F-statistic	17.81460
Prob(F-statistic)	0.000256
Durbin-Watson stat	2.035621

**Source: Data processed (2025)**

The autocorrelation test can be used to test whether in a multiple linear regression model there is correlation or not between observations and other observations. This autocorrelation test can be performed using the Durbin-Watson test. The autocorrelation test seen from the Durbin-Watson value of 2.035621 shows that the model is in a position the autocorrelation-free area.

**Tabel 7.**  
**Result of the T-Test Statistic**

Variabel (1)	Coeficien (2)	Prob (3)
Education	-2.823261	0.0001***
Inflation	-0.191284	0.0463**
Constant	31.56055	0.0000***
Prob F-Statistic	0.000256***	
R-Squared	0.748054	
***p < 0.01, **p < 0.05, *p < 0.10		

**Source: Data processed (2025)**

Table 4 shows that the regression equation model is as follows:

$$Y = 31.56055 - 2.823261X_1 - 0.191284X_2 + e$$

The analysis shows that the education variable has a negative and significant effect on the open unemployment rate in Riau Province. Based on the t-test, the education variable (X1) shows a probability (0.0001 < 0.05) with a coefficient value of -2.823261. Since the significance value is less than 0.05, the first hypothesis (H1) is accepted, meaning that if there is an increase in the level of education, the open unemployment rate will decrease.

Conversely, inflation also has a negative and significant effect on the open unemployment rate. The t-test results show that the investment value variable shows a probability ( $0.0463 < 0.05$ ) with a coefficient value of  $-0.191284$ . Because the significance value is less than  $0.05$ , the second hypothesis (H2) is accepted, meaning that the inflation rate has a negative and significant effect on the open unemployment rate in Riau Province.

#### **F Test**

The F test shows that, simultaneously, the level of education and the level of inflation affect the open unemployment rate in Riau Province. This is evidenced by a probability value of  $0.000256$ , which is less than  $0.05$ . In addition, the R Square value is  $0.748054$ . This means that the effect of the open unemployment rate in Riau Province can be explained by independent variables (education and inflation) by  $74.80\%$ , while the remaining  $25.20\%$  is explained by variables outside the research model.

#### **The Influence Of Education On Unemployment Rate**

The results of this study indicate that education has a negative and highly significant effect on unemployment rates. This means that every increase in the level of education in a region can substantially reduce unemployment rates. This is in line with research conducted by Maria E Egeten (2023), which states that the level of education has a negative and significant effect on open unemployment rates in cities in North Sulawesi Province. It is also in line with the results of research by Al Mustakim (2022), which states that the average length of schooling has a negative and significant effect on the open unemployment rate in Kendari City from 2010 to 2021. Theoretically, these results are in line with the view that education is an important factor in improving the quality of human resources. Individuals with higher levels of education tend to have higher skills and competencies, making them more easily absorbed by the labor market. Thus, the higher the level of education of the population, the lower the likelihood of them experiencing unemployment. The results of this study confirm that improving access to and quality of education can be an effective strategy in reducing unemployment rates.

#### **The Influence Of Inflation On Unemployment Rate**

The results of this study indicate that inflation has a negative and significant effect on the unemployment rate, although the magnitude of the effect is relatively small compared to the education variable. This is in line with research conducted by Sarastri Mumpuni Ruchba (2019), which states that the inflation rate has a negative and significant effect on the unemployment rate in Indonesia using the Phillips curve approach. Economically, this negative relationship can be explained by the Phillips curve theory, which states that when inflation increases, economic activity is generally in an expansion phase, so that demand for labor also increases. This is also in line with research conducted by Naoufel Mahfoudh (2024), which investigated the relationship between inflation, unemployment, and economic growth in Tunisia, Egypt, and Saudi Arabia during the period 1989-2021. An increase in inflation is often followed by an increase in production and consumption, so companies tend to absorb more labor to meet market demand. This condition causes the unemployment rate to decline. Thus, the results of this study indicate that inflation movements can affect labor market conditions, and during the study period, inflation tended to contribute to a decline in unemployment rates.

### **Simultaneous Effect of education and inflation on unemployment rate**

The F-test results show that the variables of education and inflation simultaneously have a significant effect on the employment rate. This significance can be seen from the very small Prob F-Statistic value, so that statistically it can be concluded that these two variables together are able to explain the changes that occur in the employment rate. In theory, education plays an important role in improving the quality of human resources, thereby encouraging increased productivity and greater opportunities for individuals to be absorbed into the labor market. On the other hand, inflation also affects labor demand through economic activity mechanisms; when inflation is within normal limits, companies tend to increase production and require more labor, thereby increasing the employment rate. Thus, the simultaneous influence of education and inflation shows that labor quality and macroeconomic conditions together shape employment dynamics. The combination of the two contributes significantly to explaining the level of labor absorption in a region.

### **CONCLUSION**

Based on the results of regression analysis of data from 2009 to 2023, this study concludes that education and inflation have a significant effect on the unemployment rate in Riau Province. Partially, education shows a negative and very significant effect, indicating that the higher the level of education of the community, the greater their chances of being absorbed into the labor market, thereby reducing the unemployment rate. Meanwhile, inflation also has a negative and significant effect on unemployment, albeit with a smaller magnitude of influence. This shows that a controlled increase in inflation can encourage increased economic activity and labor demand. Simultaneously, these two variables were found to explain 74.8% of the variation in unemployment, indicating that the quality of education and macroeconomic conditions together play an important role in labor market dynamics.

From these findings, there are important policy implications for local governments. First, improving the quality and equity of education needs to be continued, both through increasing access to education, adjusting the curriculum to be relevant to industry needs, and improving the competence of educators. Vocational training and skills upgrading (upskilling and reskilling) programs also need to be expanded to prepare a more adaptive workforce. Second, local governments need to maintain inflation stability at a healthy level so that economic activity continues and is able to create job opportunities. This can be done by controlling the prices of basic commodities, encouraging efficient distribution of goods, and ensuring a conducive business climate. The synergy between education policy and macroeconomic policy is expected to strengthen job creation, reduce unemployment, and improve the welfare of the people in Riau Province.

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