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SANG PENCERAH
Jurnal Ilmiah Universitas Muhammadiyah Buton

Effect of Inflation and Economic Growth on The Rate of Unemployment: Empirical Study on Province in Indonesia

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Info Artikel

Abstract

This study aims to determine the effect of inflation and economic growth on the unemployment rate in Indonesia. This research is a quantitative research. Data analysis in this study used multiple linear regression with a random effect model, which was processed using the EViews 10 application. The population in this study was all provinces in Indonesia in 2016-2018. The sample in this study was 34 provinces in Indonesia. The data used in this study is secondary data obtained from the Central Statistics Agency. The results of this study indicate that inflation and economic growth have a negative and insignificant effect on the unemployment rate in Indonesia. Based on the F test and t test, inflation and economic growth variables have no significant effect on the unemployment rate in Indonesia, either partially or simultaneously.

1. Pendahuluan

Job opportunities or unemployment are extremely difficult for a country or area to avoid, since they might result in societal problems such as criminal activities and economic difficulties. This state has the potential to erode the people's standard of living and buying power. Therefore, the lower the unemployment rate in a country, the better off its residents are, and vice versa. The success or inability of a country to address its own economic issues may be

determined by its macroeconomic performance. Macroeconomics is the examination of activities that concern a country's economy (Kalsum, 2017).

Inflation is one of the economic indicators used to assess/measure a country's financial stability. Inflation is a monetary phenomenon that occurs in a country where the rise and fall of inflation tends to create economic upheaval. Inflation has both beneficial and harmful consequences, depending on its degree. When inflation is low, it has a beneficial influence on the economy, raising national income and motivating individuals to work, save, and invest. On the other side, when inflation spirals out of control during periods of high inflation, the economy becomes chaotic and sluggish. This is one of the primary reasons for avoiding inflation difficulties (Windra et al., 2016).

Inflation is one of the economic indicators used to determine the financial stability of a country. Inflation is a monetary phenomenon in countries where the rise and fall of inflation frequently results in economic instability. Inflation may have both favorable and detrimental effects, depending on its magnitude. When inflation is low, it benefits the economy by increasing national income and encouraging people to work, save, and invest. On the other hand, when inflation spirals out of control, the economy becomes chaotic and sluggish. This is a fundamental basis for avoiding inflationary problems (Johan et al., 2016).

The current problem with unemployment is that if the population continues to grow each year, it will become unbalanced in the world of work. Because the existing population is not proportional to employment, this will affect Gross Domestic Product (GDP), or more commonly referred to as gross domestic product (GDP). GDP is a measure of a country's national output as realized by its factors of production, and economic growth, with a growing GDP, is expected to be able to absorb workers, or vice versa, with a decreasing GDP indicating widespread unemployment (Albab et al., 2020).

In Indonesia, unemployment is not just due to population increase, but may also be impacted by other variables such as inflation and economic growth (Johan et al., 2016). This is what motivates scholars to conduct empirical studies on the influence of inflation and economic growth on the unemployment rate in Indonesian provinces.

2. Methodology

This is a quantitative study. The population in this research is comprised of statistics on Indonesia's inflation, economic growth, and unemployment rates. While the study's sample is based on data on inflation, economic growth, and unemployment rates in 34 Indonesian provinces from 2016 to 2018. The standard panel model or the common constant model (poled model) is used in this study, along with a Linear Model perspective of panel data processed using Eviews 10 data processing software.

The data for this study came from secondary sources such as the Central Statistics Agency. This study uses panel data (Pooled Data). According to Gujarat, (2006), panel data does not require testing for classical assumptions because it combines cross-section and time-series data.

2.1 Variable Operational Definition

Dependent Variable (Y)

The dependent variable is referred to as the one that is impacted by other factors. The dependent variable in this study is the degree of unemployment.

Independent Variable (X)

Independent variables are also called independent variables that affect other variables. In this study the independent variables are inflation (X1) and economic growth (X2).

2.2 Data analysis technique

The investigation of characteristics, pattern correlations, and consequences that are frequently observed in a phenomenon or symptom that has occurred, is occurring, or will occur is referred to as data analysis. To investigate the variables impacting Indonesia's provincial unemployment rates, including inflation and economic growth. The researchers will use traditional panel data analysis techniques, such as the common constant model or the linear panel data model (multiple linear regression), to determine the suitability of the regression model using the common effect, fixed effect, and random effect methods, as well as hypothesis testing using the F test, t test, and coefficient of determination test.

3. Result

3.1 Descriptive Statistics Test

Table 1. Table of Descriptive Statistical Test Results

Date: 10/14/21 Time: 08:51 Sample: 2016 2018	X1	X2	Y
Mean	3.266176	3.726961	4.965000
Median	3.165000	3.975000	4.430000
Maximum	7.780000	18.80000	9.290000
Minimum	-0.050000	-5.610000	1.400000
Std. Dev.	1.246228	2.459412	1.815260
Skewness	0.789010	1.387209	0.543175
Kurtosis	5.023065	17.36812	2.550378
Jarque-Bera	27.97751	910.0963	5.874846
Probability	0.000001	0.000000	0.053002
Sum	333.1500	380.1500	506.4300
Sum Sq. Dev.	156.8616	610.9194	332.8120
Observations	102	102	102

Source: Data processed, 2021

The descriptive statistical test in Table 1 above indicates that from 2016 and 2018, the unemployment rate ranged between 1.4 and 9.29. Unemployment is estimated to be 4,965 on average, with a standard deviation of 1,81526. This translates to an average unemployment rate of 4.965 percent across Indonesia's provinces from 2016 to 2018, or 4,965 or rounded up to 5 jobless individuals per 100 employees in Indonesia. This illustrates that Indonesia's provinces are inextricably linked to the country's unemployment crisis.

As measured by GRDP statistics, inflation and economic growth have a minimum value of -0.05 and -5.61, respectively, and a high value of 7.78 and 18.8.

Inflation and economic growth have an average value of 3.266176 and 3.726961, respectively, with a standard deviation of 1.246228 and 2.459412. Thus, the average inflation rate in Indonesia's 34 provinces between 2016 and 2018 is 3.26 percent, whereas the average population growth rate is 3.73 percent.

3.2 Multiple Linear Regression

Conducting a regression test in a standard panel model, we must determine the applicability of the regression model utilized, determining if the common effects, fixed effects, or random effects approaches are more appropriate than the multiple regression method.

a) Chow Test

According to Widarjono & Agus (2009), the Chow test is used to compare the common effect model against the fixed effect model. The common effect model is a model that mixes cross sectional and time series data and estimates the panel data model using the OLS technique (Ordinary Least Squares). Gujarati (2012) emphasized that because the fixed effect model's assumption of a constant intercept for each individual and period is seen less realistic, a model capable of capturing these differences is required. A dummy variable or Least Squares Dummy Variable (LSDV) approach is used to estimate the Fixed Effects model with varied intercepts amongst individuals. In this study, the Chow test is conducted using the Eviews software and the following hypothesis:

H0: Common Effect Model

Ha: Fixed Effect Model

If the P-value is less than 5% or 0.05, then Ha is accepted and Ho is rejected. On the other hand, if the P-value is greater than 5% or 0.05, then Ho is accepted (Widarjono & Agus, 2009).

Table 2. Chow Test Results

Redundant Fixed Effects Tests Equation: Untitled Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	38.371098	(33,66)	0.0000
Cross-section Chi-square	306.506628	33	0.0000

Source: Data processed, 2021

b) Hausman Test

According to Gujarati (2012), the Hausman test is used to assess fixed effect and random effect models in order to determine which model should be utilized for panel data regression. Effects of chance is a procedure for estimating panel data in which the residual variable is believed to have a connection with both time and subjects.

The Hausman test uses a program similar to the Chow test, namely the Eviews program. The hypothesis formed in the Hausman test is as follows:

Ho: Random Effect Model

Ha: Fixed Effect Model

If the P-value is less than 5% or 0.05, then Ha is accepted and Ho is rejected. On the other hand, if the P-value is greater than 5% or 0.05, then Ho is accepted (Widarjono & Agus, 2009).

Table 3. Hausman Test Results

Correlated Random Effects - Hausman Test Equation: Untitled Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.582926	2	0.2749

Source: Data processed, 2021

According to the Hausman test findings shown in Table 3, the random cross-section probability value is 0.2749, which is larger than 5% or 0.05. This indicates that Ha is rejected but Ho is accepted, or that the Random Effect Model is accepted.

c) Lagrange Multiplier Test

Than determine if the Random Effects model is superior to the common effects model, the Bruesch-Pagan Lagrange Multiplier (LM) test can be utilized. Additionally, the Lagrange Multipliertest makes use of a software comparable to the Chow and Hausman tests, the Eviews program. The Hausman test generates the following hypothesis:

Ho: Common Effect Model

Ha: Random Effect Model

If the P-value is less than 5% or 0.05, then Ha is accepted and Ho is rejected. On the other hand, if the P-value is greater than 5% or 0.05, then Ho is accepted (Widarjono & Agus, 2009).

Table 4. Lagrange Uji Test Results

Lagrange Multiplier Tests for Random Effects Null hypotheses: No effects Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives			
	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	82.62007 (0.0000)	1.290318 (0.2560)	83.91039 (0.0000)
Honda	9.089559 (0.0000)	-1.135922 --	5.624071 (0.0000)
King-Wu	9.089559 (0.0000)	-1.135922 --	1.069831 (0.1423)
Standardized Honda	9.341749 (0.0000)	-0.891775 --	1.789300 (0.0368)
Standardized King-Wu	9.341749 (0.0000)	-0.891775 --	-1.132147 --
Gourierioux, et al.*	--	--	82.62007 (< 0.01)
*Mixed chi-square asymptotic critical values: 1% 7.289 5% 4.321 10% 2.952			

Source: Data processed, 2021

According to the Lagrange multiplier test findings in Table 4, the Prob Both Breusch-Pagan value is 0.000, which is less than 5% or 0.05. That is, Ho is rejected while Ha is accepted, or the Random Effect Model is approved.

The Chow test, Hausman test, and Lagrange multipier test findings indicated that the Random effect model was utilized to determine this investigation's multiple linear regression model.

Table 5. Multiple Linear Regression Test Results with Random Effect Model

```
Dependent Variable: Y
Method: Panel EGLS (Cross-section random effects)
Date: 10/14/21   Time: 08:55
Sample: 2016 2018
Periods included: 3
Cross-sections included: 34
Total panel (balanced) observations: 102
Swamy and Arora estimator of component variances
```

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.147879	0.351323	14.65284	0.0000
X1	-0.037063	0.045207	-0.819848	0.4143
X2	-0.016589	0.035155	-0.471872	0.6381

Effects Specification		
	S.D.	Rho
Cross-section random	1.746018	0.9282
Idiosyncratic random	0.485530	0.0718

Weighted Statistics			
R-squared	0.010789	Mean dependent var	0.787046
Adjusted R-squared	-0.009195	S.D. dependent var	0.484734
S.E. of regression	0.486958	Sum squared resid	23.47566
F-statistic	0.539867	Durbin-Watson stat	1.989229
Prob(F-statistic)	0.584532		

Unweighted Statistics			
R-squared	0.010543	Mean dependent var	4.965000
Sum squared resid	329.3032	Durbin-Watson stat	0.141810

Source: Data processed, 2021

Based on the table above, the estimation model of the random effect regression equation is as follows: Y = 5.147879 – 0.037063 X1 – 0.016589 X2

The interpretation of the above equation is as follows:

1. The constant figure is 5.147879, indicating that assuming inflation and economic growth remain constant (zero), Indonesia's unemployment rate is 5.15 percent.

2. The inflation variable's regression coefficient is -0.037063, which indicates that for every 1% increase in inflation, Indonesia's unemployment rate decreases by 0.04 percent.

3. The economic growth variable has a regression coefficient of -0.016589, which indicates that for every 1% rise in economic growth, unemployment in Indonesia will reduce by 0.02 percent.

d) Simultaneous Test (F Test)

The F test is used to determine if the independent factors have an effect on the dependent variable concurrently. According to table 5, the regression test resulted in a Prob F statistic value of 0.584532, which is more than 5% or 0.05. This demonstrates that in Indonesia, the variables inflation and economic growth have no concurrent influence on the variable unemployment rate.

e) Partial Test (t Test)

The t test is used to determine if an independent variable has a significant effect on the dependent variable. According to table 5, the regression test findings indicate that inflation and economic growth variables have no statistically significant influence on Indonesia's unemployment rate, since the probability value of the t-test is more than 5% or 0.05, which is 0.4143 and 0.6381, respectively.

f) Coefficient of Determination Test (R2)

According to Table 5, the Adjusted R-Square value is -0.009195; this value is negative, indicating that the independent or independent factors, namely inflation and economic growth, have no influence on the unemployment rate. This is consistent with the t and F tests.

4. Discussion

a) Inflation Against Unemployment Tingkat

The findings indicated that inflation had a negligible influence on Indonesia's unemployment rate, with a negative coefficient. Philips articulated this notion in Dornbusch et al. (2008) with reference to Philips law, which argues that inflation and unemployment have a negative connection. When one of them grows, the other shrinks. This Philips hypothesis postulates that inflation grows as aggregate demand increases. The increased demand will result in an increase in the price of products and a decrease in the stock of commodities. Producers will enhance production capacity by hiring additional personnel to fulfill market demand. When there is a greater demand for work, unemployment tends to be lower (Mahzalena et al., 2019).

The inflation variable's insignificant influence on unemployment in Indonesia is due to an increase in aggregate demand, which has a multiplier effect on employment, hence lowering the jobless rate (Mankiw & Gregory.N, 2003) (Nanga & Muana, 2001). Additionally, inflation was triggered by a number of variables, including an increase in food supply, an increase in transportation capacity, crop failure owing to irregular weather, and an increase in the cost of products and services. The findings of this study corroborate (Panjawa & Soebagio, 2014), who asserts that inflation has a little influence on the unemployment rate in Medan.

In contradiction to Johan et al. (2016) study, where the findings of multiple linear regression analysis demonstrate that the inflation variable has an influence on unemployment, this is not the case here. One of the reasons contributing to Indonesian inflation is the rise in global oil prices. With the increase in global oil prices, the price of raw materials increases, resulting in an increase in the company's operational costs. With constant increases in operating expenditures, the company's stability is dubious, and the company's profitability would suffer as a result. If inflation continues to rise, it is probable that many businesses may close

their doors due to their inability to function and employees would be laid off. The bigger the impact of inflation on the business, the more layoffs the business will make. With a rising number of people being laid off, this will have an effect on the growing number of jobless.

b) Economic Growth Against Unemployment Rate

The results of this study indicate that the variable of economic growth represented by PDRB also has no significant effect on the unemployment rate in Indonesia and the coefficient value is also negative. Okun's legal theory says there is a negative relationship between PDRB and unemployment, Okun's law is used by developing countries as a solution to overcome the problem of unemployment. By increasing the PDRB, it will increase the number of jobs, thus absorbing unemployment. If there is an increase in PDRB, the demand for labor will rise and unemployment will fall. On the other hand, if PDRB falls, it will cause producers to reduce production thereby reducing labor which will result in increased unemployment, this means that the increase in PDRB is followed by a decrease in the unemployment rate(Antasari & Soleh, 2012) (Ardiansyah, 2017). The findings of this analysis corroborate those of Nur Fitri Yanti & Adda (2017), who found that from 1993 to 2009, the GRDP had a negative influence on open unemployment in Central Java Province.

This contrasts with the findings of Johan et al. (2016), who found that economic growth has a positive regression coefficient but has no influence on unemployment. This indicates that a rise in economic growth does not necessarily result in a large drop in unemployment. This may be explained in the context of Indonesia by the fact that the increased value of economic expansion benefits just a subset of the population, not the entire population. The majority of the rise in Indonesia's GDP is attributed to a small number of persons with non-real sector industries; this non-real sector is defined as a capital-intensive venture. Due to the sector's capital-intensive nature, it absorbs very few people.

4. Conclusion

In Indonesia, inflation has a negative but insignificant effect on the unemployment rate. When one of them grows, the other shrinks. Inflation was triggered by an increase in aggregate demand. Demand increases the price of goods and decreases the stock of goods. Producers will increase production capacity by hiring additional workers to meet market demand. On the other hand, economic growth as measured by the GRDP has a negative but insignificant effect on Indonesia's unemployment rate from 2016 to 2018. Increased GDP creates more jobs, resulting in an increase in labor demand and a decrease in unemployment. On the other hand, if GRDP declines, producers will cut production, resulting in a reduction in labor, resulting in an increase in unemployment.

References

Albab, U., Ahmad, & Dkk. (2020). Pengaruh Inflasi, PDRB dan UMK Terhadap Tingkat Pengangguran di Provinsi Jawa Tengah. *Jurnal Ekonomi Balance*, *16*(1), 1–12.

Antasari, & Soleh. (2012). Pengaruh Pengeluaran Pemerintah Terhadap Pertumbuhan ekonomi di Provinsi bengkulu., Hal:117-127. *Ekombis Review:*

Jurnal Ekonomi Dan Bisnis, *3*(2), 117–127. https://doi.org/https://doi.org/10.37676/ekombis.v3i2.139

Ardiansyah, H. (2017). Pengaruh Inflasi terhadap Pertumbuhan ekonomi di Indonesia. *Jurnal Pendidikan Ekonomi (JUPE)*, *5*(3).

Dornbusch, Fisher, & Startz. (2008). *Makroekonomi*. McGraw-hill Companies, Inc.

Gujarati, D. N. (2006). *Ekonometrika Dasar.* Erlangga Group.

Gujarati, D. N. (2012). *Dasar-dasar ekonometrika buku 2.* (IV). Salemba Empat.

Johan, Kornelius, & dkk. (2016). Analisis Pengaruh Pertumbuhan Ekonomi, Inflasi dan Investasi Terhadap Pengangguran di Indonesia. *Jurnal Ilmiah Progresif Manajemen Bisnis (JIPMB)*, *13*(2), 20–32.

Kalsum, U. (2017). Pengaruh Pengangguran dan Inflasi Terhadap Pertumbuhan Ekonomi di Sumatera Utara. *Jurnal Ekonomikawan*, *17*(1), 87–94.

Mahzalena, Yusra, & Yuliansyah, H. (2019). Pengaruh Inflasi, Pengeluaran Pemerintah dan Ekspor Terhadap Pertumbuhan Ekonomi di Indonesia. *Jurnal Ekonomi Regional Unimal*, *2*(1), 37–50.

Mankiw, & Gregory.N. (2003). *Teori Makroekonomi edisi kelima.* Erlangga Group.

Nanga, & Muana. (2001). *Makroekonomi Teori, Masalah dan Kebijakan* (I). PT. Raja Grafindo Persada.

Nur Fitri Yanti, N., & Adda, H. (2017). Analisis Pengaruh Inflasi, Investasi dan PDRB Terhadap Tingkat Pengangguran di Wilayah Sulawesi periode 2010-2014. *E-Jurnal Katalogis*, *5*(4), 138–149.

Panjawa, J., & Soebagio, D. (2014). Efek Peningkatan Upah Minimum Terhadap Tingkat Pengangguran. *Jurnal Ekonomi Dan Studi Pembangunan*, *15*(1), 48–54.

Widarjono, & Agus. (2009). *Ekonometrika Pengantar dan Aplikasinya.* (III). Ekonesia.

Windra, Marwoto, P. B., & Rafani, Y. (2016). Analisis Pengaruh Inflasi, Pertumbuhan Ekonomi, dan Tingkat Pengangguran Terhadap Kemiskinan di Indonesia. *Jurnal Ilmiah Progresif Manajemen Bisnis (JIPMB)*, *14*(2), 19–26.