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Dynamics of youth unemployment in ASEAN-5 emerging economies through macroeconomic analysis

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ABSTRACT
This research investigates youth unemployment dynamics in ASEAN-5 emerging economies using a macroeconomic framework. Employing the panel Autoregressive Distributed Lag (ARDL) methodology, it examines the effects of Gross Domestic Product (GDP), inflation rate, population growth and Foreign Direct Investment (FDI) on youth unemployment rates. Empirical results reveal that GDP and inflation significantly influence youth unemployment over the long term. This highlights the interplay between economic expansion and youth employment prospects. Conversely, neither population growth nor FDI significantly impacts youth unemployment. This suggests that increasing population or attracting foreign investments alone may not directly translate to better employment opportunities for the youth. Instead, robust economic growth and stable inflation rates are crucial. These findings underscore the need for ASEAN-5 policymakers to develop strategies fostering economic growth and controlling inflation to mitigate its adverse effects on youth employment. The research provides insights into how targeted economic policies can better address youth unemployment challenges, creating a conducive environment for job creation and economic stability, ultimately benefiting the youth workforce.

Contribution/Originality: This study highlights the importance of balancing economic growth with inflation control to achieve optimal employment outcomes for the youth in ASEAN-5 countries.

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1. BACKGROUND
Economic development in a country cannot be solely measured by the rate of income growth. Rather, quality development is characterized by how income is equitably distributed among all societal layers, thereby identifying who benefits from the development, as highlighted by Todaro (1998). A country's economic development can be depicted through various indicators, one of which is the unemployment rate. Unemployment is a global issue not limited to developing countries but also prevalent in developed nations (Hjazeen, Seraj, & Ozdeser, 2021). This is because unemployment plays a crucial role in development aspects, especially economic development.

The International Labour Organization (ILO) defines unemployment as individuals of working age who are jobless but actively seeking employment. Conversely, there are also individuals of working age who are not employed and not actively seeking work. The issue of unemployment, particularly among youth, often goes unaddressed. To date, many

countries have focused more on adult unemployment, while youth unemployment has received less attention in development agendas. The unemployment rate among youth in many countries is significantly higher compared to that among adults (Dasgupta, 2022). In 2023, the ILO reported that the unemployment rate among youth worldwide was 13.3%, in contrast to the adult unemployment rate, which was 3.9% (Horne, 2024).

Youth unemployment is a pressing issue in ASEAN countries, as many youths face challenges to find job opportunities that match their skills and aspirations. According to recent statistics, the youth unemployment rate in ASEAN countries stands at an average of around 13% (ASEAN Secretariat, 2023). However, there are significant variations among different countries within the region. For example, in Indonesia, the largest economy in ASEAN, the youth unemployment rate is slightly higher at 14.5%. In contrast, countries like Malaysia and Singapore have lower youth unemployment rates, with 10.2% and 7.4% respectively. This signifies the need for targeted efforts to address youth unemployment in specific countries within ASEAN.

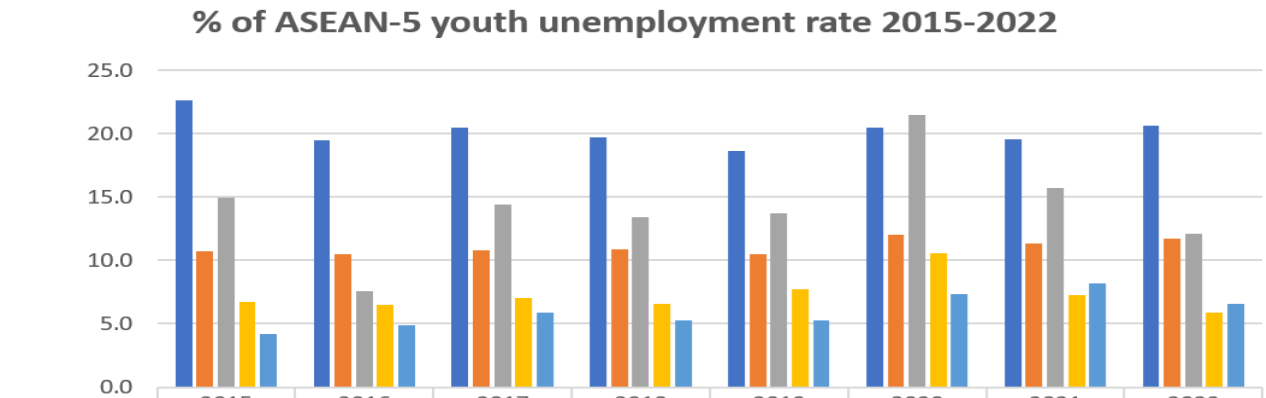
The challenge of youth unemployment is a complex issue with multiple dimensions, necessitating a thorough exploration of its underlying causes (Ghani, 2020; Hossain et al., 2018). Global entities such as the United Nations and the World Bank highlight the critical role of youth employment in attaining sustainable development objectives (United Nations, 2020; World Bank, 2019). A key issue is the discrepancy between the skills that young people have and what the job market requires. This mismatch frequently results in underemployment or joblessness of young individuals. Additionally, the economic and social inequalities both within and across nations in the ASEAN region significantly contribute to the ongoing issue of youth unemployment.

The rising phenomenon of youth unemployment necessitates an in-depth discussion on this issue. This study will focus on four main indicators related to youth unemployment, namely gross domestic product, foreign direct investment, inflation, and population growth. The objective of this study is to evaluate the contributing factors to the youth unemployment rate in ASEAN-5 countries.

2. LITERATURE REVIEW

2.1. Youth Unemployment in the ASEAN-5

The ASEAN-5 consists of five emerging nations within the ASEAN bloc, namely Indonesia, Philippines, Malaysia, Singapore, and Thailand. Like other ASEAN countries, the ASEAN-5 countries also face challenges in high rates of unemployment among its younger population. As depicted in Figure 1, Indonesia led with the highest rate of youth unemployment in 2022 at 20.6%, with the Philippines and Malaysia trailing at 12.1% and 11.7% respectively. Additionally, both Singapore and Thailand reported noteworthy levels of youth unemployment.



	2015	2016	2017	2018	2019	2020	2021	2022
Indonesia	22.6	19.4	20.4	19.7	18.6	20.5	19.6	20.6
Malaysia	10.7	10.5	10.8	10.9	10.5	12.0	11.3	11.7
Philippines	14.9	7.6	14.4	13.4	13.7	21.5	15.7	12.1
Singapore	6.7	6.5	7.0	6.6	7.7	10.6	7.3	5.9
Thailand	4.2	4.9	5.9	5.3	5.3	7.3	8.2	6.6

Figure 1. Percentage of youth unemployment among the Asean-5 in 2015 – 2022.

Source : ASEAN Secretariat (2023).

Youth unemployment in ASEAN-5 emerging economies presents a complex, multifaceted challenge that necessitates a comprehensive understanding of various economic theories and factors. Within this context, the Keynesian theory emerges as a crucial framework for analyzing youth unemployment in these economies. Rooted in the ideas of John Maynard Keynes, this theory suggests that insufficient economic demand can lead to unemployment, particularly among young individuals. This perspective is particularly relevant in the ASEAN-5 countries, where rapid economic growth is juxtaposed with high youth unemployment rates. This situation, as highlighted by Blanchard and Summers (1986) indicates a potential disconnect between economic expansion and job creation for young people. The Keynesian approach underscores the importance of stimulating economic growth to enhance labor demand, especially for younger, less experienced workers, a point emphasized by Krugman and Wells (2009) and crucial for policy formulation. In exploring the macroeconomic determinants of youth employment in the ASEAN region, it becomes evident that these factors are significant, especially in relation to the region's economic structure and development.

The expansion of the macroeconomic manufacturing sector, for instance, plays a pivotal role in reducing youth unemployment (Bal-Domańska, 2022; Dunford & Smith, 2016; Khyareh & Rostami, 2022). However, youth employment is influenced by a myriad of factors, ranging from sociocultural variables and educational status to technological access. But the main key macroeconomic factors impacting youth employment include inflation, GDP growth, population dynamics, and foreign direct investment. The nexus involving economic growth and youth unemployment has garnered significant scholarly attention. Studies by Rayhan, Rusdarti, and Yanto (2020) and Hasan and Sasana (2020) found a significant negative correlation between GDP and youth unemployment in ASEAN countries, a finding that also supports the research of Sam, Pokhariyal, Manene, and Kipchirchir (2019) and Abraham and Ozemhoka (2017). However, the study by Folawewo and Adeboje (2017) points to a weaker effect of GDP on unemployment, highlighting the complexity of this relationship in different economic settings.

Additionally, the impact of Foreign Direct Investment (FDI) on youth unemployment deserves particular attention. While some studies, like those by Ahmad and Khan (2018) indicate a negative correlation, suggesting that increased FDI inflows can reduce unemployment rates, others offer a more nuanced view. For instance, the research by Sam et al. (2019) questions the straightforwardness of this relationship, indicating that the effects of FDI on youth employment may be more complex and dependent on regional economic conditions. The dynamics between inflation and unemployment are also crucial. Studies such as those by Alisa (2015) and Singh and Verma (2016) found an inverse relationship in the short term, aligning with the Phillips Curve. However, this relationship is not uniform across all contexts and tends to weaken over the long term, as shown in studies like (Furuoka & Munir, 2014).

Finally, demographic factors significantly influence youth unemployment rates. A larger youth population size often correlates with higher unemployment rates, suggesting that demographic trends need to be considered in policy formulation. Research by Hasan and Sasana (2020) and Ahmad and Khan (2018) underscore the importance of understanding these demographic nuances to effectively address the challenges of youth unemployment.

3. METHODOLOGY

The present study employs the Autoregressive Distributed Lag (ARDL) methodology to investigate the youth unemployment in ASEAN-5 countries that integrate Indonesia, Malaysia, Philippines, Singapore, and Thailand. The primary variable under investigation is youth unemployment (YU), with four key predictor variables such as Gross Domestic Product (GDP), Inflation Rate (INF), Population Growth (POP), and Foreign Direct Investment (FDI). All the data in this study have been obtained from the World Development Indicator (World Bank). This study applies multiple analyses methods including panel unit root tests and panel estimation tests. The panel estimation tests encompass three estimators: Pooled Mean Group (PMG), Mean Group (MG), and Dynamic Fixed-Effect (DFE). The structure of the basic model is as follows:

$$YU_{it} = \alpha + \beta_1 INF_{it} + \beta_2 GDP_{it} + \beta_3 POP_{it} + \beta_4 FDI_{it} + \varepsilon_{it} \quad (1)$$

Where YU represents youth unemployment, GDP represents a real gross domestic product (GDP), POP is population, and FDI foreign direct investment. All the variables have transformed into their logarithms.

3.1. Panel Unit Root Test

Before proceeding with the main estimations, it is essential to verify the stationarity of both dependent and independent variables at levels I(0) or I(1) or I(2). Therefore, Panel Unit Root Test are employed. Several tests are conducted such as test (IPS) (Im, Pesaran, & Shin, 2003; Levin, Lin, & Chu, 2002) test (LLC) and second generation of IPS test (CIPS) of Hashem Pesaran (2007). The LL test requires that the autoregressive parameter is not heterogeneous, but the IPS tests allow for heterogeneity. The CIPS unit root test relaxes the condition of cross-sectional independence of the contemporaneous correlation. All these tests employ the null hypothesis that there is no stationarity. The lag length is determined by employing the Bayesian-Schwarz criterion.

3.2. Panel Cointegration Test

Two panel cointegration tests are applied, based on the outcomes of preliminary tests for non-stationarity. If the variables exhibit non-stationarity, a cointegration test is performed using the cointegration tests proposed by Pedroni (1996) and Westerlund (2007). The purpose of these cointegration tests is to determine whether a long-term present. The test developed by Pedroni (1996) introduces seven types of test for panel cointegration to see if cointegration is missing (Pedroni, 1996). This seven-test is based on three methods that compare different groups and four methods that look at changes within the same group. It uses a generalized least square to adjust for any errors that might be different across individuals. The Westerlund Test (Westerlund, 2007) demonstrates cointegration estimate using a four-panel approach. The null hypothesis of no cointegration is rejected, indicating the presence of cointegration in at least one individual unit.

3.3. Dynamic Panel ARDL Tests

If no cointegration is found from the preceding method, the Panel ARDL approach is implemented. The Panel ARDL methodology was selected to investigate both long-term and short-term cointegration among the variables, and to derive the panel characteristics of the Error Correction Model (ECM) to describe short-term dynamics. Additionally, alternative cointegration methods, such as those proposed by Johansen (1988) and the conventional Johansen and Juselius (1990) methods, were utilised to ensure comparable results. However, the panel autoregressive distributed lag method was preferred due to its additional advantages. Although traditional cointegration approaches assess long-term

correlations within the system of equations, the Panel ARDL approach utilises an individual briefed form of equation (Pesaran, 1999). According to Equation 2, the Panel ARDL approach can be applied with the studied factors regardless of whether they are I(0), I(1), or both I(0) and I(1) (Sulaiman & Abdul-Rahim, 2018). In Equation 3, the Panel ARDL, incorporating different variables with varying lags, overcomes limitations of standard cointegration tests. Furthermore, the Panel ARDL provides both long-term and short-term coefficients simultaneously (Sheng & Guo, 2016; Sulaiman, Bala, Tijani, Waziri, & Maji, 2015). The ARDL approach is also applicable with limited sample data, where initial estimates are improved by Narayan (2004). In Equation 4, the well-known production function of the Panel ARDL, analysed using the bounds test method, is presented as follows (Aristei & Martelli, 2014).

$$Y_{it} = a_{it} + \beta'_{it} X_{it} + \varepsilon_{it} \quad (2)$$

$$Y_{it} = a_{it} + \sum_{i=1}^{k} \delta_{ij} Y_{j,t-i} + \sum_{i=0}^{q} \beta'_{it} X_{j,t-i} + \varepsilon_{it} \quad (3)$$

$$\Delta lnYU_{it} = \beta_1 + \sum_{i=1}^{k} a_{ij}\, \Delta lnYU_{j,t-i} + \sum_{i=0}^{k} \beta_{ij}\, \Delta lnINF_{j,t-i} + \sum_{i=0}^{k} X_{ij}\, \Delta lnGDP_{j,t-i} + \sum_{i=0}^{k} \delta_{ij}\, \Delta lnPOP_{j,t-i} + \sum_{i=0}^{k} \vartheta_{ij}\, \Delta lnFDI_{j,t-i} + \theta_1 lnYU_{j,t-1} + \theta_2 lnINF_{j,t-1} + \theta_3 lnGDP_{j,t-1} + \theta_4 lnPOP_{j,t-1} + \theta_5 lnFDI_{j,t-1} + \varepsilon_{jt} \quad (4)$$

In Equation 2, $i = 1 \ldots n$ is the country indicator, $t = 1, \ldots, T$ is the time indicator and εit a random disturbance term. Certainly, the latter is not estimable with $N = n \times T$ data points. Equation 3 typically makes certain assumptions about the parameters, errors, and homogeneity of the regressors, which lead to a taxonomy of feasible panel data models. In Equation 4, $lnYU_{it}$ is youth unemployment, $lnINF_{it}$ is Inflation Rate, $lnGDP_{it}$ it is Gross Domestic Product, $lnPOP_{it}$ refers to Population Rate, and $lnFDI_{it}$ points to Foreign Direct Investment. Additionally, t is time, i refer to the studied country, Δ is the 1st variation factor, and k is the ideal lag length. The following assumptions are made to investigate the long-term co-integration correlation between factors:

H_0: $\theta 1 = \theta 2 = \theta 3 = \theta 4 = \theta 5 = 0$ (There is no co-integration).

H_a: $\theta 1 \neq \theta 2 \neq \theta 3 \neq \theta 4 \neq \theta 5 \neq 0$ (There is co-integration).

The hypothesis of no cointegration can be examined and contrasted with the cointegration hypothesis using the F-test, which lacks a standard distribution depending on whether the variables in the model are entirely I(0), entirely I(1), or a mix of I(0) and I(1); the number of estimators; and whether the model includes a trend, intercept, or both. Considering the relatively small sample size used in this study, the analytical estimates developed by Narayan and Narayan (2005) were applied, which are specifically tailored for small sample sizes (>20). The test employs a panel autoregressive distributed lag approach, which depends on whether the factors are solely I(0), solely I(1), or a combination of I(0) and I(1). Two sets of critical values were calculated: I(0) associated with the lower bound and I(1) associated with the upper bound. If the F-statistics exceed the I(1) critical value, the null hypothesis is rejected, indicating the presence of cointegration. Conversely, if the result is below the I(0) critical value, the null hypothesis is accepted. Results falling between the I(0) and I(1) bounds indicate the test's inability to conclusively determine cointegration.

When long-term correlation evidence is found among the factors, both the long-term and short-term effects are depicted in Equations 5 and 6 as follows:

$$lnYU_{it} = \beta_2 + \sum_{i=1}^{k} \alpha_{i2}\, lnYU_{j,t-i} + \sum_{i=0}^{k} \beta_{i2}\, lnINF_{j,t-i} + \sum_{i=0}^{k} X_{i2}\, lnGDP_{j,t-i} + \sum_{i=0}^{k} \delta_{i2}\, lnPOP_{j,t-i} + \sum_{i=0}^{k} \vartheta_{i2}\, lnFDI_{j,t-i} + \varepsilon_{it2} \quad (5)$$

$$\Delta lnYU_{it} = \beta_3 + \sum_{i=1}^{k} \alpha_{i3}\, \Delta lnYU_{j,t-i} + \sum_{i=0}^{k} \beta_{i3}\, \Delta lnINF_{j,t-i} + \sum_{i=0}^{k} X_{i3}\, \Delta lnGDP_{j,t-i} + \sum_{i=0}^{k} \delta_{i3}\, \Delta lnPOP_{j,t-i} + \sum_{i=0}^{k} \vartheta_{i3}\, \Delta lnFDI_{j,t-i} + \gamma ECT_{j,t-i} + \varepsilon_{it3} \quad (6)$$

$$ECT_{j,t} = lnYU_{it} - \beta_2 - \sum_{i=1}^{k} \alpha_{i2}\, lnYU_{j,t-i} - \sum_{i=0}^{k} \beta_{i2}\, lnINF_{j,t-i} - \sum_{i=0}^{k} X_{i2}\, lnGDP_{j,t-i} - \sum_{i=0}^{k} \delta_{i2}\, lnPOP_{j,t-i} - \sum_{i=0}^{k} \vartheta_{i2}\, lnFDI_{j,t-i} \quad (7)$$

The error correction term (ECT) is shown above in Equation 7. The sign γ is the coefficient of the ECT in Equation 6 and can validate the speed of determinant changes for assembly to sustain. Moreover, the coefficient gives input regarding the long-term correlation between the factors in Equation 7. Validation tests will be conducted to determine the accuracy and sufficiency of the estimates to finalize the study.

3.4. Hausman Test

The Hausman test was utilised to determine the preferred estimator among the PMG, MG, or DFE estimators. According to Pirotte (1999) the MG estimator permits parameters to vary independently across groups and does not account for heterogeneity between groups. However, Pesaran, Shin, and Smith (1999) contended that the PMG estimator is superior as it allows for different short-run variances by country, while assuming similar long-term coefficients across countries. The MG estimator, in contrast, accommodates both short-term and long-term coefficients with heterogeneous durations across countries. The selection between PMG and MG estimators hinges on the null hypothesis test. If the null hypothesis is not rejected, the PMG estimator is preferred due to its greater efficiency compared to the MG estimator. Conversely, if the null hypothesis is rejected, the MG estimator is chosen over the PMG estimator. Similarly, when deciding between the PMG and DFE estimators, if the null hypothesis is accepted, the PMG estimator is deemed more efficient than the DFE estimator.

Table 1. Unit root test.

Constant							Constant and trend						Stationarity Levels
Variables	Level			1st Difference			Variables	Level			1st Difference			
	Im, Pesaran and Shin	Breitung	Levin, Lin, Chu	Im, Pesaran and Shin	Breitung	Levin, Lin, Chu		Im, Pesaran and Shin	Breitung	Levin, Lin, Chu	Im, Pesaran and Shin	Breitung	Levin, Lin, Chu	
YU	-0.6614	-1.2658	-3.9108	-5.9321***	-4.6785***	-9.0614***	YU	0.5350	0.7826	-3.7569	0.5350	-4.9596***	-3.7569	I(1)
INF	-3.1196*	-2.5809**	-6.4083**	-11.7931***	-6.8826***	-15.1692***	INF	-3.3519**	-3.7808**	-8.2090**	-3.3519**	-5.2651***	-15.2522***	I(0)
GDP	-4.7630***	-2.7806**	-7.9900***	-11.1541***	-6.2130***	-14.4253***	GDP	-4.3452***	-4.3343***	-9.1067***	-9.9202***	-7.3037***	-14.5413***	I(0)
POP	1.3453	0.3929	-1.2423	1.3453	0.3929	-1.2423	POP	-15.8344***	0.1831	-14.9390***	-14.0149***	-0.8906	-15.9527***	I(1)
FDI	-2.7311**	-1.3790*	-6.1509**	-2.7311**	-3.4179**	-6.1509**	FDI	-2.6124**	-2.7502**	-7.0190**	-8.3054***	-5.6650***	-12.6237***	I(0)

Note: *, **, and *** indicate significance at 10 %, ** at 5 % and *** at 1 %.

4. RESULT

Before applying the panel ARDL approach to co integration, the order of integration of each variable in the model was determined. For this purpose, the Breitung, Levin,Lin,Chu abd Im,Pesaran and Shin test were employed. Table 1 above represents unit root tests for the Constant and Constant with Trend. The findings of the panel unit root test reveal that there is combination of I(0) and I(1) but no variable is I(2). This confirms the use of the panel ARDL model relevant for a mixture of I(0) and I(1) variables. According to Muchapondwa and Pimhidzai (2011) the mixture of integrated variables was allowed to run the panel ARDL model as cointegration procedure. This is because the panel ADRL model grants estimation of both short-term and long-term relationships between dependent and independent variables.

Table 2. Pedroni cointegration test result.

Variable	Test statistics	Panel	Group
Yu, inf, gdp, pop, fdi	V	-0.782	-
	rho	0.874	1.568
	T	-0.095	0.272
	adf	0.689	1.827

Table 3. Westerlund cointegration test result.

Variables	Group and panel statistics	Constant		Constant and trend	
		Value	p-value	Value	p-value
Yu, inf, gdp, pop, fdi	Gt	-1.021	1.000	-1.207	1.000
	Ga	-1.210	1.000	-1.276	1.000
	Pt	-2.311	0.989	-3.518	0.991
	Pa	-1.057	0.993	-1.405	0.999

4.1. Cointegration Test

Table 2 and 3 show the result of cointegration test. The researchers employed Pedroni Cointegration Test and Westerlund Cointegration Test to check the present of cointegration in the model. Based on the results, p value for both tests are more than 0.05. Therefore, the study concluded that there is no presence of cointegration. Therefore, this paper can proceed with Panel ARDL analysis.

4.2. Panel ARDL Model Selection

This study examined the short- and long-term relations between a few chosen macroeconomic factors and young unemployment. The results were obtained by utilising the autoregressive distributed lag (ARDL) approach with three estimators to incorporate the heterogeneous panel regression into the error correction model. Table 4 displays these estimators, which are the Mean Group (MG), the Pooled Mean Group (PMG), and the Dynamic Fixed Effects (DFE).

Table 4. PMG, MG and DFE.

Variables	PMG D.yu	MG D.yu	DFE D. yu
LR			
INF	0.449* (0.203)	0.268 (0.488)	0.0639 (0.112)
GDP	-0.944*** (0.256)	-0.528 (0.360)	-1.006*** (0.280)
POP	-0.519 (0.389)	-1.430 (2.747)	0.147 (0.829)
FDI	-0.0945 (0.102)	-0.531 (0.926)	-0.194 (0.202)
SR			
ECT	-0.239** (0.0752)	-0.241*** (0.0717)	-0.200*** (0.0412)
F.INF	0.0537 (0.0671)	0.0120 (0.111)	-0.00278 (0.0197)
D.GDP	0.100** (0.0384)	0.0818* (0.0350)	0.0637* (0.0299)
D.POP	-3.187 (2.165)	-1.952 (1.752)	-0.143 (0.214)
D.FDI	0.0765 (0.128)	0.0792 (0.140)	-0.0137 (0.0370)
_CONS	3.295** (1.239)	3.378* (1.397)	3.214*** (0.602)
N	135	135	135

Note: Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001

4.3. Hausman Test

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B).
= 2.33.
Prob>chi2 = 0.6758.
(V_b-V_B is not positive definite).

The Hausman test starts with the assumption that coefficient differences are random and do not follow a specific pattern. If the Hausman test yields a probability result greater than 5%, therefore the Pooled Mean Group (PMG) technique is recommend. Initially, after researcher compared PMG to Mean Group (MG), then the best approach is Dynamic Fixed Effects. Next the the Hausman test value is 2.33 and it chi-squared distribution (2-distribution), with a probability of 0.6758. Based on these findings, this study concluded that PMG estimator is the efficient estimator under the null hypothesis.

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B).
= 2.66.
Prob>chi2 = 0.6159.
(V_b-V_B is not positive definite).

The Hausman test result of PMG versus DFE in value of 2.66, and it is a chi-squared distribution (^{2}-distribution) with the probability value of 0.6159 more than probability value which is 0.05. The study concludes that the PMG estimator is the efficient estimator under the null hypothesis.

In the long run, the outcome of PMG indicates that the Inflation Rate and GDP have a causal relationship towards Youth Unemployment and highly significant effect on Youth Unemployment. The probability of each of the variables below the p-value(0.1 and 0.01). This mean that the null hypothesis is rejected.

In the short run, the PMG also shows that the error correction term to be negative (significant at 1% level). Its effects show that a 1% rise in GDP induces their Youth Unemployment to get an increase of 0.100%.

4.4. Short Run and Long Run Relationship

After the long-run coefficients were obtained, the short-run dynamic coefficients can be estimated through the Error-Correction Term (ECT). Using the long-run coefficients estimation information in Table 4, the reseachers then computed the Error-Correction Term (ECT). The ECT showed the speed adjustment of the model returns to equilibrium which follows an exogenous shock and it should be negatively signed. The significant ECT with negative value implies that the model is stable. The PMG results show that the value for ECT is -0.239. This means that 23.9 percent of the imbalance in the ASEAN-5 region is recovered in future years provided the independent variable responds positively. This means that in the event of any external shock in the economy, it will take 4 years (1/0.239) to return to equilibrium (Banerjee, Dolado, & Mestre, 1998). The present research has also found that only GDP significant influencing the youth unemployment in short run.

Based on Table 4, the study found that there is a long-term relationship between inflation and youth unemployment. Long-term PMG results show that there is a positive and significant relationship between these two variables. In the event of a one percent increase in inflation, the unemployment rate will increase by 0.49 percent. In addition, this study also found a significant positive relationship between GDP and the increase in youth unemployment in ASEAN-5. An increase in GDP of one percent will cause the youth unemployment rate to increase by 0.94 percent. The probability of each of the variables below the p-value (0.1 and 0.01).

5. DISCUSSION AND CONCLUSION

The main objective of this study was to investigate the key factors influencing youth unemployment within the ASEAN-5 countries. This study, utilizing the Panel Auto-Regressive Distributed Lag (ARDL) model to assess the impact of inflation, Gross Domestic Product (GDP), population growth, and foreign direct investment from 1991 to 2022. Notably, the findings underscore the critical roles of inflation and GDP in shaping youth unemployment trends, where an unconventional positive correlation between inflation and unemployment emerged, challenging the traditional Phillips curve hypothesis which posits an inverse relationship between these variables (Lisani, Masbar, & Silvia, 2020; Sahnoun & Abdennadher, 2019). This suggests that inflation-induced price increases could lead to reduced aggregate demand and supply, thereby lowering labor demand and exacerbating unemployment issues, particularly amid a growing labor force that is not met with proportional job opportunities (Drechsel, McLeay, & Tenreyro, 2019).

Moreover, the research identified an opposing relationship between GDP and youth unemployment, marked by a short-term positive correlation and a long-term negative correlation, the latter affirming Okun's law within the context of the ASEAN-5. This dichotomy points to immediate challenges in youth employment, potentially due to mismatches between educational outcomes and labor market needs, emphasizing the crucial role of enhancing Technical and Vocational Education and Training (TVET) programs to bridge this gap and promote economic growth conducive to reducing unemployment. The disparity in TVET participation across the region and its alignment with Sustainable Development Goals call for urgent policy measures to bolster vocational training's role in combating youth unemployment and fostering inclusive economic advancement (Bakhshi & Ebrahimi, 2016; Chowdhury & Hossain, 2014).

In conclusion, the intricate relationship between inflation, GDP, and youth unemployment within the ASEAN-5 highlights the complexities of economic factors affecting job markets. This study sheds light on the nuanced impacts of GDP on unemployment rates, both short-term positive and long-term negative, alongside the inflation-unemployment nexus, prompting a reassessment of existing economic theories and policy approaches. It advocates for

a comprehensive policy strategy that encompasses inflation control and economic growth stimulation through strategic investments in education, infrastructure, and innovation, while underlining the pivotal role of vocational training in equipping the youth with relevant skills for the labor market (Abraham & Ozemhoka, 2017; Asif, 2013; Folawewo & Adeboje, 2017; Sam et al., 2019). These insights not only enrich the academic dialogue on economic policy and employment but also provide actionable recommendations for policymakers to address the enduring issue of youth unemployment in the ASEAN region. Future research should extend beyond the current variables and timeframe to encompass a wider array of factors affecting youth unemployment and assess the efficacy of policy interventions in this domain.

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