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THE IMPACT OF WAGES, POPULATION GROWTH, INVESTMENT, AND INFLATION ON UNEMPLOYMENT RATES IN ASEAN-5

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Abstract

This study aims to analyze the impact of minimum wage, population growth, foreign direct investment (FDI), and inflation on the unemployment rate in five ASEAN countries during the period 2016-2023. The data used in this research is secondary data obtained from the World Bank and the International Labour Organization, covering five ASEAN countries (Indonesia, Malaysia, Thailand, Philippines and Vietnam) over eight years. The method employed is panel data regression using a fixed effect model (FEM), with result showing that minimum wages, population growth, and inflation have a significant negative effect on the unemployment rate, while foreign direct investment (FDI) significantly has a positive effect on the unemployment rate in ASEAN from 2016-2023. These findings suggest the importance of integrated policies in managing labor market dynamics in the ASEAN region.

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Introduction

Unemployment has become one of the serious economic development issues that a country must face. According to the International Labour Organization (ILO), the global unemployment rate in 2023 has reached 5.1%. Although global unemployment has decreased from 5.3% in 2022, this still indicates that there is a gap between labor force growth and the capacity to create jobs across various countries (ILO, 2024).

Based on data published by ASEAN Secretariat (2023), it was found that the unemployment rate in ASEAN labor market is also relatively high. This indicates that unemployment remains a serious concern for ASEAN member countries, despite the region recording relatively stable economic growth in recent decades. This condition also reflects that economic growth in Southeast Asian has not yet fully absorbed the increasing labor force, which continues to rise every year.



Source: World Bank

Figure 1. Unemployment Rate in ASEAN (%)

According to data from the World Bank, the average unemployment rate in ASEAN countries from 2016 to 2023 reached 2.82%, with Brunei Darussalam, Indonesia, Singapore, Malaysia, the Philippines, Laos, and Vietnam ranking among the countries with the highest unemployment rates. As developed countries, Brunei Darussalam and Singapore actually have higher unemployment rates compared to Indonesia, Malaysia, the Philippines, Laos, and Vietnam, which are still classified as developing nations.

One of the factors influencing unemployment in ASEAN is the minimum wage policy. Dewi & Arka (2022) explain in their study that an increase in the minimum wage leads to higher unemployment in ASEAN. This is because the rise in wage levels reduces the demand for labor, causing unemployment to increase. The findings of this study contradict the Phillips curve theory, which states that there is a negative relationship between wages and unemployment. Phillips suggests that wages and labor demand move together, when wages increase, the demand for labor also rises, leading to the absorption of labor and a decrease in unemployment (Mankiw N, 2006).

Population growth from each country also influences high unemployment. High population growth, if not accompanied by sufficient job creation, will lead to an increase in the unemployment rate. In his study, explains that there is a negative relationship between population growth and unemployment, meaning that when population growth increases, unemployment will decrease. This contradicts the Malthusian theory, which states that without restrictions on population growth, the rate of population expansion will become uncontrollable and may result in high unemployment (Gatiningsih & Sutrisno, 2017).

Foreign Direct Investment (FDI) is also one of the factors that can influence the unemployment rate in a country. In their study, Zuha Musnida & Nur Asiyah (2024) explain that FDI has an insignificantly negative effect on the unemployment rate in member countries of the Organization of Islamic Cooperation (OIC). When FDI increases in a country, the unemployment rate tends to decrease. This finding aligns with John Maynard Keynes Theory, which states that an

increase in investment leads to a rise in aggregate demand, which in turn increase the demand for labor. As the absorption of labor rises, unemployment decreases. (Deliarnov, 2016).

Inflation also plays a role in influencing the labor market conditions of a country. Aljileedi dkk. (2025)) explain in their research that as inflation increases, the unemployment rate also rises. The results of this study contradict the Phillips Curve theory, which posits a negative relationship between inflation and unemployment in the short run, where high inflation leads to a decrease in unemployment (Mankiw N. Gregory, 2006).

Based on the studies and explanations presented earlier, there are various studies that have contributed to understanding the factors influencing the unemployment rate by analyzing its causes. However, there are still gaps in previous research that need further investigation. In earlier studies, there were inconsistencies in the implementation of economic theories explaining the causes of unemployment, when compared to the results found in empirical research.

Several previous studies have also tended to focus on one or two variables without considering the complex interactions between macroeconomic variables such as the minimum wage, population growth, foreign direct investment, and inflation in relation to the unemployment rate across five ASEAN countries (Indonesia, Malaysia, Philippines, Laos, and Vietnam) from 2016 to 2023. Therefore, this research is expected to fill this gap and provide a new contribution to the study of unemployment in ASEAN. The hypotesis used in this study are as follows:

$H0_1$: Partially, the minimum wage, population growth, foreign direct investmen, and inflation rate do not significantly affect the unemployment rate in ASEAN.

Ha_1: Partially, the minimum wage, population growth, foreign direct investmen, and inflation rate are significantly affect the unemployment rate in ASEAN.

$H0_2$: Simultaneously, the minimum wage, population growth, foreign direct investmen, and inflation rate do not significantly affect the unemployment rate in ASEAN.

Ha_2: Simultaneously, the minimum wage, population growth, foreign direct investmen, and inflation rate are significantly affect the unemployment rate in ASEAN.

Literature Review

A. Unemployment Rate

According to the Badan Pusat Statistik (2024), unemployment is defined as a condition where an individual, who is part of the labor force, does not have a job, is actively seeking employment, is capable of working, or is preparing a new business but has not yet found a job.

The unemployment rate of a country is calculated by the number of unemployed people as a percentage of the total population in the labor force. Broadly, the unemployment rate is considered a situation that serves as a key indicator for the labor market in measuring the achievements of a country in reaching sustainable development goals (Widia, 2025).

The unemployment rate indicates the proportion of the working-age population within the labor force who are classified as unemployed. The working-age population refers to individuals who are above the legal working age defined by a country, which, in some countries, is set at 15 years or older. To measure the unemployment rate of a country, the calculation is performed by dividing the number of unemployed persons by the total labor force in that country.

$$UR\ (\%) = \frac{Number\ of\ Unemployed\ People}{Labor\ Force} \text{ x } 100$$

B. Minimum Wage

In order to protect workers from excessively low wages, a country may implement a minimum wage system to ensure that workers are not paid amounts that are inadequate or below the minimum standard of living in the country (Minimum Wage Policy Guide, 2016).). In general, minimum wage refers to the lowest amount of wages that must legally be paid to workers for their work during a specific period. This minimum wage can be set by the government or a regulatory body of the country (Ramos-Herrera, 2023).

Ramadan et al. (2024) explain in their study that minimum wage has a negative impact on the unemployment rate, where a decrease in the minimum wage leads to an increase in unemployment. This occurs because workers set a certain wage level as the minimum acceptable wage, and when the offered wage falls below this level, workers will reject it, resulting in unemployment.

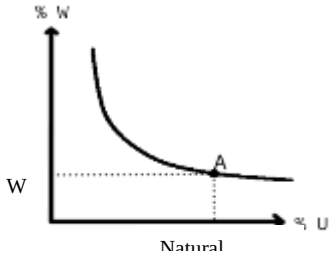


Figure 2: Phillips Curve

According to the old Phillips Curve, the relationship between wage levels and unemployment in an economy is negative. An increase in wages will lead to decrease in the unemployment rate. In line with this, the efficiency wage theory suggests that companies will operate more efficiently if they pay wages above the market equilibrium level. Therefore, maintaining high wages can be a beneficial decision for a company and reduce the likelihood of workers resigning (Mankiw, 2016).

C. Population Growth

Population growth is generally defined as the change in the number of people in a specific area over a certain period. The higher the population growth in a region, the more unemployment will rise due to insufficient job opportunities in that area (Muminin & Hidayat, 2017). High population growth in a country can causing problems in economic development because a rapidly growing population leads to an increase in the labor force, while a country's ability to create new job opportunities is limited (Putri & Nurwati, 2021).

In Malthusian theory, it is explained that the population tends to grow geometrically. while the availability of food and resources only increases arithmetically. This imbalance causes pressure on natural resources and creates a condition of overpopulation, which can eventually lead to hunger, poverty, and unemployment (Malthus, 1978). According to Malthusian theory, uncontrolled population growth leads to an excess labor force that cannot be absorbed by the labor market because job creation does not keep pace with the population increase.

In labor market theory, it is explained that population growth can lead to an increase in the labor supply/available workforce, while labor demand depends on the economic conditions of a region. When there is an imbalance between labor supply and labor demand in a region, this becomes a major cause of unemployment. When the labor supply increases due to population growth, and this supply exceeds the demand for labor, the unemployment rate will rise over time. The theory explains that the ideal labor market condition is one in which the supply of labor is balanced with the demand for labor (Gatiningsih & Sutrisno, 2017).

D. Foreign Direct Investment

To drive economic development, every country requires the availability of capital as a means to catch up with other nations. This need for capital can be fulfilled through various mechanisms, one of which is through investment activities. Investment is defined as the allocation of financial resources or goods that are not consumed in the present with the expectation of achieving greater returns in the future (Prasetyo, 2009).

According to classical economic theory, investment is explained as one of the components in output formation and economic growth. Specifically, Foreign Direct Investment (FDI) can enhance national production capacity, expand job opportunities, and increase income for society (Todaro & Smith, 2025). In their book Todaro & Smith (2025) explain that FOI can reduce the unemployment

rate in a country through several mechanisms. Through a direct effect, FDI can create jobs for people directly through the establishment of factories, offices, or other facilities. Through an indirect effect (multiplier effect), FOI stimulates growth in supporting sectors such as logistics, construction, and services, which can absorb the labor force. As this labor force is absorbed, the unemployment rate will continue to decline in the long term.

E. Inflation

Inflation is defined as the continuous rise in the general prices of goods and services over a certain period. The price increase does not always occur at the same rate, but as long as the price increase continues over a specific period, it is still considered inflation (Prasetyo, 2009). Inflation and unemployment are economic issues that every country must constantly face. If the problems of inflation and unemployment are not controlled, a country will experience adverse effects. Several studies have been conducted to understand the relationship between inflation and unemployment, one of which was conducted by A.W. Phillips in 1958. In his study, Phillips found a negative relationship between the unemployment rate and the inflation rate, a theory that later became known as the Phillips Curve.

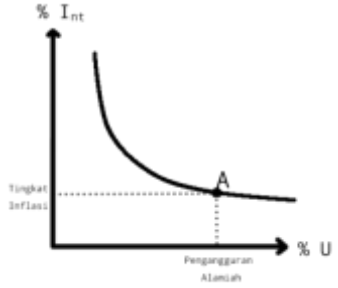


Figure 3 Phillips Curve (New)

The Phillips Curve illustrates the negative relationship between inflation and unemployment in an economy. Based on this approach, a negative relationship between inflation and unemployment was found, known as the second form of the Phillips Curve. A.W. Phillips noted an empirical pattern when inflayion increased, the unemployment rate tended to decrease. Therefore, this curve is used to explain the relationship between inflation and unemploymnet.

Research Methods

This study uses a quantitative approach based on theoretical frameworks, ideas from experts, and the researcher's understanding of the factors that may influence the unemployment rate. The population in this study consists of the countries that are members of the Association of Southeast Asian Nations (ASEAN). The researcher selects the sample for this study using the purposive sampling method, which is based on specific considerations aligned with the research objectives. For this study, a sample of 5 ASEAN countries was chosen, including Indonesia, Malaysia, the Philippines, Laos, and Vietnam, as these countries had the highest unemployment rates in ASEAN and had implemented minimum wage policies for their workforce from 2016 to 2023.

In this study, the dependent variable used is the unemployment rate in ASEAN countries, while the independent variables consist of the minimum wage implemented in each country (X1), the population growth rate in ASEAN countries (X2), net foreign direct investment inflows (FDI) (X3), and the inflation rate (X4). The primary data sources used in this study are the World Bank and the International Labour Organization (ILO). Several tests are conducted to explain the research variables. These tests include model selection tests, classical assumption tests, significance tests, and coefficient of determination.

Result and Discussion

A. Result

A model selection test was conducted to choose the appropriate model among the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM).

Tabel 1. Chow Test

Effect Test	*Statistic*	*d.f.*	*Prob.*
Cross-section F	34.140469	(4,31)	0.0000
Cross-section Chi-square	67.494620	4	0.0000

Source: Data processed (EViews 12)

Based on table 1, the probability for Cross-section is 0.000. Since the probability value is less than 0.05, the decision is to reject H0 and accept Ha. From chow test, it can be concluded that Fixed Effect Model (FEM) is more suitable compared to the Common Effect Model (CEM).

Tabel 2. Hausman Test

Test Summary	*Chi-Sq. Statistic*	*Chi-Sq. d.f.*	*Prob.*
Cross-section random	136.561878	4	0.0000

Source: Data processed (EViews 12)

Based on table 2, the probability for Cross-section is 0.000. Since the probability value is less than 0.05, the decision is to reject H0 and accept Ha. The result of the Hausman test indicate that Fixed Effect Model (FEM) is more suitable compared to the Random Effect Model (REM).

Tabel 3. Hasil Estimasi *Fixed Effect Model* (FEM)

Variabel	***Coefficient***	***Std. Error***	***T-statistic***	**Prob.**
C	4.997904	0.749723	6.666334	0.0000
Upah Minimum	-0.004167	0.001943	-2.14467	0.0399
Pertumbuhan Penduduk	-1.337260	0.413356	-3.23512	0.0029
Investasi	0.142307	0.053396	2.665111	0.0121
Inflasi	-0.104072	0.018149	-5.73434	0.0000

Source: Data Processed (Eviews 12)

Based on the Chow test and Hausman test, the best model used in this study is the Fixed Effect Model (FEM). The result from the estimation in table 3 yield the following regression equation:

$$UR = 4.997 - 0.004\ MW - 1.337\ PG + 0.142\ INV - 0.104\ INF + \varepsilon_{it}$$

This equation can be interpreted as follows:

1) The constant value obtained is 4.997, which indicates that if all independent variables are equal to zero, the predicted unemployment rate will be 4.997%.
2) The regression coefficient for the minimum wage is -0.004167. This means that when the minimum wage increases by 1 USD, the unemployment rate is expected to decrease by 0.0042%, assuming other independent variables remain constant.
3) The regression coefficient for population growth is -1.337260. This suggests that when the population growth rate increases by 1%, the unemployment rate will decrease by 1.3372%, assuming other independent variables remain constant.
4) The regression coefficient for foreign direct investment (FDI) is 0.142307. This indicates that when FOI increases by 1%, the unemployment rate is expected to increase by 0.1423%, assuming other independent variables remain constant.
5) The regression coefficient for inflation is -0.104072. This implies that when inflation increases by 1%, the unemployment rate will decrease by 0.1041%, assuming other independent variables remain constant.

Subsequently, classical assumption tests for linear regression were conducted, including tests for normality, autocorrelation, multicollinearity, heteroscedasticity, and linearity.

Tabel 4. Normality Test

Jarque-Bera	1.455094
Probability	0.483093

Source: Data processed (Eviews 12)

From Table 4, the Jarque-Bera value is obtained as 1.455094 with a probability value of 0.483093. Since this probability value is greater than 0.05, the decision is to accept H0, and it can be concluded that the residuals are normally distributed. Thus, the panel regression model used satisfies the normality assumption and is valid for further analysis.

Tabel 5. Autocorrelation Test

Durbin-Watson stat	1.974523

Source: Data processed (E-views 12)

Based on Table 5, the Durbin-Watson statistic value is 1.974523. Using the Durbin-Watson method, the values of dl = 1.2848, du = 1.7209, 4-du = 2.2791, and 4-dl 2.152 are obtained. Since the Durbin-Watson statistic falls between du and 4-du, the decision is that no autocorrelation is present in the model.

Tabel 6. Multicollinearity Test

	Upah Minimum	**Pertumbuhan Penduduk**	**Investasi**	**Inflasi**
Upah Minimum	1.000000	0.041799	-0.296961	-0.299866
Pertumbuhan Penduduk	0.041799	1.000000	0.373372	-0.013978
Ivestasi	-0.296961	0.373372	1.000000	0.478282
Inflasi	-0.299866	-0.013978	0.478282	1.000000

Source: Data processed (EViews 12)

Based on Table 6, it can be seen that all correlation values between the independent variables are between -0.08 and 0.08. This proves that no pairs of variables exhibit high correlation, and it can be concluded that there is no indication of multicollinearity in this regression model.

Tabel 7. Heteroscedasticity Test

Variabel	***Coefficient***	***Std. Error***	***T-statistic***	**Prob.**
C	1.034742	0.363734	2.844775	0.0078
Upah Minimum	-0.001770	0.000943	-1.877569	0.0699
Pertumbuhan Penduduk	-0.357054	0.200543	-1.780434	0.0848
Investasi	0.000894	0.025906	0.034517	0.9727
Inflasi	-0.010628	0.008805	-1.206984	0.2366

Source: Data Processed (EViews 12)

Based on Table 7, it is observed that the probability values for all variables are above 0.05. Therefore, the decision for each variable is to accept H0. It can be concluded that, based on the White method, there are no heteroscedasticity issues in the regression model, and the assumption of constant residual variance is satisfied.

Tabel 8. Linearity Test

F(3, 32)	1.51
Prob > F	0.2295

Source: Data processed (Stata-14)

Based on Table 8, the result of the Ramsey RESET test shows a Prob > F value of 0.2295. Since this value is greater than 0.05, the decision is to accept HO and reject Ha. It can be concluded that, based on the Ramsey RESET test, there is no indication of a non-linear relationship or specification error in the model. Thus, the linearity assumption in the regression is satisfied, and

the linear regression model used is considered valid in terms of the relationship between the variables. Next, significance tests including the t-test and F-test were conducted.

Tabel 9. T-Test

Variabel	***T-statistic***	**Prob.**
Upah Minimum	-2.144676	0.0399
Pertumbuhan Penduduk	-3.235128	0.0029
Investasi	2.665111	0.0121
Inflasi	-5.734346	0.0000

Source: Data Processed (Eviews 12)

Table 9 presents the t-test results along with the probability values for each independent variable. The critical value for the t-distribution (t-table) was calculated and found to be 2.030. The interpretations based on Table 9 are as follows:

1) The t-statistic value for the minimum wage variable is -2.144676 with a probability of 0.0399. Since the value of |t-statistic| > t-table and the probability value < 0.05, the decision is to reject H0 and accept Ha. Thus, it can be concluded that the minimum wage variable has a significant effect on the unemployment rate.
2) The t-statistic value for the population growth variable is -3.235128 with a probability of 0.0029. Since the value of |t-statistic| > t-table and the probability value < 0.05, the decision is to reject H0 and accept Ha. Therefore, it can be concluded that the population growth variable significantly affects the unemployment rate.
3) The t-statistic value for the foreign direct investment (FDI) variable is 2.665111 with a probability of 0.0121. Since the value of |t-statistic| > t-table and the probability value < 0.05, the decision is to reject H0 and accept Ha. Hence, it can be concluded that foreign direct investment has a significant effect on the unemployment rate.
4) The t-statistic value for the inflation variable is -5.734346 with a probability of 0.0000. Since the value of |t-statistic| > t-table and the probability value < 0.05, the decision is to reject HO and accept Ha. Therefore, it can be concluded that the inflation variable significantly affects the unemployment rate.

Tabel 10. F-Test

F-statistic	28.12060
Prob(F-statistic)	0.000000

Source: Data Processed (EViews 12)

Table 10 shows that the f-statistic is 28.12060 with a probability of 0.0000. Since the value of |f-statistic| > f-table and the probability value < 0.05, the decision is to reject H0 and accept Ha. Thus, it can be concluded that, simultaneously, all independent variables have a significant effect on the unemployment rate.

Tabel 11. Coefficient of Determination

R-squared	0.878890
Adjusted R-squared	0.847635

Source: Data Processed (EViews 12)

Based on Table 11, the Adjusted R-squared value is 0.847635, indicating that 84.76% of the variation in the unemployment rate can be explained by the variables minimum wage, population growth, foreign direct investment, and inflation. Therefore, the remaining 15.24% is explained by other factors outside the model. The high Adjusted R-squared value indicates that the panel regression model used in this study has strong explanatory power for the dependent variable.

B. Discussion

The Influence of Minimum Wage on Unemployment Rate

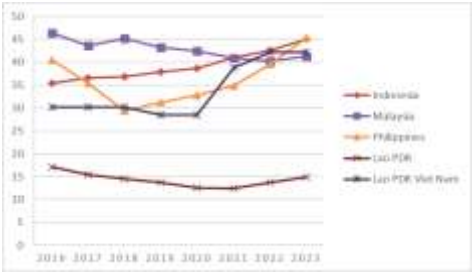
Based on the research findings and regression analysis conducted on five ASEAN countries, this study demonstrates that minimum wage has a negative impact on the unemployment rate in ASEAN nations. These results are consistent with the findings of Santoso & Kristiyanto (2021), who found that an increase in the minimum wage tends to reduce the unemployment rate in the ASEAN region.

Theoretically, these findings align with the efficiency wage theory, which posits that higher wages reduce labor turnover. This occurs because workers may leave their jobs in pursuit of better-paying positions elsewhere. When employers offer higher wages, workers are more likely to remain in their current jobs to retain the benefits of higher income. Therefore, the more competitive the wages offered by firms, the less likely workers are to leave their positions, which naturally contributes to a decrease in the overall unemployment rate.

The Influence of Population Growth on Unemployment Rate

The results of this study indicate that population growth has a negative effect on the unemployment rate in ASEAN countries. These findings are in line with those of Bayu Patra et al. (2022), who argue that an increase in population can foster competition in improving education and skills, leading to the phenomenon of educated unemployment. This condition, in turn, motivates individuals to actively seek employment that matches their skill sets.

Theoretically, these findings contradict several prevailing theories concerning the relationship between population growth and the labor market. According to Malthusian theory and standard labor market theories, high population growth is expected to lead to an increase in unemployment. However, the findings of this study suggest the opposite: rising population growth in ASEAN correlates with a decreasing unemployment rate. This condition may arise because the increase in population is accompanied by improvements in the level of education in ASEAN countries, thereby making population growth a reinforcing factor for labor market development.



Source: *World Bank* (processed by author)

Gambar 4. Average Enrollment Rate in Higher Education in ASEAN.

High population growth does not necessarily lead to higher unemployment rates if the quality of human capital improves. Figure 4 shows that student participation in higher education in ASEAN is relatively high, indicating that most ASEAN countries have made significant progress in expanding access to higher education.

This supports the argument that higher education quality contributes to lower unemployment rates. As the quality of human resources improves, labor productivity increases, which in turn enhances the likelihood of labor absorption. Moreover, the negative relationship between population growth and unemployment in ASEAN may also be attributed to the significant role of the informal sector in labor absorption. When population growth occurs and the formal sector

cannot absorb all the available labor, individuals often turn to informal employment such as trading, online transportation services, or other types of work.

The Impact of Foreign Direct Investment (FDI) on Unemployment Rate

The findings of this study suggest that foreign direct investment (FDI) net inflows have a positive impact on the unemployment rate in ASEAN countries. This implies that an increase in incoming investment is associated with a rise in unemployment. These results are consistent with the findings of Pramesty & Kistanti (2025), who argue that an increase in investment may lead to higher unemployment, as multinational corporations tend to recruit only educated and skilled workers, thereby excluding unskilled labor from employment opportunities.

This finding contradicts much of the prevailing economic theory, which suggests that investment reduces unemployment by creating new job opportunities. Todaro & Smith (2025) explain that foreign direct investment typically brings advanced technology and high operational standards, which in turn require skilled labor. However, in several ASEAN countries, the quality of the local labor force remains relatively low, particularly in terms of technological proficiency. Although foreign companies may increase their labor demand, this demand is not met by the domestic workforce, thereby hindering effective job absorption.

Another contributing factor to the positive relationship between FDI and unemployment is the sectoral distribution of foreign investment in ASEAN. Much of the FDI is concentrated in capital-intensive sectors such as high-tech manufacturing. Between 2025 and 2021, many multinational firms invested in the digital economy and activities related to Industry 4.0. Meanwhile, labor-intensive sectors and services experienced a decline in investment (ASEAN Investment Report, 2022)

ASEAN Investment Report (2022) explains that multinational firms are investing in the production of parts, components, and the provision of technological solutions that support Industry 4.0 implementation. Both local and foreign-owned factories are increasingly adopting Industry 4.0 technologies and building smart factories, including the installation of industrial automation systems to enhance efficiency. Such investments in technology may contribute to unemployment, as tasks previously performed by human workers are increasingly being automated. To reduce operational costs, employers may lay off workers as fewer employees are needed.

The Impact of Inflation Rate on Unemployment Rate

The results of this study show that inflation has a significantly negative effect on the unemployment rate in ASEAN countries. That is, as inflation increases, the unemployment rate tends to decrease, and vice versa. This finding is in line with the study by Silalahi & Nasution (2025) which found that inflation in six ASEAN countries from 2007 to 2021 helped reduce unemployment in the region.

The negative effect of inflation on unemployment is consistent with much of the existing literature and economic theory, particularly the Phillips Curve concept, which describes an inverse relationship between inflation and unemployment over a certain period. Simply put, the Phillips Curve suggests that higher inflation, driven by increased demand for goods and services, encourages firms to expand production and hire more workers (Mankiw, 2016).

In the context of ASEAN countries, inflation may be caused by rising aggregate demand. This demand growth can stem from increased household consumption or fiscal and monetary stimulus that boosts economic activity. In such conditions, businesses tend to scale up their production

capacity, which subsequently leads to greater labor absorption. As more workers are employed, the unemployment rate naturally declines.

Result and Discussion

Descriptive Statistics

The results of the descriptive statistical test of the stock price seven days before and seven days after the announcement of the policy of eliminating PPKM in Indonesia for companies in the transportation and tourism sector listed on the Indonesia Stock Exchange, are as follows:

Table 1

Descriptive Statistical Test Results

	Minimum	Maximum	Mean	Std. Deviation
AAR_SBLM	-.033	-.033	-.00664	.018398
AAR_SSDH	-.004	.082	.01302	.026971
ATVA_SBLM	.001	.008	.00338	.002592
ATVA_SSDH	.001	.026	.00661	.009069

Source: Data processed 2023

Normality Test

The normality test uses the Kolmogrov-Smirnov test with the aim of finding out the normally distributed data that will be used before conducting the differential test. In this study, if the data to be tested has a normal distribution, a parametric statistical difference test will be carried out using a paired sample t-test. However, if the data to be tested has an abnormal distribution, a non-parametric statistical difference test will be carried out using the Wilcoxon Rank Sum Test.

Table 2

Normality Test Results

	Kolmogorov-Smirnova		
	Statistics	Df	Sig.
AAR_SBLM	.176	9	.200*
AAR_SSDH	.333	9	.005
ATVA_SBLM	.185	9	.200*
ATVA_SSDH	.344	9	.003

Source: Data processed 2023

Based on the results of the normality test of abnormal return data before it has a significance value of 0.200 > 0.05 and the trading volume activity data before showing a significance value of 0.200 > 0.05, so that it is declared that the abnormal return data before and trading volume activity before it is distributed normally. The test results on abnormal return data after having a significance value of 0.005 < 0.05 and trading volume activity data after showing a significance value of 0.005 < 0.05, so it can be stated that the data is not normally distributed. So, in accordance with the method in this study for hypothesis testings using the abnormal return before and after the, and an increase in the economy, which means that the growth of companies to increase profits due to the decline in COVID 19 has affected the market reaction before the policy was revoked

Conclusion

Based on the analysis of five ASEAN countries (Indonesia, Malaysia, Thailand, the Philippines, and Vietnam) over the period 2016-2023, it can be concluded that minimum wage, population growth, and inflation all have a significantly negative effect on the unemployment rate.

This suggests that increases in minimum wage, population growth, and inflation tend to reduce unemployment.

Foreign direct investment (FDI) has a significantly positive effect on the unemployment rate. This indicates that the increase in FDI during the study period was followed by a rise in unemployment, suggesting that FDI has not yet fully translated into effective job creation in the region.

The researcher recommends that future studies expand the number of countries and extend the time period to provide a longer-term view of unemployment trends in ASEAN. Additionally, the use of alternative panel data methods is encouraged. Future research should also consider incorporating additional variables such as economic growth, education levels, labor market policies, and technological development. To address inconsistencies between empirical findings and existing theories, a more integrative approach is advised. Finally, in relation to investment policy, ASEAN policymakers are encouraged to be more selective in attracting foreign investments, particularly those that contribute to job creation in labor-intensive sectors.

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