Jurnal Kebijakan Ekonomi dan Keuangan
Available at https://journal.uii.ac.id/jkek

Economic growth and unemployment in Indonesia: A short-run and long-run analysis using the ARDL approach

Aminuddin Anwar

Department of Economics, Faculty of Business and Economics, Indonesian Islamic University, Yogyakarta, Indonesia
*Corresponding author: aminuddin.anwar@uii.ac.id

JEL Classification Code:
E31, O40, H50

Keywords:
Unemployment Dynamic, Autoregressive Distributed Lag, Economic Growth, Inflation

Author's email:
aminuddin.anwar@uii.ac.id

DOI:
10.20885/JKEK.vol4.iss2.art15

Abstract

Purpose – *This study aims to analyze the dynamic aspects determining unemployment in Indonesia for the period 1994–2024.*

Methods – *This research utilizes a time series data analysis in Indonesia using the Autoregressive Distributed Lag (ARDL) approach.*

Findings – *The study concludes that in the long run, inflation and government expenditure have a negative impact on unemployment. Meanwhile, in the short run, the lag value of unemployment, economic growth, and inflation influence the dynamic condition of unemployment.*

Implication – *The implications of this study are more oriented towards strengthening monetary and fiscal policies to reduce dynamic unemployment in Indonesia.*

Originality – *This research contributes to the analysis of the dynamic aspects determining unemployment in Indonesia by using a time series data approach with ARDL.*

Abstrak

Tujuan – Penelitian ini bertujuan untuk menganalisis aspek dinamis penentu pengangguran di Indonesia untuk periode 1994 -2024.

Metode – Penelitian ini menggunakan analisis data runtut waktu di Indonesia dengan menggunakan pendekatan *Autoregressive Distributed Lag* (ARDL).

Temuan – Penelitian ini menyimpulkan bahwa pada jangka panjang inflasi dan pengeluaran pemerintah berimplikasi negatif terhadap pengangguran, sementara itu pada jangka pendek nilai lag pengguran, pertumbuhan ekonomi dan inflasi memiliki pengaruh terhadap kondisi dinamis pengangguran.

Implikasi – Implikasi dari penelitian ini lebih berorientasi pada penguatan kebijakan moneter dan fiskal dalam menurunkan pengangguran dinamis di Indonesia.

Orisinalitas – Penelitian ini berkontribusi terhadap analisis aspek dinamis penentu pengangguran di Indonesia menggunakan pendekatan data runtut waktu dengan ARDL.

Introduction

Unemployment is a crucial issue facing developing countries, as it has broader social and economic implications for development, posing a fundamental challenge to improving the quality of economic development. Unemployment is an integral part of the dynamics of state policy development and the impact of constantly changing external conditions. High unemployment rates reflect inefficiencies in labor utilization, ultimately hampering productivity and the quality of national output. This results in suboptimal and unsustainable economic growth. The development

of a structured and systematic labor market is crucial for a country's economic development. The government plays a crucial role in formulating and implementing policies to effectively manage the labor market. These policies should increase employment opportunities, improve labor efficiency, and reduce labor market frictions, such as wage mismatches and job search costs, which exacerbate unemployment. Therefore, sound labor market management supports long-term economic growth and improves public welfare.

Implementation to increase economic growth is carried out by increasing productivity, where high productivity will have a positive impact on the quality of sustainable economic growth. Based on this, the issue of unemployment is very relevant because high unemployment indicates that the workforce is not being utilized efficiently. According to (Hjazeen et al., 2021), this condition causes national output to decline in both quantity and quality due to suboptimal utilization of production factors. Furthermore, Alexopoulos (2003) explains that high unemployment is caused by frictional labour-market forces, including an imbalance between wages and job search costs, which hinders the matching of workers with jobs. Unemployment and economic growth are important interrelated indicators for assessing a country's economic condition. The reciprocal relationship between the two shows that changes in the unemployment rate directly impact aggregate output and income. Nickell (1990) states that high unemployment rates can reduce aggregate output and income, ultimately increasing income inequality.

Unemployment is one of the challenges faced by both developed and developing countries, and it is one of the most critical macroeconomic challenges. Okun's Law, a fundamental macroeconomic theory, suggests that higher economic growth reduces unemployment by increasing production and labor demand (Folawewo & Adeboje, 2017; Kreishan, 2011). Similarly, investment plays a crucial role in job creation by expanding productive capacity and stimulating economic activity, while government spending can directly and indirectly generate employment through infrastructure development and public sector programs (Ahuja & Pandit, 2020; Emmanuel et al., 2024). Conversely, inflation has an ambiguous relationship with unemployment, as illustrated by the Phillips Curve, which suggests a short-term trade-off between inflation and unemployment, although empirical evidence questions the long-term stability and validity of this relationship (Folawewo & Adeboje, 2017; Friedman, 1977).

Empirical evidence across countries shows mixed results, particularly in developing countries that still face various structural issues, labor market rigidities, and economic instability that can undermine the effectiveness of macroeconomic policies in reducing unemployment. Empirical evidence suggests that economic growth and investment generally contribute to lower unemployment rates in the Economic Community of West African States (ECOWAS), which found that GDP growth tends to reduce unemployment, and low employment growth elasticity, on the other hand, has implications for foreign direct investment (FDI) (Folawewo & Adeboje, 2017). Similarly, in developed countries (the G7), trade openness and globalization have implications for investment, significantly reducing unemployment (Gozgor, 2013).

Another study conducted in European Union countries indicates that inflation plays a role in influencing economic growth and unemployment, but its direction can vary depending on the structural and policy environment (Toader et al., 2018). Empirical evidence from industrialized countries suggests an inverse relationship between government size and economic growth, implying that higher government spending may correlate with poorer macroeconomic performance and potentially higher unemployment rates (Abrams, 1999). Another study analyzing conditions in Jordan revealed that economic growth does not significantly explain unemployment, suggesting that structural labor market issues may be more important in determining unemployment than growth alone (Kreishan, 2011). Overall conclusions from studies outside Indonesia indicate that while higher economic growth and investment tend to lower unemployment, the effects of inflation and government spending vary significantly across countries and over time. These findings highlight the importance of macroeconomic policies that consider local structural factors, labor market dynamics, and the specific nature of inflation and fiscal interventions to effectively manage unemployment.

Empirical studies in Indonesia have examined the complex interactions between economic growth, investment, inflation, and government spending on unemployment, demonstrating that foreign direct investment (FDI) and trade openness play a significant role in reducing unemployment by encouraging job creation and economic progress, thereby promoting employment Pham (2024). Further research shows that FDI inflows positively and significantly increase economic growth, with gross fixed capital formation (investment) and inflation being important determinants of growth in accelerating Indonesia's economic development (Okwu et al., 2020). Unemployment and population growth also have adverse effects on economic growth (Ahuja & Pandit, 2020). The interaction between public spending and FDI also reveals that while public capital spending promotes growth, excessive government non-capital spending can hinder the beneficial effects of FDI, suggesting that efficient government expenditure management is crucial for Indonesia's economic health (Vu Le and Suruga, 2005). Thus, policy efforts in Indonesia should emphasize attracting productive investment, optimizing the composition of public spending, strengthening the institutional framework, and maintaining macroeconomic stability to promote growth and reduce unemployment. Collectively, these studies suggest that for Indonesia, as for many Asian economies, economic growth and investment tend to reduce unemployment, while the role of inflation and government spending is more nuanced and context dependent.

Research Methods

This study is part of a process to conduct empirical analysis using time-series data for the case of Indonesia. The analysis aims to analyze the dynamic impact of several factors, such as economic growth, investment, inflation, and government spending, on unemployment from 1994 to 2024. The data used in this study are secondary and sourced from the World Development Indicators (WDI) provided by the World Bank. Table 1 presents a detailed description of the variables included in this study:

Table 1. Definition of Variable

Variables	Symbols	Units	Definition
Unemployment	UNMPL	Percent	Share of the labor force that is without work but available for and seeking employment.
Economic Growth	GROWTH	Percent	Annual percentage growth rate of GDP at market prices based on constant local currency.
Investment	FDI	Dollar	Foreign direct investment refers to direct investment equity flows in the reporting economy.
Inflation	INF	Percent	Annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly.
Government Expenditure	GE	Dollar	Total government consumption, investment, and transfer payments, representing the aggregate amount spent by the government sector within a country during a specific period

Based on previous theory and empirical studies to analyze the dynamic impact of economic growth, foreign direct investment (FDI), inflation, and government spending on unemployment, this study uses the Autoregressive Distributed Lag (ARDL) approach. The modelling process begins with a theoretical functional form based on basic theory and empirical studies, followed by econometric specifications, ARDL dynamic models, and error correction representations. Next, an econometric model is defined that translates the theoretical framework into testable and empirical equations.

$$UNMPL_t = f(GROWTH_t, FDI_t, INF_t, GE_t) \quad (1)$$

The theoretical model derived in equation (1) represents the theoretical functional relationship between unemployment and its macroeconomic determinants. The analysis process is carried out by building an empirical model based on the basic econometric model shown in equation (2).

$$UNMPL_t = \beta_0 + \beta_1 GROWTH_t + \beta_2 INF_t + \beta_5 FDI_t + \beta_6 GE_t + \varepsilon_t \quad (2)$$

Equation (2) presents the linear econometric specification of the unemployment model, where unemployment is expressed as a function of economic growth, inflation, foreign direct investment, and government expenditure. The Autoregressive Distributed Lag (ARDL) model incorporates both lagged dependent and independent variables to capture dynamic relationships over time. The ARDL specification is as follows:

$$UNMPL_t = \theta_0 + \theta_1 UNMPL_{t-1} + \theta_2 GROWTH_{t-1} + \theta_3 INF_{t-1} + \theta_4 FDI_{t-1} + \theta_5 GE_{t-1} + \sum_{i=1}^{p} \gamma_{1i} \Delta UNMPL_{t-1} + \sum_{i=1}^{p} \gamma_{1i} \Delta GROWTH_{t-1} + \sum_{i=1}^{p} \gamma_{2i} \Delta INF_{t-1} + \sum_{i=1}^{p} \gamma_{2i} \Delta FDI_{t-1} + \sum_{i=1}^{p} \gamma_{3i} \Delta GE_{t-1} + \varepsilon_t \quad (3)$$

Once cointegration is confirmed, the ARDL model can be transformed into an Error Correction Model (ECM):

$$\Delta UNMPL_t = \delta_0 + \sum_{i=1}^{r} \delta_{1i} \Delta UNMPL_{t-1} + \sum_{i=1}^{r} \delta_{2i} \Delta GROWTH_{t-1} + \sum_{i=1}^{r} \delta_{3i} \Delta INF_{t-1} + \sum_{i=1}^{r} \delta_{4i} \Delta FDI_{t-1} + \sum_{i=1}^{r} \delta_{5i} \Delta GE_{t-1} + \vartheta ECT_{t-1} + \mu_t \quad (4)$$

The error correction term represents deviations from the long-run equilibrium. The coefficient ϑindicates the speed at which unemployment adjusts back to equilibrium after a short-run shock. To examine whether a long-run equilibrium relationship exists among the variables, this study applies the Bound Testing approach developed by Pesaran et al. (2001).
The null hypothesis is:

$$H_0: \varphi_1 = \varphi_2 = \varphi_3 = \varphi_4 = 0$$

The alternative hypothesis is as follows:

$$H_1: \varphi_1 \neq \varphi_2 \neq \varphi_3 \neq \varphi_4 \neq 0$$

This hypothesis implies that there is no long-run relationship between unemployment and its determinants. The decision rule for the Bound Testing approach is as follows: if the calculated F-statistic exceeds the upper critical bound, cointegration is confirmed, indicating a long-run equilibrium relationship among the variables. If the F-statistic falls below the lower bound, no cointegration exists, suggesting the absence of a long-term relationship between the variables. When the F-statistic lies between the bounds, the test is inconclusive, and further analysis is necessary to determine the relationship between the variables.

Results and Discussion

The ARDL estimation output provides a comprehensive analysis of the short- and long-run dynamics between unemployment and its macroeconomic determinants in Indonesia. The results include the lagged effects of unemployment and explanatory variables such as economic growth, investment, inflation, and government expenditure, capturing both immediate and delayed impacts on unemployment. The long-run coefficients reveal the sustained influence of inflation and government expenditure in reducing unemployment, while the short-run estimates highlight significant adjustments and dynamic interactions among the variables. The inclusion of the error correction term further demonstrates the speed at which unemployment returns to equilibrium following shocks, validating the presence of a stable long-run relationship, as confirmed by the cointegration test. Thus, this ARDL framework effectively models complex temporal relationships and provides valuable insights for policy formulation targeting unemployment reduction in Indonesia.

To ensure that the estimation results are both valid and unbiased, reflecting the true characteristics of the data, it is essential for time series data to be stationary. In this study, the stationarity of the data was assessed using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests, as shown in Table 2. The outcomes of these tests demonstrate that the Economic Growth and Inflation variables are stationary at their levels, as indicated by probability values that fall below the significance threshold. Conversely, the Unemployment, Investment, and

Government Expenditure variables do not exhibit stationarity at the level but become stationary after the first difference, indicating that these variables are integrated of order one, I(1). These results highlight that the variables in this study have mixed integration orders, specifically I(0) and I(1). As a result, the Autoregressive Distributed Lag (ARDL) model is deemed suitable for this analysis, as it can handle variables with different integration orders without necessitating uniform integration across all variables.

Table 2. Stationarity Test

Variables	Level				First Difference			
	ADF		PP		ADF		PP	
	t-stat	prob.	Adj. t-stat	prob.	t-stat	prob.	Adj. t-stat	prob.
Unemployment	-1.923	0.618	-1.947	0.606	-4.311	0.010	-4.508	0.006
Economic Growth	-4.155	0.014	-4.013	0.019	-6.784	0.000	-13.554	0.000
Investment	-3.137	0.116	-3.099	0.125	-6.929	0.000	-7.683	0.000
Inflation	-5.119	0.001	-7.520	0.000	-6.044	0.000	-21.017	0.000
Government Expenditure	2.368	0.999	1.738	0.999	-2.869	0.061	-3.598	0.048

Table 3. Cointegration Test using Bound Test

F-Bounds Test				Null Hypothesis: No levels relationship
Test Statistic	Value	Significant	I(0)	I(1)
F-statistic	4.393	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

The subsequent phase in the ARDL modelling process involves assessing the presence of a long-term equilibrium relationship among the variables through the Bound Test, as illustrated in Table 3. The null hypothesis of the Bound Test posits that no cointegration relationship exists among the variables. The results reveal an F-statistic value of 4.393, which surpasses the upper bound critical value at the 5 percent significance level (3.49) and exceeds the upper bound at the 2.5 percent level (3.87), though it is slightly above the 1 percent upper bound value (4.37). This outcome suggests that the null hypothesis of no cointegration can be rejected for the full sample. Consequently, it can be inferred that a long-term equilibrium relationship exists between unemployment, economic growth, investment, inflation, and government expenditure. These results validate that the ARDL model can be expanded into the Error Correction Model (ECM) framework to explore both short-term dynamics and long-term relationships.

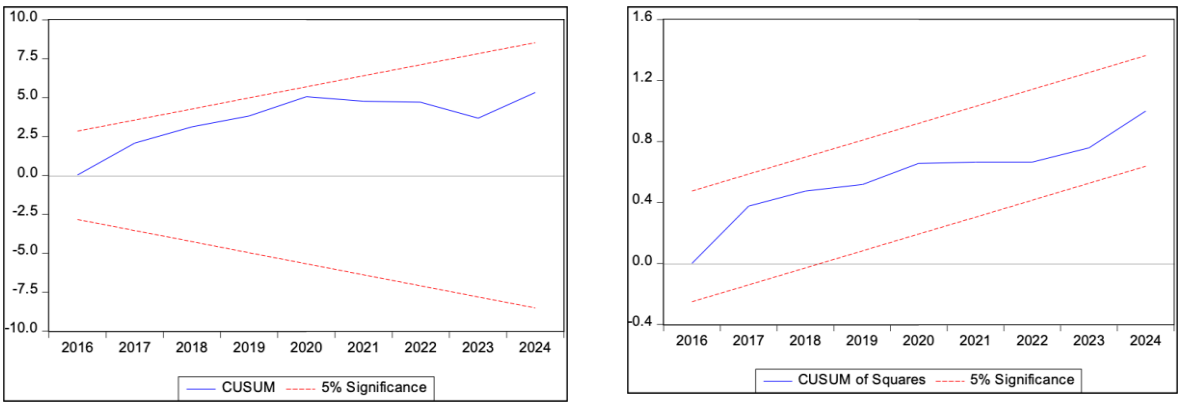

Figure 1. ARDL Stability Diagnostic

The results of the stability test show that the CUSUM and CUSUM of Squares lines stay within the critical limits at a 5 percent significance level throughout the observation period. Despite some fluctuations, the blue line did not breach these critical boundaries. This suggests that the estimated ARDL model is structurally stable, without any signs of structural or parameter instability

over time. Consequently, the model is dependable and appropriate for further analysis of both short- and long-term dynamics.

Table 4. ARDL Estimation Results

Variables	ARDL Selected Model Dependent Variable: Unemployment Selected Model: ARDL (4, 4, 0, 4, 1)			
	Coefficient	Standard Error	t-Statistic	Probability
Unemployment (-1)	0.405	0.243	1.666	0.130
Unemployment (-2)	0.314	0.311	1.010	0.339
Unemployment (-3)	0.274	0.358	0.766	0.463
Unemployment (-4)	-0.661	0.285	-2.319	0.046
Economic Growth	-0.040	0.073	-0.550	0.596
Economic Growth (-1)	0.019	0.074	0.262	0.799
Economic Growth (-2)	-0.111	0.099	-1.115	0.294
Economic Growth (-3)	0.0678	0.061	1.117	0.293
Economic Growth (-4)	-0.207	0.054	-3.833	0.004
Investment	2.7E-7	2.5E-5	0.011	0.992
Inflation	-0.029	0.028	-1.041	0.325
Inflation (-1)	0.004	0.026	0.136	0.895
Inflation (-2)	-0.057	0.037	-1.518	0.163
Inflation (-3)	-0.011	0.022	-0.483	0.641
Inflation (-4)	-0.086	0.022	-3.890	0.004
Government Expenditure	3.7E-6	4.2E-6	0.888	0.398
Government Expenditure (-1)	-6.3E-6	4.5E-6	-1.393	0.197
C	7.980	2.082	3.832	0.004
R-squared	0.971	Mean dependent var		5.384
Adjusted R-squared	0.915	S.D. dependent var		1.460
S.E. of regression	0.426	Akaike info criterion		1.365
Sum squared resid	1.632	Schwarz criterion		2.229
Log likelihood	-0.428	Hannan-Quinn criter.		1.622
F-statistic	17.459	Durbin-Watson stat		2.244
Prob(F-statistic)	0.000			

Table 4 displays the initial ARDL estimation outcomes, with the chosen model being ARDL (4, 4, 0, 4, 1), selected using the Akaike Information Criterion (AIC). The findings reveal that unemployment demonstrates dynamic characteristics, where its historical values impact current unemployment levels. Notably, the unemployment variable at lag (-4) exerts a negative and significant influence on present unemployment, suggesting an adjustment process in the labor market, where past unemployment conditions affect the current labor market balance. Regarding Economic Growth, the results indicate that economic growth at lag (-4) negatively and significantly impacts unemployment. This suggests that higher economic growth in the preceding period helps reduce current unemployment, aligning with the macroeconomic theory, which posits that economic growth enhances production capacity and labor demand, thereby lowering unemployment rates. The Investment variable does not have a significant impact on unemployment in the selected ARDL model. This implies that investment activities might not immediately lead to job creation, potentially due to structural factors such as capital-intensive investments or delays in employment absorption. The Inflation variable at lag (-4) shows a negative and significant effect on unemployment, indicating that inflation in prior periods is linked to lower unemployment levels. This relationship may reflect the short-run Phillips curve dynamics, where increased inflation is correlated with heightened economic activity and labor demand. Government Expenditure does not demonstrate a significant effect in the short-run ARDL specification. Nonetheless, government spending remains crucial as a macroeconomic stabilization tool, potentially influencing unemployment over longer durations rather than immediate short-run effects. Overall, the high R-squared value of 0.971 and the statistically significant F-statistic suggest that the model possesses strong explanatory power and is collectively significant in elucidating the unemployment dynamics.

Table 5. Long Run Estimation Results

Long Run Estimation Result				
Variables	Dependent Variable: Unemployment			
	Coefficient	Standard Error	t-Statistic	Probability
Economic Growth	-0.406	0.269	-1.512	0.165
Investment	4.0E-7	3.7E-5	0.011	0.992
Inflation	-0.268	0.109	-2.603	0.029
Government Expenditure	-3.9E-6	8.8E-7	-4.405	0.002
C	11.952	2.366	5.051	0.001

The long-term estimation results are presented in Table 5, which illustrates the equilibrium relationship between the independent variables and unemployment. The findings indicate that economic growth exerts a negative but statistically insignificant effect on unemployment in the long term, consistent with the studies by Thapa et al. (2022) for Nepal, Mohamed (2024) in Somalia, and Chuttoo (2020) in Mauritius. This suggests that while economic growth contributes to reducing unemployment, its long-term impact may depend on the nature of economic growth, such as whether it is labor- or capital-intensive. Similarly, investment does not have a significant effect on unemployment in the long term, as observed by Hoon et al. (2022) in OECD countries and Alalawneh and Nessa (2020) in East and North Africa. This outcome implies that investment may not directly translate into employment generation, particularly if investments are concentrated in sectors that are more reliant on capital and technology rather than on labor.

Inflation has a negative and significant effect on unemployment in the long term, as reported by Reina (2025) in Colombia and Wulandari et al. (2019) in Indonesia. This finding suggests that higher inflation is associated with lower unemployment levels, aligning with the Phillips curve framework. This relationship may reflect increased economic activity, which stimulates the demand for labor and reduces unemployment. Government expenditure has a negative and significant effect on unemployment in the long term, consistent with research conducted by Saraireh (2020) in Jordan, Pham (2024) for countries in Asia, and Hammad et al. (2023) in Iraq. This result indicates that increased government spending contributes to reducing unemployment by stimulating aggregate demand, increasing public sector employment, and encouraging economic activities. Government expenditure plays a crucial role in supporting employment creation through infrastructure development, public services, and economic stimulus programs. These findings confirm that macroeconomic policies, particularly government spending and inflation management, play a significant role in influencing long-term unemployment dynamics.

Table 6. Short Run Estimation Results

Short Run Estimation Result				
Variables	Dependent Variable: Δ(Unemployment)			
	Coefficient	Standard Error	t-Statistic	Probability
D(Unemployment (-1))	0.073	0.155	0.472	0.648
D(Unemployment (-2))	0.387	0.168	2.299	0.047
D(Unemployment (-3))	0.661	0.176	3.762	0.005
D(Economic Growth)	-0.039	0.046	-0.874	0.405
D(Economic Growth (-1))	0.251	0.053	4.706	0.001
D(Economic Growth (-2))	0.139	0.040	3.460	0.007
D(Economic Growth (-3))	0.207	0.036	5.742	0.000
D(Inflation)	-0.029	0.017	-1.662	0.131
D(Inflation (-1))	0.153	0.024	6.158	0.000
D(Inflation (-2))	0.097	0.018	5.311	0.001
D(Inflation (-3))	0.086	0.015	5.650	0.000
D(Government Expenditure)	3.7E-6	1.2E-6	3.216	0.011
ECT	-0.668	0.104	-6.403	0.000
R-squared	0.850	Mean dependent var		0.008
Adjusted R-squared	0.721	S.D. dependent var		0.646
S.E. of regression	0.341	Akaike info criterion		0.995
Sum squared resid	1.632	Schwarz criterion		1.619
Log likelihood	-0.428	Hannan-Quinn criter.		1.180
Durbin-Watson stat	2.244			

The short-run estimation results, as presented in Table 6, offer a thorough analysis of the dynamic behavior of unemployment during the examined period. The findings indicate that past changes in unemployment, particularly at lags (-2) and (-3), have a positive and statistically significant impact on current unemployment levels. This outcome aligns with the findings of Abid et al. (2023). This pattern demonstrates a strong persistence in unemployment dynamics, suggesting that previous increases in unemployment exert a lasting influence that continues to affect current unemployment conditions. Such persistence likely reflects underlying structural rigidities within the labor market, including factors such as skill mismatches among workers, slow adjustments in labor demand and supply, and institutional constraints that hinder rapid responses in the labor market.

The analysis of economic growth reveals that contemporary economic growth does not exert a statistically significant influence on unemployment in the short term. However, economic growth at lags (-1), (-2), and (-3) demonstrates positive and significant effects on unemployment, corroborating the findings of Kibuuka et al. (2024) for East African countries. This delayed impact suggests that the short-term relationship between economic growth and unemployment is intricate and may be influenced by transitional economic processes. Such processes could encompass structural transformation within the economy, where shifts in sectoral composition and labor reallocation require time to manifest in employment statistics, as well as the gradual adaptation of the labor market to evolving economic conditions.

Similarly, inflation does not exhibit a significant immediate effect on unemployment in the current period. Nonetheless, inflation at lags (-1), (-2), and (-3) exerts positive and significant effects on unemployment, indicating that inflationary pressures may initially contribute to elevated unemployment rates, consistent with the findings of Popescu and Diaconu (2022) for G7 countries. This phenomenon might be attributed to the heightened economic uncertainty and adjustment costs encountered by firms and workers during periods of rising prices, which can temporarily disrupt labor demand and hiring decisions before the economy attains a new long-run equilibrium.

Government expenditure emerges as another significant factor, exhibiting a positive and significant impact on unemployment in the short term. This result aligns with the findings of Saraireh (2020) and Yousef (2023) in Jordan. This outcome may reflect the time lag between government spending and its translation into productive employment. It is plausible that during the analyzed period, government expenditure was directed towards sectors with limited immediate labor absorption or involved spending on capital-intensive projects that do not rapidly generate jobs. Alternatively, this result could indicate adjustment periods in which fiscal interventions temporarily displace private sector employment or create inefficiencies before longer-term benefits are realized.

The Error Correction Term (ECT) coefficient is estimated to be -0.668 and is statistically significant, confirming the presence of a stable, long-run equilibrium relationship among the variables in the model. The negative sign of the ECT coefficient indicates that deviations from the long-run equilibrium are corrected. Specifically, the magnitude of -0.668 suggests that approximately 66.8 percent of any short-run disequilibrium is adjusted within each period, reflecting a relatively rapid convergence toward the long-run equilibrium state. This adjustment mechanism ensures that, despite short-term fluctuations, the variables tend to move together consistently over time.

Conclusion and Implications

The dynamic analysis of the impact of economic growth, inflation, and government expenditure on unemployment in Indonesia reveals that dynamic effects are a significant factor influencing unemployment fluctuations. This is corroborated by the observation that both short-term and long-term conditions produce relatively consistent outcomes. The findings suggest that, in the long term, unemployment in Indonesia is influenced by inflation and government expenditure, with both variables serving as policy instruments that the government can employ through fiscal and monetary policies. The policy process is critical, as price stabilization via monetary policy can contribute to reducing unemployment, while fiscal policy mechanisms aimed at stimulating economic activity suggest a targeted approach to enhancing labor absorption, thereby decreasing

the unemployment rate. The short-term results indicate that dynamic aspects are pivotal in reducing unemployment in Indonesia, supported by lagged variables of unemployment, inflation, and government expenditure. The lagged unemployment variable signifies a persistent effect from previous unemployment rates on current conditions, implying that unemployment is affected not only by current factors but also by prior economic conditions. Inflation, as an indicator of price pressure, also influences purchasing power and economic activity, which subsequently affects employment opportunities.

References

Abid, M., Benmeriem, M., Gheraia, Z., Sekrafi, H., Abdelli, H., & Meddah, A. (2023). Asymmetric effects of the economy on unemployment in Algeria: Evidence from a nonlinear ARDL approach. Cogent Economics & Finance, 11. https://doi.org/10.1080/23322039.2023.2192454.

Abrams, B. A. (1999). The effect of government size on unemployment rate. Public Choice, 99(3–4), 395–401. https://doi.org/10.1023/a:1018349411246

Ahuja, D., & Pandit, D. (2020). Public Expenditure and Economic Growth: Evidence from the Developing Countries. FIIB Business Review, 9(3), 228–236. https://doi.org/10.1177/2319714520938901

Alalawneh, M., & Nessa, A. (2020). The Impact of Foreign Direct Investment on Unemployment: Panel Data Approach. Emerging Science Journal. https://doi.org/10.28991/esj-2020-01226.

Alexopoulos, M. (2003). Growth and unemployment in a shirking efficiency wage model. Canadian Journal of Economics, 36, 728-746. https://doi.org/10.1111/1540-5982.t01-2-00010.

Chuttoo, U. (2020). Effect of Economic Growth on Unemployment and Validity of Okun's Law in Mauritius. Global Journal of Emerging Market Economies, 12, 231 - 250. https://doi.org/10.1177/0974910119886934.

Emmanuel, N., Usifoh, K. S., & Adu, M. J. (2024). Institutional Quality, Government Expenditure and Economic Growth Nexus in Nigeria. NG Journal of Social Development, 13(1), 1–19. https://doi.org/10.4314/ngjsd.v13i1.1

Folawewo, A. O., & Adeboje, O. M. (2017). Macroeconomic Determinants of Unemployment: Empirical Evidence from Economic Community of West African States. African Development Review, 29(2), 197–210. https://doi.org/10.1111/1467-8268.12250

Friedman, M. (1977). Nobel Lecture: Inflation and Unemployment. Journal of Political Economy, 85(3), 451–472. https://doi.org/10.1086/260579

Gozgor, G. (2013). The impact of trade openness on the unemployment rate in G7 countries. The Journal of International Trade & Economic Development, 23(7), 1018–1037. https://doi.org/10.1080/09638199.2013.827233

Hammad, S., Shallal, A., Allah, A., Faisal, F., & Abdullah, T. (2023). The Impact of Public Spending on Unemployment: A Study on the Iraqi Economy for the Period 2004-2021. Global Journal of Economic and Business. https://doi.org/10.31559/gjeb2023.13.4.6.

Hjazeen, H., Seraj, M., & Ozdeser, H. (2021). The nexus between the economic growth and unemployment in Jordan. Future Business Journal, 7. https://doi.org/10.1186/s43093-021-00088-3.

Hoon, H., Katsimi, M., & Zoega, G. (2022). Investment and the long swings of unemployment. Economics of Transition and Institutional Change. https://doi.org/10.1111/ecot.12350.

Kreishan, K. (2011). Economic Growth and Unemployment: An Empirical Analysis. Journal of Social Sciences, 7(2), 228–231. https://doi.org/10.3844/jssp.2011.228.231

Mohamed, A. (2024). Economic growth and unemployment nexus: empirical test of Okun's law in Somalia. Journal of Economic Structures, 13. https://doi.org/10.1186/s40008-024-00337-y.

Nickell, S. (1990). Unemployment: A Survey. The Economic Journal, 100, 391-439. https://doi.org/10.2307/2234131.

Okwu, A. T., Oseni, I. O., & Obiakor, R. T. (2020). Does Foreign Direct Investment Enhance Economic Growth? Evidence from 30 Leading Global Economies. Global Journal of Emerging Market Economies, 12(2), 217–230. https://doi.org/10.1177/0974910120919042

Pesaran, M., Shin, Y., & Smith, R. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16, 289-326. https://doi.org/10.1002/jae.616.

Pham, T. (2024). Impact of government expenditure on unemployment in Asian countries: does institutional quality matter?. International Journal of Development Issues. https://doi.org/10.1108/ijdi-05-2024-0127.

Popescu, C., & Diaconu, L. (2022). Inflation – Unemployment Dilemma. A Cross-Country Analysis. Scientific Annals of Economics and Business. https://doi.org/10.47743/saeb-2022-0012.

Reina, A. (2025). The relationship between inflation and unemployment: Empirical evidence for Colombia (2007–2024). Forum for Economic and Financial Studies. https://doi.org/10.59400/fefs3225.

Saraireh, S. (2020). The Impact of Government Expenditures on Unemployment: A Case Study of Jordan. Asian Journal of Economic Modelling. https://doi.org/10.18488/journal.8.2020.83.189.203.

Saraireh, S. (2020). The Impact of Government Expenditures on Unemployment: A Case Study of Jordan. Asian Journal of Economic Modelling. https://doi.org/10.18488/journal.8.2020.83.189.203.

T., F., Kibuuka, M., Mutenyo, J., Mugume, T., Ocan, P., Dayo, B., & Abuga, I. (2024). Causality between economic growth and unemployment in East African countries. International journal of economics and business management. https://doi.org/10.59568/ijebm-2024-1-1-04.

Thapa, R., Dhakal, S., & Gurung, B. (2022). Relationship between Unemployment Rate and Economic Growth in Nepal: An Econometric Estimation. Turkish Journal of Agriculture - Food Science and Technology. https://doi.org/10.24925/turjaf.v10i8.1586-1593.5358.

Toader, E., Firtescu, B. N., Roman, A., & Anton, S. G. (2018). Impact of Information and Communication Technology Infrastructure on Economic Growth: An Empirical Assessment for the EU Countries. Sustainability, 10(10), 3750. https://doi.org/10.3390/su10103750

Vu Le, M., & Suruga, T. (2005). Foreign direct investment, public expenditure and economic growth: the empirical evidence for the period 1970–2001. Applied Economics Letters, 12(1), 45–49. https://doi.org/10.1080/1350485042000293130

Wulandari, D., Utomo, S., Narmaditya, B., & Kamaludin, M. (2019). Nexus between Inflation and Unemployment: Evidence from Indonesia. The Journal of Asian Finance, Economics and Business. https://doi.org/10.13106/jafeb.2019.vol6.no2.269.

Yousef, E. (2023). The Impact of Fiscal Policy Tools on Unemployment Rates in Jordan: Autoregressive Distributed Lag Approach. Jordan Journal of Economic Sciences. https://doi.org/10.35516/jjes.v10i1.843.