



# The Effect of Education And Inflation Levels on Unemployment in Sulawesi Island

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## Keywords

Level of education, Inflation, Unemployment

## Abstract

Several provinces in Sulawesi Island still face problems related to unemployment, this is indicated by the unemployment rate which has not shown a consistent decline during 2010-2018. To solve problems related to unemployment, most economists believe that education and a maintained inflation rate are long-term and short-term solutions. The purpose of this study was to determine the effect of education level and inflation both directly and indirectly on unemployment in Sulawesi Island. The method used is quantitative using the analysis technique Simultaneous Equation Model (SEM). The results showed that the direct effect of the education variable on unemployment was 0.452 with a probability of 0.292. This means that education has no effect on unemployment. The effect of the education variable on unemployment is 0.435 with a probability of 0.000. This means that education has a significant effect on unemployment. Indirectly, the effect of education on unemployment is 0.185 with a probability of 0.000, this means that education has a positive and significant effect on unemployment. Indirectly, the effect of inflation on unemployment is 0.006 with a probability of 0.000, this means that inflation has a positive and significant effect on unemployment.

## 1. Introduction

Unemployment always occurs, especially in developing countries including Indonesia, this is due to an imbalance between available employment and the number of job seekers. Speaking of unemployment, several provinces in the Sulawesi region are still facing unemployment problems.

**Table 1. Unemployment Rate in Sulawesi Island, 2010-2018**

Province	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Gorontalo	5.16	6.74	4.47	4.15	4.18	4.65	2.76	4.28	4.03
Sulawesi Utara	9.61	10.1	7.98	6.79	7.54	9.03	6.18	7.18	6.86
Sulawesi Tenggara	4.61	4.69	4.14	4.38	4.43	5.55	2.72	3.3	3.26
Sulawesi Tengah	4.61	6.78	3.95	4.19	3.68	4.16	3.29	3.81	3.43
Sulawesi Barat	3.25	3.35	2.16	2.35	2.08	3.35	3.33	3.21	3.16
Sulawesi Selatan	8.37	8.13	6.01	5.1	5.08	5.95	4.8	5.61	5.34

Source: BPS Indonesia, 2019

The unemployment rate of several provinces in Sulawesi Island during 2010-2018 shows a fluctuating pattern and has not shown a consistent decline. Until 2018, the highest unemployment rate was in North Sulawesi Province at 6.86 percent. Then followed by South Sulawesi Province and Gorontalo Province which ranks second and third, respectively 5.34 percent and 4.03 percent. Meanwhile, the lowest unemployment rate was in West Sulawesi Province and Southeast Sulawesi Province, respectively 3.16 percent and 3.26

percent. Efforts made by the government in reducing unemployment include providing educational services and maintaining inflation stability.

**Table 2. Figures of Average Years of Schooling in Sulawesi Island in 2010-2018**

Province	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Gorontalo	6.85	6.89	6.92	6.96	6.97	7.58	7.71	7.77	7.83
Sulawesi Utara	8.66	8.68	8.71	8.79	8.86	9.19	9.31	9.4	9.51
Sulawesi Tenggara	7.57	7.67	7.76	7.93	8.02	8.74	8.86	8.93	9.03
Sulawesi Tengah	7.65	7.69	7.73	7.82	7.89	8.35	8.56	8.64	8.74
Sulawesi Barat	6.63	6.65	6.76	6.87	6.88	7.49	7.76	7.84	7.94
Sulawesi Selatan	7.29	7.33	7.37	7.45	7.49	8.2	8.31	8.42	8.45

Source: BPS Indonesia, 2019

The highest education levels in several provinces in the Sulawesi region during 2010-2018 show a consistent increase. Until 2018, the highest level of education was in North Sulawesi Province at 9.51 percent. Then followed by the Provinces of Southeast Sulawesi and Central Sulawesi, which ranked second and third, respectively 9.03 percent and 8.74 percent. Meanwhile, the lowest level of education was in Gorontalo Province and West Sulawesi Province, at 7.83 percent and 7.94 percent, respectively. The increase in the average length of schooling on the island of Sulawesi is inseparable from the intense development in the education sector by expanding its reach and access.

**Table 3. Inflation in Sulawesi Island, 2010-2018**

Province	Years								
	2010	2011	2012	2013	2014	2015	2016	2017	2018
Gorontalo	7.43	4.08	5.31	5.84	6.14	4.3	1.3	4.34	2.15
Sulawesi Utara	6.28	0.67	6.04	8.12	9.67	5.56	0.35	2.44	3.83
Sulawesi Tenggara	6.28	0.67	6.04	5.92	7.4	1.64	3.07	2.96	1.18
Sulawesi Tengah	6.4	4.47	5.87	7.57	8.85	4.17	1.49	4.33	6.46
Sulawesi Barat	5.12	4.91	3.28	5.91	7.88	5.07	2.23	3.79	1.8
Sulawesi Selatan	6.82	2.87	4.57	6.24	8.51	5.18	3.18	4.36	3.5

Source: BPS Indonesia, 2019

Inflation in several provinces in the Sulawesi Island region has fluctuated but tends to decline from 2010-2018. Until 2018, the lowest inflation was in West Sulawesi province at 1.80 percent. Then followed by the Provinces of Southeast Sulawesi and Gorontalo which ranks second and third, respectively 1.18 percent and 2.15 percent. Meanwhile, the highest inflation was in South Sulawesi Province and Central Sulawesi Province, each at 3.5 percent and 6.46 percent. Although the average number of years of schooling has consistently increased every year, inflation tends to decline, in fact, this condition has not yet fully resulted in a consistent decline in unemployment.

## 2. Literature Review and Hypothesis Development

Many public policies seek to reduce the unemployment rate. According to Mankiw (2006), there are government policies that can inadvertently increase unemployment, one of which is the lack of wages. The wages fail to make adjustments until the labor supply equals the demand. When the real wage is above the level that balances supply and demand, the quantity of labor supplied exceeds the quantity demanded. Companies must ration jobs that are scarce among the workers. The tightness of real wages reduces the rate of job finding and increases the unemployment rate.

Todaro and Smith (2003) reveal that education is a fundamental development goal, education plays a key role in shaping the ability of a country to absorb modern technology and to develop the capacity to create sustainable development. (Perkins et al, 2013) stated that education services will increase labor productivity.

### 2.1 Education Relationship And Unemployment

The relationship between education and unemployment by most researchers believes that education has a negative effect on unemployment. Research conducted by Fitri and Junaidi (2016) analyzed the effect of

education, wages, job opportunities, on educated unemployment in Jambi Province. The results showed that simultaneously, education, wages and job opportunities had a significant effect on educated unemployment. Partially, education has a positive effect and job opportunities have a negative effect on educated unemployment in Jambi Province, while wages have no significant effect. Research conducted by Imarotus and Hendry (2013), which investigated the effect of the level of education on the unemployment rate in Jombang Regency. The results of the study found that the unemployment rate was influenced by the level of education, especially SMA / Aliyah graduates in Jombang Regency.

hypothesis:

H1 : *It is suspected that the level of education has a direct and indirect negative effect on the unemployment rate through MPL and Wages in Sulawesi Island.*

## 2.2 The Relationship Between Inflation And Unemployment

The relationship between inflation and unemployment is described in the Phillips curve, which explains the trade off or negative relationship between inflation and unemployment. When unemployment is high, the price increases are relatively slow, however the lower the unemployment the higher the prevailing inflation rate.

In addition, most also believe that the trade-off along the Phillips curve is based on errors in inflation expectations. When the price level rises, workers finally realize that real wages are falling and adjust the nominal, or money, wage demands to reflect the higher price level and thus maintain their real income. An increase in the demand for real wages tends to reverse an increase in unemployment.

Research conducted by Thay Terbang (2014) supports Phillips's empirical findings that investigate the impact of inflation on unemployment in Sri Lanka. The results showed that inflation has a negative and significant effect on unemployment in Sri Lanka. The findings of this study are reinforced by research conducted by Vermeulen (2017) which analyzes the impact of inflation and unemployment in South Africa, the results of the study show that there is a strong relationship between inflation and unemployment, inflation has a negative impact on unemployment. Inflation at a certain level has an impact on increasing employment.

Not all research results support Phillips's research findings that inflation has a negative impact on unemployment. Research conducted by Haug and King (2011) analyzed the long-term impact of inflation and unemployment. The results showed that inflation in the long run had a positive impact on unemployment. Research conducted by Singh (2018) analyzed the impact of inflation on unemployment in India. The results showed that inflation has no significant effect on unemployment in India.

## 3. Method

This type of research is quantitative research that measures and analyzes the direct and indirect effects of education and inflation on the unemployment rate through MPL and Wages. The type of data to be analyzed in this research is panel data, namely a combination of cross section data and time series. The type of data used in this study is secondary data. Sources of data in this study consisted of various sources, such as data from the Central Statistics Agency (BPS).

The analysis technique used in this research is the Simultaneous Equation Model (SEM) analysis method to determine the direct and indirect effects of education and inflation on the unemployment rate.

The analysis model equation can be written into the following equation:

$$Y_1 = f(X_1, X_2)$$

$$Y_1 = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + e_1$$

$$Y_2 = f(X_1, X_2, Y_1)$$

$$Y_2 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 (\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + e_1)$$

$$= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \alpha_0 \beta_3 + \alpha_1 \beta_3 X_1 + \alpha_2 \beta_3 X_2 + \beta_3 e_1 + e_2$$

$$Y_3 = f(X_1, X_2, Y_1, Y_2)$$

$$Y_3 = \delta_0 + \delta_1 X_1 + \delta_2 X_2 + \delta_3 (\alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + e_1) + \delta_4 (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \alpha_0 \beta_3 + \alpha_1 \beta_3 X_1 + \alpha_2 \beta_3 X_2 + \beta_3 e_1 + e_2) + e_3$$

$$= \delta_0 + \delta_1 X_1 + \delta_2 X_2 + \alpha_0 \delta_3 + \alpha_1 \delta_3 X_1 + \alpha_2 \delta_3 X_2 + \delta_3 e_1 + e_2 + \beta_0 \delta_4 + \beta_1 \delta_4 X_1 + \beta_2 \delta_4 X_2 + \alpha_0 \beta_3 \delta_4 + \alpha_1 \beta_3 \delta_4 X_1 + \alpha_2 \beta_3 \delta_4 X_2 + \beta_3 \delta_4 e_1 + \delta_4 e_2 + e_3$$

$$= (\delta_0 + \alpha_0 \delta_3 + \beta_0 \delta_4) + (\delta_1 + \alpha_1 \delta_3 + \beta_1 \delta_4 + \alpha_1 \beta_3 \delta_4) X_1 + (\delta_2 + \alpha_2 \delta_3 + \beta_2 \delta_4 + \alpha_2 \beta_3 \delta_4) X_2 + e_4$$

Keterangan:

Y1 = Marginal Productivity of Labor

Y2 = Wage

Y3 = Unemployment

X1 = Education

X2 = Inflation

$\alpha_0, \beta_0, \delta_0,$  = Constant

$\alpha_1, \alpha_2, \beta_1, \beta_2, \beta_3, \delta_1, \delta_2, \delta_3, \delta_4$  = Coefficient

e1, e2, e3, e4 = Error Term

#### 4. Results and Discussion

After the data is processed, the output produced by the software is as follows:

**Table 4. Estimation Results of Direct Effects on Sulawesi Island**

			Estimate	S.E.	C.R.	P	Label
MPL	<---	Education	.772	.187	4.125	***	Significant
MPL	<---	Inflation	.040	.039	1.028	.304	Insignificant
Minimum Wage	<---	Inflation	.421	.148	2.852	.004	Significant
Minimum Wage	<---	Inflation	.015	.028	.520	.603	Insignificant
Minimum Wage	<---	MPL	1.155	.077	15.057	***	Significant
Unemployment	<---	MPL	-.616	.401	-1.536	.125	Insignificant
Unemployment	<---	Minimum Wage	.503	.295	1.708	.088	Insignificant
Unemployment	<---	Education	.452	.429	1.053	.292	Insignificant
Unemployment	<---	Inflation	.435	.079	5.497	***	Significant

Source: Primary data processed

Based on the results of statistical analysis, it was found that education had no effect on unemployment. Any increase or decrease in education has no effect on increasing or decreasing unemployment. The results of this study have shown consistency with research conducted by Saputra et al. (2018) which analyzed the effect of economic growth, provincial minimum wages, poverty levels and education on unemployment in West Sumatra. The results showed that economic growth had no significant effect on unemployment, the provincial minimum wage had a significant effect on unemployment, the poverty rate had a significant effect on unemployment, education had a significant effect on unemployment.

Inflation has a positive effect on unemployment. Any increase in inflation will increase unemployment, and vice versa, every decrease in inflation will reduce unemployment. The results of this study have shown consistency with research findings conducted by Haug and King (2011) which analyzed the long-term impact of inflation and unemployment. The results showed that inflation in the long run had a positive impact on unemployment. Research conducted by Singh (2018) analyzes the impact of inflation on unemployment in India. The results showed that inflation has no significant effect on unemployment in India.

**Table 5. Estimation Results of Indirect Effects on Sulawesi Island**

			Estimate	P	Label
Minimum Wage	<---	Education	.891	***	Significant
Minimum Wage	<---	Inflation	.046	***	Significant
Unemployment	<---	Education	.185	***	Significant
Unemployment	<---	Inflation	.006	***	Significant

Source: Primary data processed

Based on the results of statistical analysis, it is found that education has a positive and significant effect on unemployment through wages and productivity. Any increase in education will increase unemployment. The results of this study are in line with the results of research conducted by Fitri (2016) which states that higher education will result in job seekers the longer time they spend looking for work, this is what causes an increase in the unemployment rate.

The results of statistical analysis which state that there is a positive relationship between education and unemployment indicate that there is an imbalance between human capital theory. This is due to the high number of high school and university graduates who are not matched by the number of job opportunities available. In addition, there are workers who come from other countries or provinces who enter Sulawesi Island to look for work. It is proven that someone who has higher education tends to look for work in areas that have superior sectors, which will result in higher unemployment in the province.

Based on the results of statistical analysis, it is found that inflation has a positive and significant effect on unemployment through wages and productivity. an increase in inflation will increase unemployment.

The results of these studies are explained by the natural hypothesis which states that the trade-off fails between inflation and unemployment. Trade-offs along the Phillips curve are based on errors in inflation expectations. When the price level rises, workers finally realize that real wages are falling and adjust the nominal, or money, wage demands to reflect the higher price level and thus maintain their real income. An increase in the demand for real wages tends to increase the unemployment rate.

#### 5. Conclusions and Suggestions

Based on the results of statistical analysis, it is found that education has a direct positive effect on unemployment. This is because the higher the education, the more time job seekers spend looking for work, this is what causes an increase in the unemployment rate. In addition, the level of education of the people on the

island of Sulawesi is still relatively low. This is indicated by the average number of years of schooling is still at the junior high school level, with this level of education, it is difficult for people who are at the working age of 15 years and over to find work. While indirectly education has a negative and significant effect on unemployment, it means that the higher the level of education, the lower the unemployment rate.

Based on the results of statistical analysis, it is found that inflation directly and indirectly has a positive effect on unemployment. Any increase in inflation will increase unemployment, and vice versa, every decrease in inflation will reduce unemployment. when the price level rises, workers finally realize that real wages are falling and adjust the nominal, or money, wage demands to reflect the higher price level and thus maintain their real income. An increase in the demand for real wages tends to increase unemployment.

It is hoped that local governments in Sulawesi Island in reducing unemployment will be directed towards human development priorities by improving the quality of education services, including programs for increasing access to secondary education, programs for developing educational technology, information and communication. Various efforts that have been made by the local government on the island of Sulawesi to improve the quality of education services, such as free education programs at all levels of education and increasing access to education for the school-age population through free education programs, are believed to be quite effective in increasing participation and knowledge and technical skills in society, so that in turn it will have an impact on increasing community productivity.

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