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# The Effect of Inflation and Economic Growth on Unemployment Rate in Asean Countries

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## Abstract

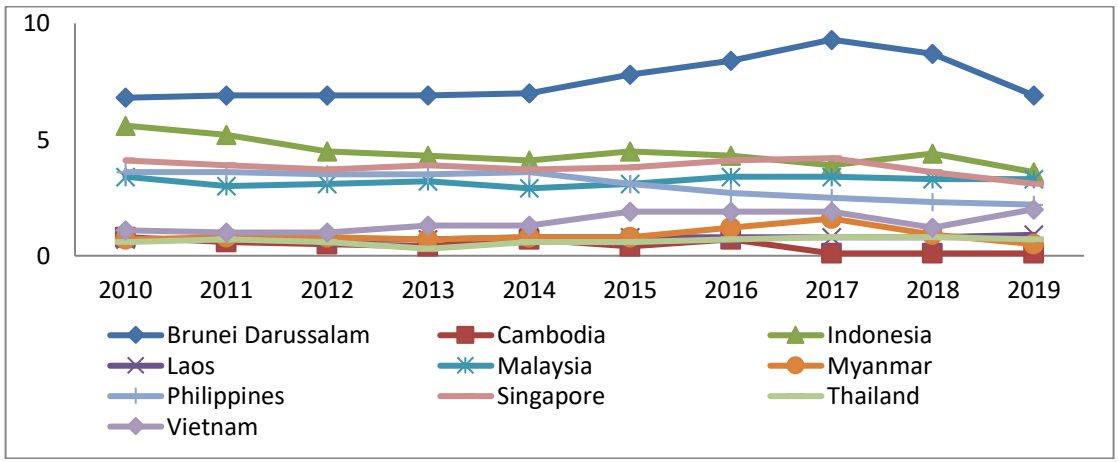
*This study aims to examine and analyze the effect of inflation and economic growth on the unemployment rate in ASEAN countries in 2010 – 2019. This research is a type of quantitative research. The method used is the dynamic panel data regression method. The results of this study indicate that inflation in the short term and long term has a negative and insignificant effect on the unemployment rate in ASEAN countries and economic growth in the short term has a negative and insignificant effect on the unemployment rate in ASEAN countries, while in the long term it has a negative and significant effect on the unemployment rate. unemployment rate in ASEAN countries.*

**Keywords** *: inflation, economic growth, unemployment rate*

## 1. Introduction

Unemployment is an economic problem that directly affects humans and is also a serious matter. Some people perceive unemployment as a decline in the cost of living and the pressure to lose their jobs. In terms of standards set internationally, the definition of unemployment is: someone who is of working age who is looking for a job to get a certain reward, but has not found the job he wants (Samuelson et. al, 2015). The ever-increasing unemployment not only affects the dignity of a nation but also creates many cruel problems in the country. Long term unemployment creates too many immoral crimes in countries such as frustration, homelessness, poverty, family tension, loss of trust, social isolation, self-esteem, and financial difficulties (Siddiqa, 2021). This widespread unemployment usually occurs because the number of available job opportunities is not able to keep up with the increasing number of the workforce. Imbalance between supply and demand aspects both in terms of quantity and quality can lead to serious unemployment consequences. Unemployment that is already chronic and structural in nature if it is not controlled will generally have a negative impact on the environmental, social, economic and political development of a country. Unemployment that is already structural in nature is very influential on the achievement of community welfare and development prospects in the country concerned.

Unemployment is a fact that occurs in developing countries such as ASEAN. Apart from Singapore, which is a developed country, there are ten other ASEAN countries including developing countries, namely Indonesia. These countries have various economic capacities that vary, as can be seen from differences in income levels, inflation, unemployment, and other economic indicators. Relations between ASEAN countries, especially in the economic sector, are very good, creating a free trade area known as the ASEAN Free Trade Area (AFTA) without tariff constraints (0-5% import tariffs) or non-tariff barriers for ASEAN countries. Not all of these activities have a positive impact, but they have a negative impact on countries that are unable to keep up with industrial strength, resulting in lower domestic production, economic stagnation, and high unemployment (ASEAN Free Trade Area, 2011:1).




*Source: World Bank (Unemployment, total (% of total labor force) (modeled ILO estimate)) (processed data).*

Graph 1. Unemployment Rates in ASEAN Countries 2010-2019 (in percent)

Based on graph 1. above, it can be seen that the unemployment rate in ASEAN countries during the last ten years has fluctuated on average (up and down). Of the 10 ASEAN countries, if seen from the annual average, Cambodia has the lowest unemployment rate of 0.44% and the highest occurs in Indonesia at 4.44% and Brunei Darussalam at 7.56% compared to the country's average. ASEAN by 2.63%. One of the causes of the high unemployment rate in Indonesia is the slowing growth of the manufacturing industry so that labor absorption is also not optimal compared to other ASEAN countries (Kevin, 2019). The unemployment rate that is still up and down means that the unemployment problem is not easy to overcome.

One aspect that affects the unemployment rate is the inflation rate based on Phillips Theory (Listiana et. al, 2020). Inflation is a problem that can reduce public peace. Inflation is a symptom of prices that continue to rise in general (Boediono, 2009). Unemployment and inflation are two closely related economic concepts. There are two possible explanations for this relationship - one in the short term and one in the long term. In the short term there is an inverse correlation between the two. As per this relationship, when unemployment is on the higher side, inflation is on the lower side and the opposite is also true and in the long run it has been observed by economists that the concepts of unemployment and inflation are unrelated (Umara et. al, 2013).

Based on inflation data for 2010-2019, the inflation rate in ASEAN countries in the last ten years has fluctuated on average (up and down). The highest increase in inflation seen from the annual average occurred in Myanmar at 6.15% and the lowest inflation in Brunei Darussalam at -0.07% compared to the ASEAN average of 3.21%. Judging from the inflation rate data in Laos, Thailand and Vietnam which fluctuates while the unemployment rate continues to increase, this phenomenon is different from the Philips curve statement, namely if the inflation rate rises, the unemployment rate will decrease (Feriyanto, 2014).

The economic growth of a country is defined as an increase in the quantity and value of the total quantity or gross domestic product (GDP), meaning an increase in national income (PN). If the national income increases, the income per capita of the community will also increase. Sukirno explained that economic growth also has an impact on the unemployment rate, namely a decrease in the unemployment rate can drive economic growth and if economic growth increases, it states that the unemployment rate decreases. Therefore, if economic growth increases, the unemployment rate will decrease.

Based on economic growth data for 2010-2019, economic growth in ASEAN countries during the last ten years has fluctuated on average (up and down). The highest growth when viewed from an annual average occurred in Laos at 7.30% and Myanmar at 7.30%, while the lowest growth occurred in Brunei Darussalam at 0.50% compared to the ASEAN country average of 5. 44%.

Inflation, economic growth and unemployment cannot be totally eradicated, but they can be controlled with policy instruments. ASEAN is an international organization in Southeast Asia consisting of Indonesia, the Philippines, Malaysia, Singapore, Brunei Darussalam, Thailand, Vietnam, Laos, Cambodia and Myanmar. Most ASEAN countries are developing countries, except for Singapore and Brunei Darussalam, which have high per capita incomes. Countries in ASEAN must have different problems with inflation, economic growth and unemployment.

Data on Inflation, Economic Growth on Unemployment Rates in ASEAN Countries in 2010-2019. Fluctuating inflation rates and fluctuating economic growth rates so that the unemployment rate fluctuates. This encourages researchers to analyze and obtain information on how inflation and economic growth affect the unemployment rate in ASEAN countries.

**Formulation of the problem**

1. Does inflation affect the unemployment rate in ASEAN countries?
2. Does economic growth affect the unemployment rate in ASEAN countries?

## 2. Literature Review

Phillips theory explains the negative relationship between inflation and unemployment. AW Phillips observes the interaction between the inflation rate and the unemployment rate. The consequence of the negative relationship between inflation and unemployment is that if a low inflation rate is desired, a high unemployment rate will be created, and if the inflation rate rises high it simply creates a low unemployment rate. The Phillips curve can change (up or down) at different times (Samuelson and Nordhaus, 2015). The results of these observations are depicted on the Phillips curve.

The Phillips curve shows the "trade off" of the inflation theory. Countries can achieve lower unemployment rates if they are willing to pay higher inflation rates. The trade off is indicated by the degree of slope of the Phillips curve. The Phillips curve shows an inverse relationship between inflation and unemployment, i.e. an increase in inflation will reduce the unemployment rate. This theory is based on the perception of the natural unemployment rate, which is the lowest level that can be applied safely because of rising inflation in the form of a spiral, this situation is a reflection of the unemployment rate where workers and product markets are in equilibrium. In the natural rate theory, there is no constant trade off between unemployment and inflation. (Samuelson and Nordhaus, 2015).

Natural rate theory distinguishes between the long run and short run Phillips curves. The graph above shows the downward slope of the Phillips curve only in the short run. In the long run, there is only one steady rate of unemployment with constant inflation: this unemployment rate is called the natural rate of unemployment. This theory has the implication that the Phillips curve for the long run is vertical (Samuelson and Nordhaus, 2015). The economy can have a natural rate of unemployment that occurs with zero inflation. Above the natural rate of unemployment, the price level falls, and below the natural rate of unemployment the price level rises.

This Phillips curve has several criteria, including: Because the gradient is negative, this curve descends from the top left to the bottom right. The natural rate of unemployment at the point of intersection of the horizontal axis, where inflation is zero. This curve shows the reaction of the unemployment rate to changes in the inflation rate, this is indicated by the magnitude of the slope of the Phillips curve (Samuelson et. al, 2015). According to Friedman and Phelps, the Phillips curve does not represent a comparable long-run relationship. When policy makers try to maintain the natural rate of unemployment, the Phillips curve shifts outward, and vice versa when the unemployment rate remains above the natural rate of unemployment, the Phillips curve will shift downwards (Samuelson et. al, 2015).

The relationship between economic growth and unemployment is contained in Okun's law conducted by Arthur Okun (1929-1979) in Ningsih (2010) which states that there is an empirical influence between unemployment and output in the business cycle. The results of empirical studies mean that a 1% increase in the unemployment rate reduces GDP (Gross Domestic Product) by 2%. This shows that there is a negative relationship between economic growth and unemployment.

According to Okun, economic growth and unemployment are closely related, because working people contribute to the production of goods and services but unemployment does not (Blancard, 2011). According to Okun's law, there is a linear negative relationship between unemployment and economic growth: if the unemployment rate increases by 1%, economic growth will decrease by more than 2% (Prachowny, 1993) in (Darman, 2014). On the other hand, a 1% increase in production will reduce the unemployment rate by less than 1%. If the country's economic growth continues to increase, wages will also increase. An increase in wages will affect an increase in labor and will affect a decrease in the unemployment rate.

Based on the results of the study Umara et. al (2013) in Nigeria using the Augmented Dickey-Fuller technique in testing the unit root property of the series and the Granger causality test, found that unemployment and inflation have a positive impact on economic growth. The results also show that unemployment does not significantly affect economic growth, but good economic performance in terms of per capita growth can therefore be attributed to the inflation rate in the country. The main policy implication of this result is that concerted efforts should be made by policy makers to increase the level of output in Nigeria by increasing productivity/supply to reduce unemployment and prices of goods and services (inflation) so as to increase economic growth.

Based on the results of the Touny (2013) study in Egypt using the Johansen-Juselius cointegration test (1990) and the Vector Error Correction Model (VECM). The ADF test results show that the two series are cointegrated order I(1). In addition, the cointegration analysis results confirm a positive relationship between changes in the inflation rate and the unemployment gap in the long run, which is in line with the "Locus Critique" where inflationary policies will fail to reduce the unemployment rate in the long run. , because workers will eventually adjust their inflation expectations.

Based on the results of the study of Kartika et. al (2020) in 10 ASEAN countries with research that is quantitative and processed using the dynamic panel data method, with the aim of proving again whether the application of the Phillips curve has occurred in 10 ASEAN countries over the last ten years (2008-2017). And the results of the study are that in the short and long term there is a trade-off between inflation and unemployment variables, so it can be concluded that the Phillips curve applies in 10 ASEAN countries.

Research conducted by Nga et. al (2022) in ASEAN countries: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. Using the Granger Panel Causality test method, Panel unit root test, Panel cointegration test, Mean Group and Pooled Mean Group, and MANOVA test with results in ASEAN countries, a two-way

relationship between youth unemployment, inflation and economic growth exists with a similar causality. runs from youth unemployment and inflation to individual economic growth. Youth unemployment and inflation have a significant interaction and influence on economic growth. This research is expected to help improve the quality of youth empowerment policies and improve youth employment development.

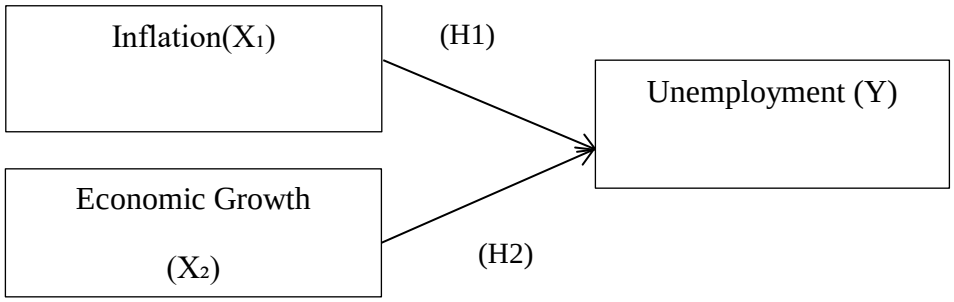



**Figure 1**. Research Hypothesis

1. H1 : Inflation has a significant effect on the unemployment rate in ASEAN countries
2. H2 : There is economic growth that has a significant effect on the unemployment rate in ASEAN countries

## 3. Methodology

The form of this research is a quantitative research method that uses secondary data. In this study, the authors used quantitative descriptive research which aims to describe the data obtained as they are by mathematical calculations because the data used in this study are panel data. The research was conducted in ASEAN Countries in 2021-2022 using secondary data. The data used in this study is secondary data in the form of panel data with data that combines cross section and time series data with a period of 10 years (2010-2019) covering 10 ASEAN countries: Brunei Darussalam, Cambodia, Indonesia, Laos. , Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

Variables are objects that separate or change values (Kuncoro, 2009). This study uses two variables, namely the dependent variable (Unemployment) and the independent variable (Inflation, economic growth).

1. Open Unemployment (Y).

Unemployment seen by the World Bank is a term for people who do not work at all, or someone who is trying to find a job. Unemployment is caused by the number of labor force is not equal to the number of existing jobs that are able to absorb it (percentage).

$$Unemployment\ Rate = \frac{Number\ of\ Job\ seekers}{Number\ of\ labor\ force} X\ 100\%$$

2. Inflation ($X_1$).

The inflation rate is seen by the World Bank from the magnitude of changes in generally accepted prices based on the Consumer Price Index which is calculated in units (percentages).

$$\text{In} = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}}\ X\ 100\%$$

3. Economic Growth ($X_2$)

Economic growth is seen by the World Bank as an economic area experiencing developments in the production of goods and services in a certain year against the previous year's value calculated based on GDP/GRDP at constant prices.

$$G_t = \frac{GRDP_t - GRDP_{t-1}}{GRDP_{t-1}} \; X \; 100\%$$

**Analysis Method**

The method used in this research is the dynamic panel data regression analysis method. This method has a lag of the dependent variable which serves to make the variable as the independent variable. In its own sense, dynamic is a value of a variable that is influenced by the value of another variable with the present time and which also has a relationship with the past, according to Arrelano and Bond (Yuniar et. al, 2020). With the following equation:

$y_{it} = \delta y_{i,t-1} + x'_{it}\beta + u_{it}$ = 1,2, … ,N ;$t$ = 1,2, … , $T$.....(1)

Description :

$yit$ : dependent variable in the i-th cross-section unit with respect to time period t

$\boldsymbol{x'}$ : vector of independent variable observations of the i-th cross-sectional unit for the time period t with a size of 1×k

: member error

$\delta$ is a scalar, $\boldsymbol{x'}\, i$, is a vector of independent variables measuring 1×k. Whereas $\boldsymbol{\beta}$ is defined as a constant vector having size k×1. If it is assumed $ui$, is a one way error component of the model obtained, which is written as follows:

$ui,t = \mu i + vit$

Where $\mu i$ is assumed $\mu i$ ~IIDN (0, $\sigma\mu$ 2 ) as an individual-specified error component and $vit$ is the assumed general error component $vit$~IIDN (0, $\sigma v$ 2 ).

**Generalized Method of Moment**

The estimation test is tested with the Arellano-Bond GMM (Generalized Method of Moment) estimation test. The estimation results are carried out in order to obtain efficient estimation results where in the dynamic panel equation if using OLS estimation it becomes inconsistent but also biased. Therefore, in order to eliminate these problems using GMM estimation.

This Generalized Method of Moment estimation method will later become a model whose estimates are unbiased, consistent and efficient. Here are the estimation results.

$$\binom{\delta}{\beta} = [(N^{-1}\sum_{i=1}^{N}(\Delta y_{i,t-1,}\, \Delta_{xi})'Z_i)\hat{W}(N^{-1}\sum_{i=1}^{N} Z'_i(\Delta y_{i,t-1}\Delta_{xi}))]^{-1}$$

$$[(N^{-1}\sum_{i=1}^{N}(\Delta y_{i,t-1}\Delta_{xi})'Z_i)\hat{W}(N^{-1}\sum_{i=1}^{N} Z'_i\Delta y_i)]\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

$\boldsymbol{Zi}$: Valid instrument matrix

$\boldsymbol{W\hat{}}$ : Unbiased and consistent estimate for $\boldsymbol{W(LxL)}$ where L is the number of instrument variables

To find out the results of the two step estimator by substituting the weights $\boldsymbol{W\hat{}}$ with $\boldsymbol{\Lambda\hat{}}$−1 with:

$\Lambda^{-1} = N^{-1}\sum_{i=1}^{N} Z_i^{i}\Delta v_i \Delta v_i^{i} Z_i$……...……(3)

So the estimation results are as follows:

$$\binom{\delta}{\beta} = [(N^{-1}\sum_{i=1}^{N}(\Delta y_{i,t-1,}\, \Delta_{xi})'Z_i)\Lambda(N^{-1}\sum_{i=1}^{N} Z'_i(\Delta y_{i,t-1}\Delta_{xi}))]^{-1}$$

$$[(N^{-1}\sum_{i=1}^{N}(\Delta y_{i,t-1}\Delta_{xi})'Z_i)\hat{\Lambda}(N^{-1}\sum_{i=1}^{N} Z'_i\Delta y_i)]\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

**Variable Instrumental Method**

According to Anderson and Hsiao, the instrumental variable method is instrumented with variables that are correlated with explanatory variables and not correlated with error. However, this method only produces consistent but inefficient parameter estimates. Furthermore, the Anderson and Hsiao method was developed by Arellano-Bond in 1991 (Arellano and Bond GMM (AB-GMM) Estimator) which produces unbiased, consistent, and efficient estimates (Syawal, 2011).

There are two types of GMM estimation procedures that are generally used, namely First-Difference GMM (FD-GMM or AB-GMM) and System GMM (SYS-GMM) (Karami, 2012). In

the first difference equation, the right instrument to use is the lag variable from the level. By doing the first difference, the equation obtained is:

$$\Delta_{yit} = \beta\Delta_{yi,t-1} + \Delta_{vit} \quad \text{.....(5)}$$

i = 1, . . . , N

t = 3, . . . , T

The variables in the vector Δ_(yi,t-1) are still correlated with the variables in the vector Δ_vit. Therefore, the instrumental variable method is used to determine the instrument variable matrix to be used. For this reason, the instrument variable was chosen, namely yi,t-2.

Arellano-Bond shows that the estimates produced by AB-GMM are biased. For this reason, the solution that can be used is to use the Sys-GMM estimation developed by Arellano and Bover (1995) and Blundell and Bond (1998) where SYS-GMM combines the first-difference equation group with the level value as the instrument plus the level equation group. with first-difference as an instrument (Syawal, 2011).

The process of determining instrument variables in Sys-GMM is the same as FD-GMM, so that the instrument variable matrix is obtained, namely:

$$Z_i^* = \begin{bmatrix} Z_i & 0 & 0 & \dots & 0 \\ 0 & \Delta_{yi2} & 0 & \dots & 0 \\ 0 & 0 & \Delta_{yi3} & \cdots & 0 \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & 0 & \cdots & \Delta_{yi,T-1} \end{bmatrix} \quad \text{.....(6)}$$

Is a matrix of instrument variables for FD-GMM for the level model. Furthermore, the first difference model and the level model are combined, so that the system model is obtained (Syawal, 2011).

$$\begin{pmatrix} \Delta_{yi,t} \\ yi,t \end{pmatrix} = \beta \begin{pmatrix} \Delta_{yi,t-1} \\ yi,t-1 \end{pmatrix} + \begin{pmatrix} \Delta_{vit} \\ \varepsilon_{i,t} \end{pmatrix} \quad \text{.....(7)}$$

i = 1, . . . , N

t = 3, . . . , T

**Parameter Significance Test**

Parameter significance test is used to determine whether there is a relationship in the model. In the dynamic panel model, to determine whether there is a relationship in the model, the Wald test is used. Wald's test is used as a simultaneous significance test of the model. The hypothesis test is as follows.

$H_0$: $\beta_1 = \beta_2 = \cdots = \beta_p = 0$

$H_1$: At least one $\beta_p \neq 0$, $j = 1, 2, \dots, p$

The Wald test statistics are as follows:

$$w = \widehat{\boldsymbol{\beta}}\widetilde{\boldsymbol{V}}^{-1}\widehat{\boldsymbol{\beta}} \sim x^2(k) \quad \text{.....(8)}$$

Description :

p : Number of independent variables

The decision is that H0 is rejected if the value of the w test statistic is greater than the Chi-square table ($X_K^2$) or p-value < α (value α=0.05)

The following is an individual parameter significance test with the following hypotheses:

$H0$: $\beta j = 0$

$H1$: $\beta j \neq 0$, $j = 1, 2, \dots, p$

The z test statistics are as follows.

$$Z_{test} = \frac{\widehat{\beta}_j}{se(\widehat{\beta}_j)} \quad \text{.....(9)}$$

The decision is that H0 is rejected if the p-value < α (value α=0,05).

## 4. Results and Discussion

### 4.1 Statistical Results

**Best Model Selection**

GMM estimation aims to determine whether the variables are unbiased, consistent and efficient. The GMM estimates that will be used are First-Difference GMM (FD-GMM or AB-GMM) and System GMM (SYS-GMM).

**Table 1. GMM Estimation Test Results**

| Variable | Fdgmm | Sysgmm | Fem | Pls |
|---|---|---|---|---|
| TP (L1) | 0,38948984* | 0,88687638*** | 0,62616827*** | 0,94162816*** |

*Source: Stata Processed Results*

From the results of the GMM estimation test, namely First-Difference GMM (FD-GMM or AB-GMM) and System GMM (SYS-GMM) it can be seen that where the best model is the lag 1 variable (L1.TP) which lies between FEM and PLS, namely the model estimation of SYS-GMM or Arellano-Bover so that the unusual condition has been met.

**Parameter Significance Test**

**Table 2.** Results of the Wald Test and Z Test

| Variable | Coefficient | Z | P-value |
|---|---|---|---|
| TP | 0,8868764 | 31,81 | 0,000 |
| INF | -0,0227968 | -0,93 | 0,354 |
| PE | -0,0691019 | -1,74 | 0,082 |
| Cons | 0,6849219 | 2,09 | 0,036 |

*Source: Stata Processed Results*

Simultaneous parameter significance testing was carried out using the Wald test with the statistical value of the Wald test obtained at 1591.81 and the p-value of 0.0000. If the used is 5% or 0.05, then the decision is $H_0$ rejected, which means that there is at least one variable that has a significant effect on the model. And the results of testing the significance of the parameters partially, if the used is 5% or 0.05 then the X1 variable (inflation) and X2 (economic growth) variable get the result that the p-value is greater than = 0.05 or 5 %, so the decision is that $H_0$ is accepted, which means that the variables X1 (inflation) and X2 (economic growth) have no significant effect on the model. And for the Y variable (unemployment rate) it shows that the p-value is smaller than = 0.05 or 5%, so the decision is $H_0$ rejected, which means it has a significant effect on the model.

**Arellano-Bover Model Estimation Results**

Based on the results of the first difference GMM estimation where the best model is the SYS-GMM or Arellano-Bover estimation which is already valid and fulfilled, so that the model equation obtained using the Arellano-Bover GMM estimate is as follows.

$$Y_{i,t} = 0{,}685 + 0{,}887y_{i,t-1} - 0{,}023x1_{i,t} - 0{,}069x2_{i,t} + u_{i,t} \quad \text{.....(10)}$$

After knowing the model, then the model is used to get the long-term and short-term elasticity values. The long-term and short-term estimation values for the model will be explained as follows.

**Table 3. Results of Long-Term and Short-Term Estimates**

| Variable | Coefficient | | P-value | |
|---|---|---|---|---|
| | Short-term | Long-term | Short-term | Long-term |
| TP | 0,8868764 | - | 0,000 | - |
| INF | -0,0227968 | -0,2015212 | 0,354 | 0,32 |
| PE | -0,0691019 | -0,6108531 | 0,082 | 0,043 |

*Source: Stata Processed Results*

The relationship between the value of the elasticity coefficient of inflation and the unemployment rate is negatively related and has no significant effect. The value of the inflation elasticity coefficient in the short term is -0.0228, meaning that each inflation coefficient value increases by 1%, it will reduce the unemployment rate by 0.0228% with the assumption that the value of inflation and economic growth is fixed. Meanwhile, the relationship between the inflation elasticity coefficient and the unemployment rate in the long run is negative and has no significant effect. The value of the inflation elasticity coefficient is -0.2015, meaning that each inflation value increases by 1%, it will reduce the unemployment rate by 0.2015% with the assumption that the value of inflation and economic growth is fixed.

The relationship between the elasticity coefficient of economic growth and the unemployment rate is negatively related and has no significant effect. The value of the elasticity coefficient of economic growth in the short term is -0.0691 which means that each value of economic growth increases by 1%, it will reduce the unemployment rate by 0.0691% by assuming the value of inflation and economic growth remains. Meanwhile, in the long term, the relationship between the elasticity coefficient of economic growth and the unemployment rate is negative and has a significant effect. The value of the elasticity coefficient of economic growth is -0.6108, meaning that every 1% increase in the value of economic growth will reduce the unemployment rate by 0.6108% with the assumption that the value of inflation and economic growth remains constant.

### 4.2 Discussion

### The Effect of Inflation on the Unemployment Rate

Based on the estimation results in the short term that have been obtained in table 3., we can see that inflation is negatively related and has no significant effect on unemployment rates in ASEAN countries. The results of this study confirm that the hypothesis $H_1$ which states that inflation has a significant effect on the unemployment rate cannot be accepted. Inflation which is negatively related and has no significant effect on the unemployment rate in the short term can be interpreted that an increase in the inflation rate of ASEAN countries in the short term actually reduces the unemployment rate of ASEAN countries insignificantly and vice versa. The results of this study are not in line with Phillips' theory where this theory states the consequences of a negative relationship between inflation and unemployment, namely if a low inflation rate is desired, a high unemployment rate will be created, and if the inflation rate rises high simply then a low unemployment rate will be created. However, based on the results of the analysis in this study, the effect of inflation is not significant on the unemployment rate, which means that the effect is very small and only occurs in the short term. This is thought to be caused by the continued increase in food prices, while the absorption of labor is still low, resulting in high inflation and rising unemployment. The increase in inflation does not always absorb the existing workforce and reduce the unemployment rate, because not many companies provide new jobs and there are not many workers whose criteria are needed by companies.

While the estimation results in the long term are known that inflation is negatively related and has no significant effect on the unemployment rate in ASEAN countries. The results of this study confirm that the hypothesis $H_1$ which states that inflation has a significant effect on the unemployment rate cannot be accepted. Inflation which is negatively related and has no significant effect on the unemployment rate in the long term can be interpreted that an increase in the inflation rate of ASEAN countries in the long term actually reduces the unemployment rate of ASEAN countries insignificantly and vice versa.

The development of inflation rates in ASEAN countries, one of which is Indonesia, the unstable inflation rate is due to, among other things, the disruption in the supply of a number of food commodities such as rice, shallots, chilies, beef and chicken meat, cooking oil and the momentum of price adjustment of fuel oil (BBM) which is close to religious holidays and the new school year of primary, secondary and tertiary education and this causes a heavy burden for households that are below or slightly above the poverty line because these households spend more than half of their income on food, especially rice. Therefore, the government and Bank Indonesia (BI) need to strengthen coordination and communication, especially regarding the price adjustment plan regulated by the government so that they can regulate monetary policy and maintain rupiah exchange rate stability. The government also needs to stabilize food prices by ensuring its supply, especially the price of cooking oil, so that it is hoped that inflationary pressure will not increase significantly and can still be controlled (Kencana, 2022). Meanwhile, unstable inflation in Vietnam occurred due to fuel price adjustments and increased costs by the relevant authorities on health costs, education costs, household water costs and public transportation costs. Weak central bank policies coupled with very limited general banking services caused banking activities which could be a counterbalance to the tendency of rising prices to run less than optimally in Vietnam. The spike in inflation rates in several countries in ASEAN was followed up by various monetary policies by the central banks of each country as well as price pegging policies by the relevant authorities in several sectors in Vietnam, especially on the cost of health services.

The research results in the short and long term are in line with Keynes' theory but not in line with Phillips' theory that in the short and long term there is a trade-off between inflation and unemployment but it is not significant. The results of this study also provide a new perspective on the development of similar research regarding the effect of inflation on the unemployment rate, where the results of this study are in line with research found by Rafika (2021) in Indonesia, and at the same time do not support the results of research found by Umair et. al (2013) in Pakistan, who obtained the results that the correlation between unemployment and inflation was positive and not significant and Kartika et. al (2020) in ASEAN, who found that in the short and long term there is a trade-off between inflation and unemployment variables.

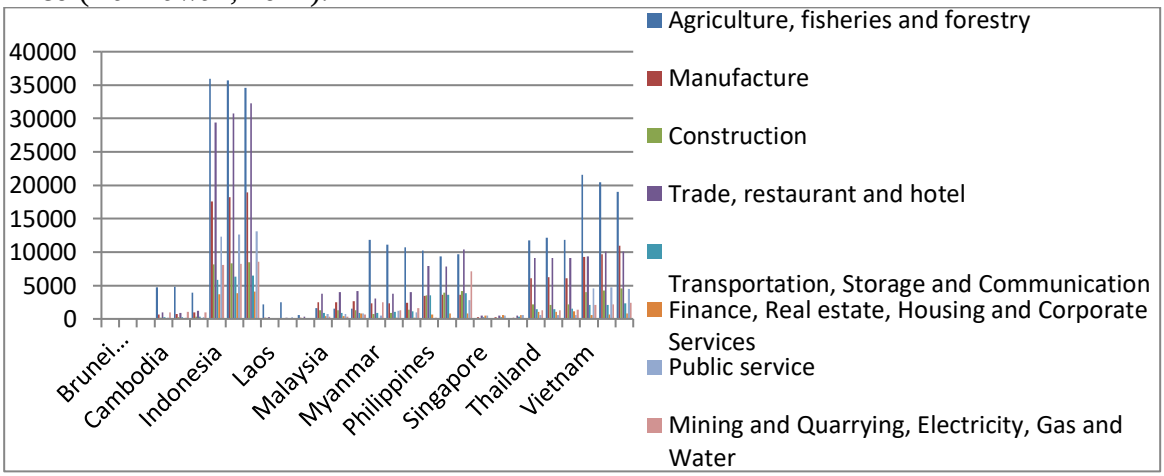
**The Effect of Economic Growth on the Unemployment Rate**

Based on the estimation results in the short term that have been obtained in table 3., we can see that economic growth is negatively related and has no significant effect on unemployment rates in ASEAN countries. The results of this study confirm that the hypothesis $H_2$ which states that economic growth has a significant effect on the unemployment rate cannot be accepted. Economic growth which is negatively related and has no significant effect on the unemployment rate in the short term can be interpreted that an increase in the economic growth of ASEAN countries in the short term will reduce the unemployment rate of ASEAN countries insignificantly and vice versa. This means that when economic growth increases but the absorbed workforce is not affected. Why doesn't it matter? because despite increasing growth, economic growth slowed from 2012-2016 so that economic activity did not run smoothly, as a result it did not open up job opportunities widely and only absorbed a small number of workers, causing unemployment.

As with the increasingly modern era where technological advances are now increasingly complex, as well as the number of available tools or machines that can make work easier. With advanced technology, it is believed that the company can produce products more quickly and efficiently. With the increase in production, the company will begin to replace the workforce with faster and more efficient machine power. If the workforce is weak or unable to keep up with existing machine technology, the company can reduce the workforce, so that the economic growth of a region cannot always absorb labor.

While the estimation results in the long term are known that economic growth is negatively related and has a significant effect on unemployment rates in ASEAN countries. The results of this study ensure that the hypothesis $H_2$ which states that economic growth has a significant effect on the unemployment rate is acceptable. Economic growth which is negatively related and has a significant effect on the unemployment rate in the long term can be interpreted that an increase in the value of economic growth in ASEAN countries in the long term can reduce the unemployment rate of ASEAN countries significantly and vice versa. This happens because the increase in economic growth is followed by an increase in production factors, one of which is labor. The results of the research in the short term are not in line with Okun's theory but in the long term are in line with Okun's theory which states that if economic growth increases, the number of unemployed will decrease.

Based on graph 2., viewed from the main industrial groups, labor absorption in ASEAN countries in 2017-2019, we can see that the first largest sector that absorbs labor is the Agriculture, Fisheries and Forestry sector. Among ASEAN countries, which absorbs the most workers in the Agriculture, Fisheries and Forestry sectors, Indonesia is 106,205 workers who are absorbed. This is presumably due to high demand for food and agricultural commodities, meaning that if the sector develops well, employment will also increase higher so as to reduce the unemployment rate. If the sector that absorbs the most labor does not develop well, the absorption of labor will also not be maximized (Darmawan, 2022).




Graph 2. Number of employment in ASEAN by main industry group (in thousands).
*Source: ASEAN Secretariat 2020.*

The second largest sector in labor absorption is the trade, restaurant and hotel sector. In Vietnam, the workforce absorbed is 29,531 workers. This is due to Vietnam's more resilient economy, low labor costs, and the availability of infrastructure (Bidara, 2022). In Singapore, the absorption of labor is more in the trade sector because it does not have natural resources, a strategic geographical location, and an advanced tourism industry so that Singapore is the largest economy in Southeast Asia (Anwar, 2021). Manufacturing is the third largest sector in employment, with a

total workforce of 132,070 workers in ASEAN. And the activities of this Manufacturing sector from 2017-2019 have increased every year. Therefore, the large number of workers absorbed in several main industrial groups makes economic growth also increase so that it has an impact on reducing the unemployment rate in ASEAN countries.

The role of the government is to provide education and training for the workforce so that they have the skills needed by the industry, then the workforce will be absorbed by the industry. Efforts can be made to expand employment opportunities to absorb workers in two ways, first, industrial development, namely the type of industry that is labor-intensive which can absorb a relatively large number of workers in industry, including home industries. Second, through various public works projects, such as the construction of bridges, roads, or dams, the unemployment rate in ASEAN countries has decreased (Hizbullah, 2018).

The findings in this study are in line with the theory of economic growth developed by Robert Solow, but for the short term this research is not in line with Okun's theory. The results of this study also provide a new perspective on the development of similar research regarding the effect of economic growth on the unemployment rate, where the results of this study for the short and long term are not in line with the research found by Kreishan (2011) in Jordan, with empirical results revealing that Okun's law cannot be proven for Jordan.

## 5. Conclusions and Recommendations

Based on the research results, in the short term and long term inflation has a negative and insignificant effect on the unemployment rate in ASEAN countries. This means that there is no trade-off between inflation and unemployment, when unemployment increases, inflation will decrease and vice versa if unemployment decreases, inflation will increase. The results of this study, which had no significant effect on inflation, were caused by the disruption of a number of food commodities (rice, cooking oil, chilies, meat) and the adjustment of fuel prices (BBM) in several countries. And economic growth in the short term has a negative and insignificant effect on the unemployment rate in ASEAN countries. However, In the long term, economic growth has a negative and significant effect, which means that if economic growth increases, the number of unemployed will decrease. The results of the study of economic growth that have a significant effect are due to the fact that of the several existing economic sectors, the absorption of labor that is most widely absorbed is in the Agriculture, Fisheries, and Forestry sectors.

This study recommends that the problem of unemployment be overcome by creating intensive and productive employment in several economic sectors in order to reduce the number of unemployment rates. And it is hoped that the government can provide training and expansion of the picture of the world of work which is increasingly modern in the era of technology to the workforce so that these workers have expertise and creativity so that the unemployment rate can also be reduced. If unemployment is successfully reduced it will have a broad impact on economic growth and can also be useful for controlling inflation.

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