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The Effect of Investment, Labor Force Participation, and Tourism on Unemployment In 5 ASEAN Countries

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The Effect of Investment, Labor Force Participation, and Tourism on Unemployment In 5 ASEAN Countries

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Abstract

This study aims to determine the long-term and short-term effects of foreign direct investment, labor force participation, and tourist visits on unemployment in five ASEAN countries. The research design employed is descriptive quantitative. The study utilizes panel data spanning the period from 1993 to 2022. The research subjects are the ASEAN-5 countries, comprising Indonesia, Malaysia, Thailand, the Philippines, and Vietnam. Data analysis in this study employs the Panel ARDL method, with testing conducted using Eviews 12. The results of the study indicate that the variable of foreign direct investment has a negative and significant effect on the unemployment rate in the long term, while in the short term it has a positive and significant effect on the unemployment rate. The variable of labor force participation has a positive and insignificant effect on the unemployment rate in the long term, while in the short term it has a negative and significant effect on the unemployment rate. The tourist visit variable has a significant effect on the unemployment rate, namely a positive effect in the short term and a negative effect in the long term.

Keywords: Foreign Direct Investment; Tourist Visits; Panel ARDL; Labor Force Participation; and Unemployment.

1. Introduction

Unemployment is one of the fundamental challenges affecting economic and social stability around the world. In 2024, the global unemployment rate is projected to reach 5.3% or approximately 208 million people, according to a report by the International Labour Organization (ILO) [1]. In Southeast Asia, the unemployment rate shows a significant downward trend, from 6.0% in 2020 to 3.9% in 2024. Although this figure appears low compared to other regions by Smith, unemployment issues in ASEAN have complex dimensions, with key challenges including underemployment, the dominance of the informal sector, and unequal access to decent work [2]. Factors such as investment, labor force participation, and the contribution of the tourism sector play a crucial role in influencing unemployment dynamics in the region.

ASEAN's economic dynamics are worth studying, especially the interaction between Foreign Direct Investment (FDI), labor force participation, and tourism. In 2022, ASEAN received FDI of 224.2 billion USD, which is significant though below East Asia (280.1 billion USD), The ASEAN countries selected as the focus of this research—Indonesia, Malaysia, Thailand, the Philippines, and Vietnam—play a strategic role in the regional economy [3].

These countries face similar socio-economic challenges by ASEAN Statistical Yearbook, particularly regarding unemployment, and collectively contribute over 70% of ASEAN's total Gross Domestic Product (GDP) [4]. Given their strategic role, changes in the economic conditions of these five countries have a significant impact on the stability and unemployment rate of the region as a whole.

According to the ASEAN Secretariat 2022, FDI inflows to ASEAN reached USD 174 billion in 2021, an increase of 12.5% compared to the previous year. Research conducted by Keane and Roberts 2022 highlights that Foreign Direct Investment acts as a driver of economic growth, which directly impacts increased employment opportunities and reduced unemployment [5]. Mankiw's 2016 labor supply theory in his book "Principles of Economics" explains that an increase in labor force participation can influence the unemployment rate through the labor supply and demand mechanism [6].

In the 2019 Travel and Tourism Competitiveness Index (TTCI) released by the World Economic Forum, several ASEAN countries have high competitiveness, such as Malaysia at 26th, Thailand at 31st, and Indonesia at 40th globally [7]. Additionally,

UNWTO, Thailand received 39.9 million international tourist visits in 2019, making it the 8th most visited country in the world [8]. Data from the World Bank 2022 shows that the average labor force participation rate in the five largest ASEAN countries reached 67.5 percent in 2021 [9].

This phenomenon highlights the varying capacities of each country to address the economic and social impacts of the global crisis, while also indicating the need for further research to identify the factors influencing unemployment rates and effective strategies to address them. Based on the existing issues, the author is interested in conducting research with the title "The Effect of Investment, Labor Force Participation, and Tourism on Unemployment in Five ASEAN Countries."

2. Literature Review

2.1 The Theory of Unemployment

According to John Maynard Keynes, the main factor causing unemployment is a lack of aggregate demand in the economy. When public consumption and corporate investment decline, overall demand will decrease [10]. As a result, producers will reduce production and cut their workforce. In this context, investment, labor force participation, and tourism play an important role in influencing unemployment rates in ASEAN.

2.2 Classical Theory

Classical theory explains that unemployment can be prevented through the supply side and price mechanisms in a free market that ensure the creation of demand that will absorb all supply, according to the classical view, unemployment occurs due to temporary misallocation of resources and can be overcome by price mechanisms by Gilarso [11].

2.3 Population Theory

Malthus explains that population growth that outpaces the growth of resources, including job opportunities, leads to imbalance. This imbalance creates structural unemployment, particularly in countries with high population growth.

2.4 Structural Unemployment Theory

Frictional unemployment occurs when workers are searching for new jobs or changing jobs. According to Stigler, imperfect information between workers and employers often prolongs the duration of this unemployment [12].

2.5 Investment Theory

FDI is defined as the flow of capital from foreign entities to control the operations of companies in the host country. Dunning 1993 adds that FDI reflects long-term involvement and creates sustainable economic relationships, which can have a positive impact on the local labor market [13].

2.6 Endogenous Growth

In this theory 1986, economic growth is driven by internal factors such as innovation, technology, and supportive policies [14]. FDI contributes to reducing unemployment by:

a. Technology transfer: Creating new jobs that require a higher level of skill.

b. Improving workforce skills: FDI often involves training and developing the local workforce, thereby improving their ability to meet the demands of more complex jobs.

2.7 Structural Transformation Theory

Lewis and Chenery say economic transformation from traditional sectors to industrial sectors plays a major role in reducing unemployment [15]. FDI accelerates this transformation by:

a. Economic diversification: Opening up new sectors that require large amounts of labor.

b. Creation of productive jobs: Improving the quality of employment through the application of new technologies and industrial capacity development.

c. Shift of labor between sectors: Moving labor from less productive sectors, such as agriculture, to more productive manufacturing and service sectors.

2.8 Labor Force Participation Theory

Paul Romer's endogenous growth theory emphasizes that human capital, including labor skills and education, is the primary driver of long-term economic growth. Increased labor force participation, particularly among highly skilled workers, directly contributes to productivity and technological innovation.

2.9 Labor Market Dualism Theory (Michael Piore and Peter Doeringer)

The dualism theory of the labor market proposed by Piore and Doeringer divides the labor market into two main sectors: the primary sector, which is stable and high-wage, and the secondary sector, which tends to be unstable and low-wage. Increasing labor force participation focused on integration into the primary sector can reduce unemployment by encouraging workers to move from the informal sector to more productive sectors.

2.10 The Theory of Labor Surplus and Structural Transformation (W. Arthur Lewis)

Tourism, as defined in Law No. 10 of 2009, is a complex series of activities involving various actors, from the community to the government. The economic theory of tourism explained by Sinclair and Stabler in their book "The Economics of Tourism" states that tourism can create jobs and reduce unemployment through increased demand for local goods and services [16].

3. Research Method

The data analysis approach used in this study is the autoregressive distributed lag (ARDL) panel using EViews 12 software. The ARDL panel method is a dynamic econometric technique that combines time series and cross-section data (panel data). This method allows for the analysis of dynamic relationships, both in the short and long term, by conducting cointegration tests to see if there are equilibrium relationships between the research variables. In addition, the Panel ARDL is designed to evaluate the influence of independent variables on dependent variables over time in both the short and long term. This approach is used because of its ability to handle variables with different levels of integration. The general model used in research with the Panel ARDL approach can be formulated as follows:

$$\Delta UNEMP_{i,t} = \alpha_0 + \sum_{i=1}^{n} \alpha_1 \Delta UNEMP_{i,t-1} + \sum_{i=1}^{n} \alpha_2 \Delta FDI_{i,t-1} + \sum_{i=1}^{n} \alpha_3 \Delta LFPR_{i,t-1} + \sum_{i=1}^{n} \alpha_4 \Delta VA_{i,t-1} + \beta_1 UNEMP_{i,t-1} + \beta_2 FDI_{i,t-1} + \beta_3 LFPR_{i,t-1} + \beta_4 VA_{i,t-1} + \varepsilon_{it}$$

Where:
UNEMP	= Unemployment (%)
FDI	= Foreign Direct Investment (%)
LFPR	= Labor Force Participation Rate (%)
VA	= Visitor Arrival (million)
α	= Constant
i	= 5 ASEAN countries
t	= Number of years 30 years (1993-2022)
$a1i - a4i$	= Short Term
$\beta1 - \beta3$	= Long Term
Eit	= Error term (For All Variables)

4. Results and Discussion

Stationarity testing is a mandatory requirement before ARDL panel model estimation can be performed. In this study, the unit root test was used for stationarity testing. The results of the testing used the unit root test, which employed the LLC, IPS, ADF-Fisher, and PP-Fisher approaches. However, in this study, the approaches used were ADF-Fisher Chi-square and PP-Fisher with individual intercept and trend. The following are the results of the panel unit root test:

Table 1. Stationarity Test

Variable	Level & First Diff	Intercept/Trend	Prob.		Conclusion
			ADF - Fisher Chi-square	PP - Fisher Chi-square	
Unemployment	Level	Intercept	0.2297	0.1328	I (1)
		Interc. & Trend	0.2010	0.1095	
	First Diff.	Intercept	0.0000	0.0000	
		Interc. & Trend	0.0000	0.0000	
Foreign Direct Investment	Level	Intercept	0.0009	0.0001	I (0)
		Interc. & Trend	0.0103	0.0018	
	First Diff.	Intercept	0.0000	0.0000	
		Interc. & Trend	0.0000	0.0000	
Labor Force Participation	Level	Intercept	0.3559	0.2796	I (0)
		Interc. & Trend	0.4324	0.5796	
	First Diff.	Intercept	0.0000	0.0000	
		Interc. & Trend	0.0000	0.0000	
Tourist Visits	Level	Intercept	0.7347	0.7331	I (0)
		Interc. & Trend	0.9860	0.9669	
	First Diff.	Intercept	0.0000	0.0000	
		Interc. & Trend	0.0004	0.0000	

Data processed by the researcher using E-Views 12.

Table 1 above shows that the Foreign Direct Investment variable is at level (1(0)) with a probability value smaller than the significance value of 5%. Meanwhile, the variables of unemployment, labor force participation, and tourist visits are at the first difference level (I(1)) with probability values of 5% and 10% significance, respectively. The results of the unit root tests in Table 4.6 show a mixture of I(0) and I(1), which confirms that the use of the ARDL panel model is appropriate for this study.

The determination of the optimum lag in this study used the Akaike Information Criteria (AIC) approach. The best lag was selected based on the smallest AIC value. The results of the optimal lag test can be seen as follows:
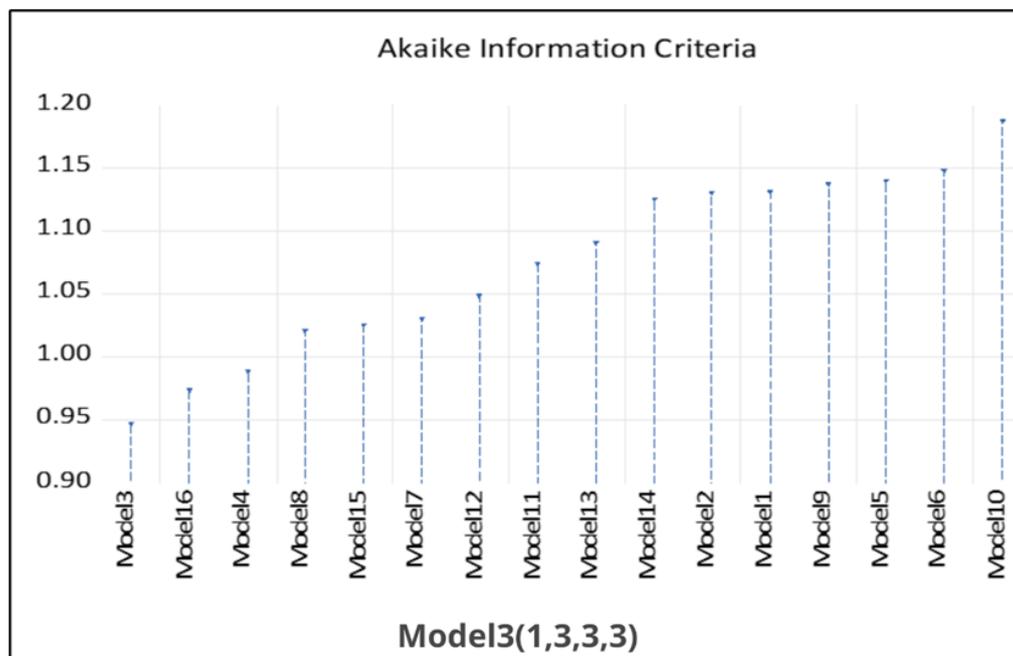

Image 1. Lag Optimum Test
Source: Data processed by the researcher using E-Views 12.

Image 1 above shows that there is only one model in the optimal lag test that can be used. Therefore, the best lag selection based on the AIC value above is (1,3,3,3). This means that unemployment is 1 lag, foreign direct investment is 3 lags, labor force participation is 3 lags, and tourist visits are 3 lags.

The cointegration test is used to see whether there is cointegration in the long term in each dependent and independent variable. The Panel ARDL model is accepted if the model has cointegrated lags, assuming a negative slope coefficient value and a

significance level of 1%, 5%, and 10%. This study uses the Panel Cointegration Test with Pedroni testing to see cointegration. The following are the results of the cointegration test using the Pedroni test.

Table 2. Cointegration Test (Pedroni)

Pedroni Cointegration Test	Statistic	Weighted Statistic
Panel v-Statistic	0.623430 (0.2665)	0.665342 (0.2529)
Panel rho-Statistic	-1.523809 (0.0638)	-2.141323 (0.0161)
Panel PP-Statistic	-3.550545 (0.0002)	-3.440047 (0.0003)
Panel ADF-Statistic	-0.206864 (0.4181)	-0.786382 (0.2158)
Group rho-Statistic	-1.738420 (0.0411)	
Group PP-Statistic	-3.893166 (0.0000)	
Group ADF-Statistic	-1.022987 (0.1532)	

Source: Data processed by the researcher using E-Views 12.

Based on Table 4.7, which presents the results of the Pedroni cointegration test, strong evidence was found regarding the existence of a long-term relationship between the variables in the model. This is indicated by the Panel PP-Statistic and Group PP-Statistic, both of which have very small probabilities (0.0002 and 0.0003 for Panel PP, and 0.0000 for Group PP). These results consistently indicate that the variables in the study move together in the long term. Additionally, the Panel rho-Statistic (weighted) and Group Rho-Statistic are also significant at the 5% level with probabilities of 0.0161 and 0.0411, respectively, further reinforcing the existence of cointegration in the model.

The Auto Regressive Distributin Lag (ARDL) Panel Analysis tests pooled data, which is a combination of cross-sectional data (countries) and time series data (annual). This is to determine the short-term and long-term relationships between variables. The purpose of this long-term estimation is to determine the relationship between independent variables and dependent variables in the long term. Decision-making can be done if the probability value is < the significance level/critical limit, then the independent variable affects the dependent variable, and if the probability value is > the significance level/critical limit, then the independent variable does not affect the dependent variable.

Meanwhile, short-term estimation aims to determine the relationship between independent variables and dependent variables in the short term. The conditions of long-term and short-term estimation sometimes differ, where in the short term the relationship between variables is imbalanced (disequilibrium), while in the long term the relationship between variables is balanced. This difference needs to be corrected by the Error Correction Model (ECM) with an adjustment known as the Error Correction Term (ECT).

The ECT value is used to determine the difference in coefficients in both the short and long term. The ECT value is also collected in the short-term model, which can also provide information about the adjustment of the short-term estimation equilibrium. A decision can be made if the probability value is < the significance level or critical limit, then the independent variable

Independent variables affect the dependent variable. However, if the probability value is > the significance level or critical limit, then the independent variable does not affect the dependent variable. Below are the results of the Panel ARDL test for each independent variable against the dependent variable:

Table 3. Result of Estimation Panel ARDL

Variable	Coefficien	Std.Error	t-Statistic	Probability
Long-Run Equation				
COINTEQ01	-0.395769	0.116140	-3.407694	0.0010
D(FDI)	0.100733	0.034988	2.879086	0.0050
D(FDI(-1))	0.056463	0.034473	1.637892	0.1049
D(FDI(-2))	0.024373	0.033733	0.722523	0.4718
D(LFPR)	-0.040338	0.049124	-0.821146	0.4137
D(LFPR(-1))	-0.115082	0.038296	-3.005081	0.0034
D(LFPR(-2))	-0.079852	0.110129	-0.725078	0.4702
D(LOGVA)	-0.322154	0.299587	-1.075329	0.2850
D(LOGVA(-1))	0.118832	0.060618	1.960357	0.0530
D(LOGVA(-2))	0.589738	0.132910	4.437131	0.0000
C	3.941664	1.047931	3.761377	0.0003

Variable	Coefficien	Std.Error	t-Statistic	Probability
Short-Run Equation				
FDI	-0.207871	0.066585	-3.121908	0.0024
LFPR	0.104914	0.059247	1.770800	0.0799
LOGVA	-0.909660	0.163162	-5.575189	0.0000

Source: Data processed by the researcher using E-Views 12.

Based on Table 3 above, which shows the coefficients and probability values simultaneously from the ARDL panel estimation results, the analysis can be described as follows:

1. Table 4.8 shows the CointEq (ECT) value results, where the coefficient is negative and significant, with a probability value of 0.0010 and a coefficient value of -0.395769. Thus, this value indicates a negative and significant result with a value of 0.0010 < alpha 5%. This means that the ARDL panel model is accepted and a panel test can be conducted per country. Similarly, the ECT coefficient indicates that in the event of a shock, it would take 143 days or 4.7 months to return to the equilibrium position prior to the shock.
2. Foreign Direct Investment (FDI), in the short term, the D (FDI) variable has a positive and significant effect on the unemployment rate with a probability of 0.0050 < 0.05 and a coefficient of 0.100733, which means that a 1% increase in foreign direct investment will increase the unemployment rate by 0.100733% in the short term. However, at lag 1 and lag 2, FDI is not significant with probabilities of 0.1049 and 0.4718, in the long term, the FDI variable has a negative and significant effect on the unemployment rate with a probability of 0.0024 < 0.05 and a coefficient of -0.207871, indicating that a 1% increase in FDI will reduce the unemployment rate by 0.207871% in the long term.
3. Labor Force Participation Rate (LFPR), in the short term, the D(LFPR) variable in the current period has a negative but insignificant effect with a probability of 0.4137 > 0.05 and a coefficient of -0.040338. However, at lag 1, this variable has a negative and significant effect on the unemployment rate with a coefficient of -0.115082 and a probability of 0.0034 < 0.05, meaning that a 1% increase in labor force participation in the previous period will reduce the unemployment rate by 0.115082%. At lag 2, this variable is again insignificant with a probability of 0.4702 > 0.05. In the long term, the LFPR variable has a positive effect on the unemployment rate with a coefficient of 0.104914, but it is not significant because the probability value is 0.0799 > 0.05.
4. Tourist Visits (VA), in the short term, the variable D(LOGVA) in the current period obtained a coefficient of -0.322154 with a probability of 0.2850 > 0.05, indicating that in the short term, the number of tourist visits does not have a significant effect on the unemployment rate. However, at lags 1 and 2, tourist visits have a positive and significant effect on unemployment at lag 2 with a coefficient of 0.118832 and a probability of 0.530 > 0. 05, and lag 2 of 0.589738 with a probability of 0.0000 < 0.05, indicating that a 1% increase in the number of tourists two periods prior actually increases the unemployment rate by 0.589738%. In the long term, the LOGVA variable has a negative and significant effect on the unemployment rate with a coefficient of -0.909660 and a probability of 0.0000 < 0.05, meaning that a 1% increase in the number of tourists will reduce the unemployment rate by 0.909660%.

In the short term (the current period), FDI has been shown to have a positive and significant effect on unemployment, with a probability value of 0.0050 (< 0.05) and a regression coefficient of 0.100733. This means that a 1% increase in FDI will increase the unemployment rate by 0.100733%. These results do not align with the hypothesis and reflect the initial adjustment phase that occurs when FDI flows into developing countries. However, in the long term, the direction of FDI's impact on unemployment changes significantly. The data analysis results indicate that FDI has a negative and significant impact on unemployment, consistent with the research hypothesis and aligned with Dunning's investment theory, Romer's endogenous growth theory, and Lewis and Chenery's structural transformation theory. FDI acts as a catalyst for economic growth by driving industrial sector expansion, increasing production capacity, and boosting demand for local labor.

In the short term, LFPR has a negative and significant effect on unemployment, with a coefficient of -0.115082 and a probability of 0.0034 < 0.05. This means that a 1% increase in labor force participation in the previous period can reduce unemployment by 0.115082% in the current period, indicating that the effect of labor force participation on unemployment is temporary and strongest in the period immediately following the increase. In the long term, the analysis results show that labor force participation has a positive and insignificant effect on unemployment. This phenomenon can be explained by structural factors such as demographic changes, the transition of the productive age group, and shifts in societal preferences toward participation in the labor market.

In the short term, specifically at lag 2 (two years prior), tourist visits show a positive and significant effect on the unemployment rate. This phenomenon can be understood through W. Arthur Lewis's Economic Dualism theory, which states that modern sectors like tourism can grow without absorbing labor from traditional sectors due to structural barriers. Meanwhile, in the long term, tourist visitation variables have a negative and significant impact on unemployment. These results confirm that tourism activities directly drive job creation, particularly in labor-intensive sectors such as hospitality, transportation, food and beverages, and entertainment services, which employ many local workers, including those from lower-middle-income groups.

5. Conclusions

Based on the results of the analysis and discussion conducted regarding the impact of foreign direct investment, labor force participation, and tourist visits on unemployment in five ASEAN countries, the following conclusions can be drawn:

1. Foreign direct investment has a positive and significant impact in the short term. However, in the long term, it has a negative and significant impact on unemployment in the five ASEAN countries simultaneously.
2. Labor force participation has a negative and significant effect in the short term. Meanwhile, in the long term, it has a positive and insignificant effect on unemployment for five ASEAN countries simultaneously.
3. Short-term tourist visits have a positive and significant effect, while long-term visits have a negative and significant effect on unemployment in five ASEAN countries simultaneously.

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