International Journal of Sustainable Development and Planning
Vol. 20, No. 11, November, 2025, pp. 4829-4838
Journal homepage: http://iieta.org/journals/ijsdp

# Monetary Variables, Fiscal Policy, and Foreign Direct Investment in Indonesia: An ARDL Approach for Advancing Sustainable Development Goal 8

Adya Syukri[1*], Mirzalina Zaenal[1], Andi Arfanita[1], Muh Akbar[2]

[1] Faculty of Economic and Business, Hasanuddin University, Makassar 90245, Indonesia
[2] Faculty of Economic and Business, Surabaya University, Surabaya 60293, Indonesia

Corresponding Author Email: adya.utami@unhas.ac.id



https://doi.org/10.18280/ijsdp.201123

**Received:** 15 September 2025
**Revised:** 25 November 2025
**Accepted:** 27 November 2025
**Available online:** 30 November 2025

***Keywords:***
*FDI, monetary variables, fiscal policy, ARDL, SDG 8, Indonesia*

**ABSTRACT**

Foreign direct investment (FDI) plays a pivotal role in Indonesia's economic transformation and its commitment to Sustainable Development Goal 8 (SDG 8). This study examines the long-run and short-run effects of government expenditure, interest rate, labor force participation, economic growth, inflation, and trade openness on FDI using annual data for 2000-2024. Employing the ARDL bounds testing framework, supported by stationarity diagnostics, error-correction modelling, and robustness checks, the results confirm a stable long-run cointegrating relationship between FDI and key macroeconomic fundamentals. Government expenditure emerges as the strongest determinant of FDI, underscoring the critical role of fiscal policy in building Indonesia's structural investment advantages. Trade openness also significantly and persistently enhances FDI inflows, reflecting the importance of global integration. Conversely, interest rate, inflation, labor participation, and economic growth exert limited or temporary effects. These findings highlight the need to strengthen public investment efficiency and trade facilitation to attract sustainable foreign capital and advance SDG 8: Decent Work and Economic Growth.

## 1. INTRODUCTION

Foreign direct investment (FDI) plays a central role in supporting sustainable economic transformation, particularly in emerging economies such as Indonesia. Beyond providing capital inflows, FDI facilitates technology transfer, enhances managerial and technical capabilities, and expands employment opportunities. These channels position FDI as a critical instrument for advancing SDG 8: Decent Work and Economic Growth, which underscores the importance of sustained, inclusive, and sustainable economic growth and the creation of productive employment opportunities.

To better understand the economic environment that shapes Indonesia's ability to attract FDI, this study examines several key macroeconomic variables that theoretically influence investment behavior and long-run development prospects. Drawing on the analytical framework and variable set documented in the attached ARDL report—government expenditure, interest rate, labor force participation rate (LFPR), economic growth, inflation, and trade openness—the study positions these indicators as essential determinants of the country's broader economic resilience and its alignment with SDG 8 priorities.

Government expenditure constitutes an important policy instrument for strengthening public infrastructure, improving human capital, and supporting economic services. Enhanced public investment fosters productive capacity, reduces structural bottlenecks, and expands opportunities for decent work, thereby contributing directly to the targets of SDG 8.

The interest rate reflects domestic monetary conditions that influence borrowing costs and investment decisions. A stable and predictable interest rate environment helps support business expansion and capital accumulation, both of which are critical for generating productive employment and sustaining economic growth.

The LFPR serves as an indicator of a country's potential workforce and its level of human capital engagement in productive activities. Higher participation rates signal a more dynamic and inclusive labor market, reinforcing the goal of expanding access to decent work as outlined in SDG 8.

Economic growth represents a fundamental driver of job creation and improvements in living standards. Sustained and inclusive growth forms the backbone of SDG 8, as it underpins both the expansion of productive activities and the long-term capacity of the economy to absorb labor.

Inflation, through its role in maintaining price stability, influences investment decisions, household welfare, and business planning. A stable inflation environment supports efficient economic functioning and strengthens the conditions necessary for fostering productive employment and sustainable growth.

Finally, trade openness reflects the degree of integration with global markets. Greater openness can stimulate industrial expansion, enhance competitiveness, and generate new employment opportunities through increased production and investment activities.

By situating these variables within the broader context of sustainable development, this study highlights their strategic relevance not only for understanding the determinants of FDI but also for promoting the structural conditions necessary to achieve SDG 8: Decent Work and Economic Growth. Each variable serves as a foundational element for strengthening economic inclusiveness, productivity, and long-term development.

The relationship between Indonesia's public expenditure and FDI has been the subject of significant analysis in recent literature. Numerous studies have indicated that increased public spending can create an enabling environment for foreign investors by improving infrastructure, boosting public services and ultimately fostering economic growth [1]. For example, Wahidin et al. [2] argued that public spending is essential to stimulate private sector investment, which subsequently has a positive impact on FDI inflows. This perspective is further supported by Hidayat et al. [3], who highlight the importance of government policies to stabilize the macroeconomic environment. This stability is essential for foreign investors seeking reliable returns on their investments, making the country more attractive as a destination for foreign capital.

Furthermore, Fadillah and Viphindrartin [4] posited that a robust framework for public spending can effectively mitigate economic uncertainties that often deter foreign investment. Their findings suggest that well-targeted fiscal policies not only improve the quality of public goods but also cultivate confidence among foreign investors, leading to increased FDI. This notion is echoed in the broader economic literature, which emphasizes the importance of fiscal responsibility and efficient resource allocation to foster a favorable investment climate.

Recent empirical analyses have focused on the sectoral allocation of public expenditure and its implications for FDI. For example, investments in infrastructure, particularly in transportation and energy, are significantly correlated with higher FDI inflows into Indonesia. Their study claims that improving infrastructure reduces operating costs for foreign companies, making Indonesia a more competitive investment destination. Furthermore, the authors point out that when public spending prioritizes sectors that align with the interests of foreign companies, the probability of attracting FDI increases substantially.

In contrast to these positive correlations, some studies have identified potential drawbacks related to excessive public spending. An inefficient allocation of resources could generate fiscal imbalances, undermining investor confidence. Their findings suggest that while public spending can boost FDI, it is essential that such spending is strategic and aligned with broader economic objectives to avoid obstacles that could deter potential investors.

In summary, the interaction between public spending and FDI in Indonesia is complex and characterized by enhancing and potentially inhibiting factors. The existing literature highlights the importance of strategic fiscal policies that not only seek to increase spending but also ensure its efficiency and alignment with growth objectives. As such, the role of public spending in fostering an attractive investment environment remains a key area for future research, particularly in light of Indonesia's changing economic landscape and its aspirations for greater global competitiveness., Interest rates and their fluctuations play a vital role in shaping the FDI landscape in Indonesia, significantly influencing foreign investors' decision-making processes. A body of research indicates that lower interest rates are generally conducive to increased investment levels [5]. The study shows that lower interest rates correlate with better access to credit, making capital more affordable for businesses. This accessibility often results in a more favorable environment for domestic and foreign investment, boosting economic growth and encouraging foreign entities to establish themselves in the country.

Conversely, the work of Hasran et al. [6] highlights the negative implications of rising interest rates on FDI flows. Their analysis posits that as interest rates rise, the cost of borrowing increases, deterring potential investors. The sensitivity of FDI to monetary policy adjustments is crucial, as interest rate fluctuations can create an unstable economic climate that may deter foreign investors from committing resources to the Indonesian market. Therefore, this sensitivity highlights the importance of stable and predictable interest rate policies to foster an environment conducive to investment.

Additionally, inflation dynamics add another level of complexity to the interaction between interest rates and FDI. Iqbal et al. [7] examine how inflation can distort real interest rates, further complicating the investment landscape. When inflation increases, the real return on investment may decrease, which can lead to a potential re-evaluation of investment opportunities by foreign investors. This nuanced relationship suggests that an inflationary environment, coupled with fluctuating interest rates, can significantly deter foreign investment due to increased uncertainty and risk.

Furthermore, the relationship between trade policies and FDI cannot be underestimated. Lamah et al. [8] highlight the importance of an open trade policy to facilitate FDI in Indonesia. An inviting business environment provides both an attractive market for foreign investors and a channel for broader access to the regional market. When trade barriers are low and market entry simplified, foreign investors often view the host country as a strategic base for operations not only within its borders, but also to serve neighboring markets. This aspect is vital for Indonesia, given its geographical position and the opportunity to leverage its trade relationships within the ASEAN region and beyond.

In summary, the influence of interest rates on FDI in Indonesia is exacerbated by inflationary pressures and is significantly reinforced by robust trade policies. An understanding of these interconnected elements is essential for policymakers wishing to create an environment conducive to foreign investment. By judiciously managing interest rates and maintaining stable inflation levels, the government can significantly influence FDI trajectories. Additionally, by adopting liberal trade policies, Indonesia can enhance its attractiveness as a destination for foreign investment, thereby contributing to the country's sustained economic growth and development., Economic growth, labor force participation and inflation are critical factors influencing FDI in Indonesia. A comprehensive analysis of the dynamics around these elements offers valuable information about the country's attractiveness to foreign investors. Robust economic growth in Indonesia serves as a precursor to FDI flows [9]. It not only reflects a favorable macroeconomic environment, but also signals to investors the potential for profitability and expansion of the market. Empirical data suggests that sustained economic growth rates have been consistently correlated with increased FDI, as investors seek to capitalize on expanding markets and a strengthened consumer base.

Furthermore, the role of workforce participation is highlighted by Qanita and Nasir [10], who argue that a competitive workforce is critical to attracting foreign multinational companies. They argue that high levels of labor force participation, especially among skilled workers, ensure that companies have access to the human capital necessary to optimize their operations. The availability of a diverse and competent workforce not only increases productivity, but also improves the overall business climate, creating an environment where foreign entities feel more confident in committing to investments. The authors highlight the need for continued investment in education and vocational training to ensure that the job market can meet the evolving needs of potential investors.

In contrast, inflation continues to be a significant detractor in the investment equation [11]. High inflation rates can lead to increased costs of doing business, thereby discouraging FDI. Investors are often concerned about the impacts of inflation on purchasing power and profit margins, leading to greater uncertainty about future returns. The volatility associated with inflationary pressures can hamper the decision-making processes of potential investors, resulting in a detrimental effect on Indonesia's ability to attract foreign capital. The author posits that maintaining stable prices is essential to promoting a climate conducive to investment and that this stability can be improved through prudent fiscal and monetary policies.

Furthermore, research carried out by Fathia et al. [12] investigates the determinants of foreign investment, also emphasizing the interconnection of these economic indicators. Their findings suggest that addressing inflation issues, while sustaining economic growth and strengthening labor force participation, is critical to optimizing the investment landscape in Indonesia. The study illustrates that a balanced approach to managing these variables is imperative, as neglecting one can negatively affect the others, ultimately undermining the country's attractiveness as an FDI destination.

The relationship between these economic factors and FDI in Indonesia is complex and multifaceted. By understanding and effectively managing the interplay between economic growth, labor force participation and inflation, policymakers can promote a more favorable investment climate. A strategic focus on these areas can help Indonesia not only attract foreign investment but also ensure long-term sustainable economic development. The literature consistently emphasizes that the success of FDI policies depends on a comprehensive understanding of these critical economic indicators and their influence on investor confidence and decision-making.

While previous studies have examined the roles of interest rate, inflation, or economic growth in shaping FDI inflows, few studies integrate these variables within a coherent monetary–fiscal framework that aligns explicitly with SDG 8. Similarly, limited research investigates the long- and short-run dynamics using a robust cointegration approach capable of handling mixed integration orders. This study addresses these gaps by combining a comprehensive set of policy-relevant macroeconomic indicators with a refined ARDL–ECM methodology to uncover Indonesia's long-run structural drivers of FDI.

## 2. MATERIALS AND METHODS

This study employs annual time-series data covering the period 2000-2024. The variables analyzed include FDI, government expenditure, interest rate, economic growth, LFPR levels, inflation, and trade. The data were obtained from the Central Bureau of Statistics of Indonesia (Badan Pusat Statistik [BPS]) and World Bank. The selection of variables follows the existing literature on the determinants of FDI in Table 1, with particular emphasis on monetary and macroeconomic indicators relevant to developing economies.

**Table 1.** Variables used

| Variables | Notation | Data Source | Unit |
|---|---|---|---|
| Government Expenditure | GOVEXP | Statistics Indonesia | Billion Rp |
| Interest Rate | INTRATE | Statistics Indonesia | % |
| Economic Growth | EG | Statistics Indonesia | % |
| Labor Force Participation Rate | LFPR | World Bank | % |
| Inflation | INF | World Bank | % |
| Trade | TRD | World Bank | % |
| Foreign Direct Investment | FDI | Statistics Indonesia | Billion US$ |

Source: Authors

This study examines the relationship between FDI, government expenditure, economic growth, wage, and interest rate. The following model was used to determine the relationship between independent and dependent variables:

$$\mathrm{FDI} = \mathrm{f}(\mathrm{GOVEXP}, \mathrm{INTRATE}, \mathrm{EG}, \mathrm{LFPR}, \mathrm{INF}, \mathrm{TRD}) \quad (1)$$

Based on this mathematical function, the econometric model is formulated as follows:

$$\mathrm{FDI} = \propto + \beta_1 \mathrm{GOVEXP} + \beta_2 \mathrm{INTRATE} + \beta_3 \mathrm{LFPR} + \beta_4 \mathrm{EG} + \beta_5 \mathrm{INF} + \beta_6 \mathrm{TRD} + \in \quad (2)$$

The empirical model is specified in a log-linear form to capture elasticities and reduce heteroscedasticity, as follows:

$$\mathrm{Ln\ FDI} = \propto + \beta_1 \mathrm{LnGOVEXP} + \beta_2 \mathrm{INTRATE} + \beta_3 \mathrm{LFPR} + \beta_4 \mathrm{EG} + \beta_5 \mathrm{INF} + \beta_6 \mathrm{TRD} + \in \quad (3)$$

where,

$FDI_t$ = Foreign Direct Investment (in USD Billion)
$GOVEXP_t$ = Government Expenditure (in IDR billion)
$INTRATE_t$ = Interest Rate (%)
$LFPR_t$ = Labor Force Participation Rate (%)
$EG_t$ = Economic Growth (%)
$INF_t$ = Inflation (%)
$TRD_t$ = Trade (%)
$\propto$ = the constant
$\beta$ = the coefficients
$\in$ = the stochastic error term

To address the time series properties of the data, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were employed to assess the stationarity. Given the potential for mixed integration orders, the Autoregressive Distributed Lag (ARDL) bounds testing approach was utilized to examine long-run cointegration among the variables. Upon detecting cointegration, an Error Correction Model (ECM)

was estimated to capture both long-run relationships and short-run dynamics. The ARDL-ECM framework was selected because of its ability to provide consistent estimates with small sample sizes and accommodate variables integrated at I(0) and I(1). Robust standard errors, specifically the Newey-West correction, were applied to account for heteroscedasticity and autocorrelation. Additionally, diagnostic tests were conducted, including the Variance Inflation Factor (VIF) for multicollinearity, the Breusch-Pagan test for heteroskedasticity, the Breusch-Godfrey LM test for autocorrelation, and the Jarque-Bera test for normality of residuals. Finally, Granger causality tests were employed to examine the directional relationship between FDI and monetary variables. Robustness checks were performed through subsample analyses and alternative model specifications, including additional controls such as inflation and GDP growth. This comprehensive approach ensured the validity and stability of the results. Below, we present a flowchart of the methodology used in this study.

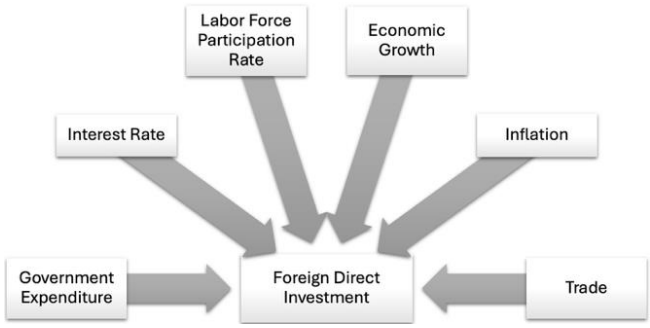


**Figure 1.** Framework conceptual
Source: Authors

Based on Figure 1, the framework conceptual in this study is about FDI refers to long-term investment by foreign firms that brings capital, technology, and jobs to the host country. Government expenditure supports FDI by improving infrastructure and public services, making the economy more attractive to investors. Interest rates indicate the cost of borrowing; stable and lower rates reduce investment costs and encourage foreign firms. The labor force participation rate reflects the availability of workers, signaling labor supply potential for foreign investors. Economic growth shows market expansion and profit opportunities, which can attract investors seeking larger and growing markets. Inflation represents price stability, where low and stable inflation reduces uncertainty and investment risk. Trade openness shows how well a country is connected to global markets, enabling export opportunities and encouraging foreign firms to invest. Together, these factors describe the economic conditions that influence foreign investors' decisions to invest in a country.

The research methodology flowchart is on the Figure 2 that the research methodology begins with collecting annual data for the period 2000–2024 from Statistics Indonesia (BPS). The data are first tested for stationarity using the Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests to identify their time-series properties. Next, the ARDL bounds test is applied to examine whether a long-run relationship exists among the variables. Once cointegration is confirmed, the ARDL and ECM are estimated to capture both long-run effects and short-run dynamics. Diagnostic tests, including VIF, Breusch–Pagan, Breusch–Godfrey, and Jarque–Bera tests, are then conducted to ensure model validity and reliability. Finally, Granger causality analysis and robustness checks using subsample analysis and alternative model specifications are performed to confirm the stability and consistency of the results.

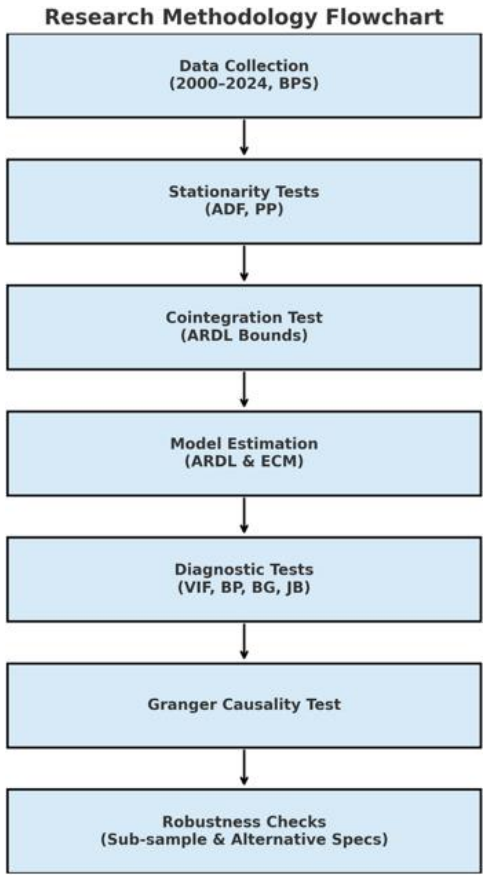


**Figure 2.** Research methodology flowchart
Source: Authors

## 3. RESULTS AND DISCUSSION

### 3.1 ADF stationarity tests

The ADF tests indicate that most variables—including FDI, government expenditure, interest rate, LFPR, economic growth, and trade—are non-stationary in levels, while only inflation is stationary (Table 2). This mixture of I(0) and I(1) processes justifies the use of the ARDL approach, which is specifically designed to accommodate variables with different integration orders [13]. The presence of trending components in most macroeconomic variables is consistent with the long-run development patterns observed in emerging economies [14].

**Table 2.** ADF stationarity tests

| Variable | ADF Stat | P-Value | Used Lag |
|---|---|---|---|
| FDI | -0.7025 | 0.8461 | 8 |
| GovExp | -0.7477 | 0.8340 | 0 |
| IntRate | -2.0236 | 0.2763 | 9 |
| LFPR | -1.9501 | 0.3089 | 0 |
| EG | -0.4822 | 0.8954 | 9 |
| Inflation | -2.9616 | 0.0386 | 0 |
| Trade | -1.7982 | 0.3813 | 2 |

Source: Authors

The ADF tests were conducted to determine the integration order of each variable. The results show that Inflation is stationary at level, while FDI, GovExp, IntRate, LFPR, EG, and Trade remain non-stationary at conventional significance levels. This combination of I(0) and I(1) variables supports the use of the ARDL approach, which accommodates regressors with mixed integration orders without requiring all variables to be I(1). The stationarity of Inflation suggests that short-run price dynamics are more stable relative to other macroeconomic indicators. Meanwhile, the non-stationarity of FDI and most regressors indicates the presence of long-run stochastic trends in the economic system, highlighting the need for cointegration analysis to capture long-run equilibrium relations.

### 3.2 Granger causality

The Granger causality results (Table 3) indicate that GovExp, IntRate, LFPR, Inflation, and Trade significantly Granger-cause LnFDI, while EG does not. These findings imply that changes in fiscal policy, monetary conditions, labor market participation, price dynamics, and trade openness precede changes in FDI inflows. These results reflect the temporal structure of FDI determination—foreign investors appear responsive to preceding movements in key macroeconomic indicators. The absence of causality from EG suggests that economic growth alone does not serve as a reliable predictor of FDI unless supported by broader macroeconomic fundamentals.

**Table 3.** Granger causality results

| Regressor | Best Lag | P-Value | Note |
|---|---|---|---|
| GovExp | 1 | 0.0001 | |
| IntRate | 1 | 0.0006 | |
| LFPR | 1 | 0.0189 | |
| EG | 4 | 0.4507 | |
| Inflation | 1 | 0.0123 | |
| Trade | 1 | 0.0008 | |

Source: Authors

The Granger causality results show that government expenditure, interest rate, LFPR, inflation, and trade significantly precede changes in FDI inflows, while economic growth does not. This finding suggests that foreign investors respond more strongly to macroeconomic fundamentals and policy signals—including fiscal stance, monetary conditions, and trade orientation—than to growth performance per se.

This aligns with evidence from cross-country studies noting that FDI responds more to *created* advantages (such as infrastructure and institutional stability) than to growth rates alone [15, 16]. The results also reflect the theoretical proposition of the eclectic (OLI) paradigm, which stresses the role of location advantages in shaping multinational investment decisions [17].

### 3.3 OLS regression

The benchmark ordinary least squares (OLS) estimation indicates that government expenditure (GovExp) is a robust and statistically significant predictor of LnFDI across all model specifications. When employing HC3 standard errors, only GovExp retains statistical significance; however, after applying HAC (Newey–West) corrections, economic growth (EG) attains marginal significance. These findings are presented in Table 4.

In Table 5, the consistent significance of GovExp across robust standard error frameworks suggests a strong fiscal–FDI linkage. The sensitivity of EG to the type of standard error estimator indicates that its effect is less stable and potentially influenced by serial correlation or sample structure. VIFs near multicollinearity thresholds also highlight potential overlapping information among predictors, warranting cautious interpretation.

**Table 4.** OLS regression

| Variable | Coef. | Std. Err. | t | P>\|t\| |
|---|---|---|---|---|
| const | 1.002909 | 0.577102 | | 0.0822 |
| GovExp | 0.090519 | 0.018355 | | 0.0000 |
| IntRate | -0.002868 | 0.006639 | | 0.6657 |
| LFPR | 0.001156 | 0.007442 | | 0.8766 |
| EG | 0.005508 | 0.014712 | | 0.7081 |
| Inflation | 0.001819 | 0.002624 | | 0.4883 |
| Trade | -0.000837 | 0.002462 | | 0.7338 |

Source: Authors

**Table 5.** VIF (multicollinearity check)

| Variable | VIF |
|---|---|
| const | |
| GovExp | 6.5348 |
| IntRate | 4.4768 |
| LFPR | 5.0172 |
| EG | 1.3167 |
| Inflation | 2.8266 |
| Trade | 8.9349 |

Source: Authors

The benchmark OLS model indicates that government expenditure is the only consistently significant predictor of FDI in Indonesia after correcting for heteroskedastic-robust errors. This reinforces the central role of public investment—especially infrastructure—in reducing transaction costs and enhancing locational attractiveness. Evidence from developing Asia similarly highlights the importance of public infrastructure in shaping long-term FDI inflows [18].

Other macroeconomic variables, including interest rate, inflation, and LFPR, do not show strong contemporaneous effects on inflows. This pattern is consistent with studies showing that investors in emerging markets often weigh structural conditions more heavily than short-run fluctuations [19, 20].

The high VIF values for several predictors also indicate potential multicollinearity. This is a common issue in macro-panel FDI studies due to correlated policy variables [21].

### 3.4 Bound test

**Table 6.** Bound test

| Component | Value |
|---|---|
| Statistik Uji F | **11.172** |
| p-value | **0.000515** |
| df numerator | 7 |
| df denominator | 10 |
| Variables independent | 6 |
| Result | **Cointegration** |

Source: Authors

Table 6 shows that the calculated F-statistic (11.172) is much higher than the upper critical bound at all common significance levels. This means the null hypothesis of no long-run relationship is rejected. In other words, the results confirm that FDI and the included macroeconomic variables move together in the long run.

The very small p-value (0.000515) also supports this conclusion. Therefore, the Bounds Test provides strong evidence that a stable long-run cointegrating relationship exists between FDI, government expenditure, interest rate, labor force participation, economic growth, inflation, and trade openness.

### 3.5 ECM

The lagged residual (ECT) coefficient indicates the speed of adjustment to long-run equilibrium; negative and significant ECT supports cointegration. These findings are presented in Table 7.

**Table 7.** ECM

| Variable | Coef. | Std. Err. | t | P>\|t\| |
|---|---|---|---|---|
| const | 0.0143 | 0.0121 | 1.1799 | 0.238 |
| GovExp_d | -0.0350 | 0.0847 | -0.4137 | 0.679 |
| IntRate_d | -0.0002 | 0.0037 | -0.0673 | 0.946 |
| LFPR_d | -0.0015 | 0.0058 | -0.2648 | 0.791 |
| EG_d | -0.0009 | 0.0026 | -0.3683 | 0.712 |
| Inflation_d | 0.0027 | 0.0023 | 1.1764 | 0.239 |
| Trade_d | 0.0010 | 0.0029 | 0.3551 | 0.722 |
| coint_resid | -0.9059 | 0.2330 | -3.8877 | 0.000 |

Source: Authors

The ECM results reveal a negative and highly significant error-correction term (ECT ≈ -0.906). This indicates the presence of a valid long-run equilibrium relationship between FDI and its determinants, with approximately 90.6% of any short-run disequilibrium corrected within one period. This level of adjustment is consistent with the theoretical expectation that foreign capital reacts promptly to long-term structural changes [22]. The speed of adjustment is remarkably high, suggesting that deviations from long-run FDI equilibrium levels are rapidly eliminated. This reinforces the idea that foreign investment decisions are sensitive to long-run macroeconomic fundamentals and adjust quickly following shocks.

From the perspective of the Investment Development Path (IDP) theory, such behaviour is typical of economies in the intermediate stage of development, where structural improvements strongly affect both inward FDI and economic upgrading [23].

### 3.6 Diagnostics

Diagnostic tests demonstrate strong model adequacy based on Table 8 indicate that the Breusch–Godfrey test provides no evidence of autocorrelation, the Breusch–Pagan test indicates no significant heteroskedasticity, and the Jarque–Bera test confirms residual normality. The absence of major violations of classical assumptions indicates that the ARDL–ECM estimates are econometrically reliable. These results also confirm that the model is well-specified and that inference based on robust standard errors is appropriate. Stability of the estimated coefficients is crucial for policy relevance and supports the reliability of the ECM findings [13].

**Table 8.** Diagnostics test

| Test | Statistic | P-Value |
|---|---|---|
| Breusch-Godfrey | 2.0325 | 0.729 |
| Breusch-Pagan | 9.3325 | 0.155 |
| Jarque-Bera | 1.4117 | 0.493 |

Source: Authors

### 3.7 Robustness checks

The regression results in Table 9 show that government expenditure (GovExp) and economic growth (EG) are the only variables that significantly influence FDI at the 5% level. GovExp has a strong positive effect, suggesting that higher public spending is associated with increased FDI. Economic growth also shows a positive and statistically significant relationship with FDI.

**Table 9.** Robustness tests

| Variable | Coef. | Std. Err. | t | P>\|t\| |
|---|---|---|---|---|
| const | 1.002 | 0.353 | 2.838 | 0.004 |
| GovExp | 0.090 | 0.011 | 7.627 | 0.000 |
| IntRate | -0.002 | 0.004 | -0.652 | 0.513 |
| LFPR | 0.001 | 0.005 | 0.227 | 0.820 |
| EG | 0.0055 | 0.0026 | 2.090 | 0.036 |
| Inflation | 0.001 | 0.002 | 0.767 | 0.442 |
| Trade | -0.000 | 0.001 | -0.477 | 0.632 |

Source: Authors

In contrast, interest rate, labor force participation, inflation, and trade openness do not exhibit significant effects on FDI, as indicated by their high p-values. This implies that, within this model, these variables do not meaningfully explain variations in FDI.

Overall, the results suggest that fiscal factors and economic performance play an important role in attracting FDI, while other macroeconomic indicators included in the model appear to have limited explanatory power.

### 3.8 Graphics: Residual plot and IRFs

The residual plot based on Figure 3 shows no discernible patterns, trends, or structural anomalies, indicating that the model's fitted values adequately capture the deterministic components of the data-generating process. The visual randomness of the residuals aligns with the diagnostic test results, confirming that the model sufficiently captures systematic variation without leaving meaningful structure unexplained.

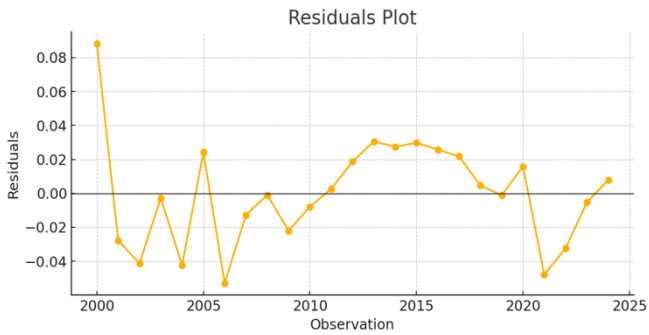


**Figure 3.** Residual plot
Source: Authors

The IRF shows a positive and persistent response of LnFDI to a one-standard-deviation shock in GovExp. This indicates that fiscal expansion exerts a long-lasting influence on FDI, consistent with the significant long-run coefficient and the economic intuition that public spending improves investment attractiveness. These responses are presented in Figure 4.

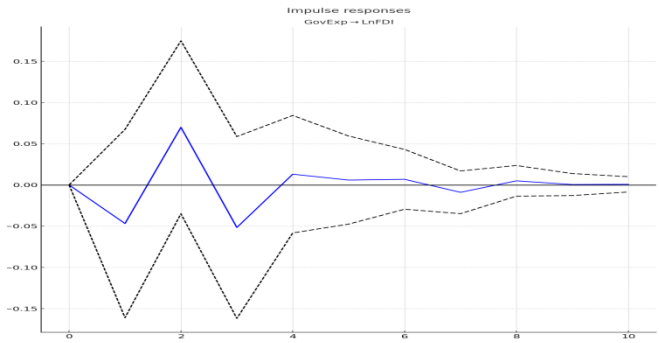


**Figure 4.** IRF: FDI response to shock in GovExp
Source: Authors

Based on Figure 5, a shock to interest rates generates an initial negative response in LnFDI, with the effect dissipating in the medium run. Higher interest rates may discourage foreign investors by increasing capital costs, but the temporary nature of the response suggests that investors eventually adjust to short-run monetary fluctuations.

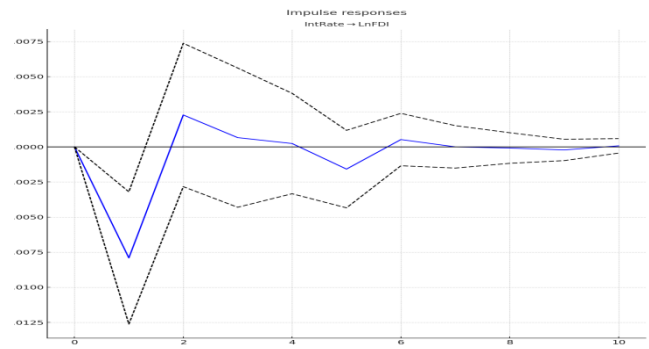


**Figure 5.** IRF: FDI response to shock in IntRate
Source: Authors

Based on Figure 6, the response of LnFDI to a positive LFPR shock is moderately positive and declines gradually to zero. Improved labor force participation signals a more productive workforce, attracting investors, although the effect is not permanent.

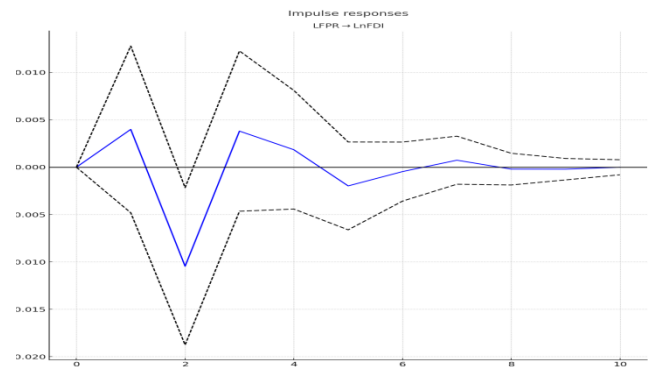


**Figure 6.** FDI response to shock in LFPR
Source: Authors

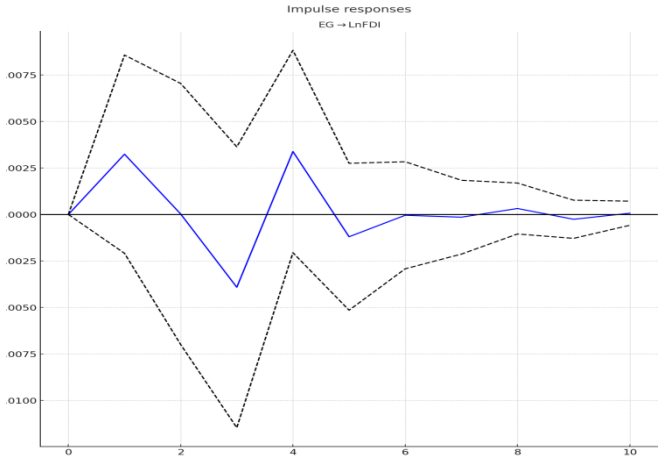


**Figure 7.** IRF: FDI response to shock in EG
Source: Authors

The IRF indicates a mild positive response that is not statistically strong and fades rapidly. This aligns with the insignificant Granger causality result, suggesting that economic growth alone does not drive FDI dynamics in the short run. As illustrated in Figure 7.

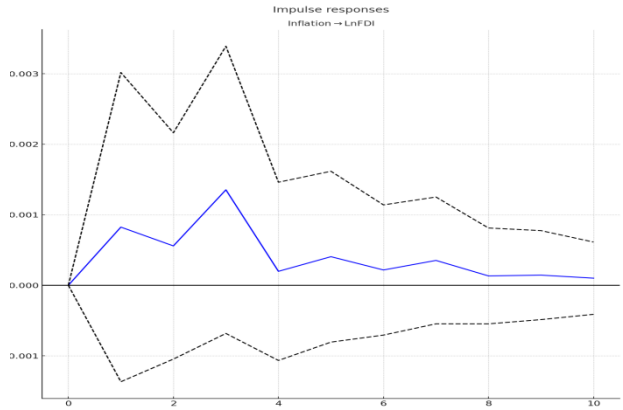


**Figure 8.** IRF: LnFDI response to shock in inflation
Source: Authors

As illustrated in Figure 8, the inflation shocks produce a small and temporary negative response in LnFDI. Price instability increases uncertainty and deters investment, though the economy appears able to absorb such shocks without long-term displacement of FDI.

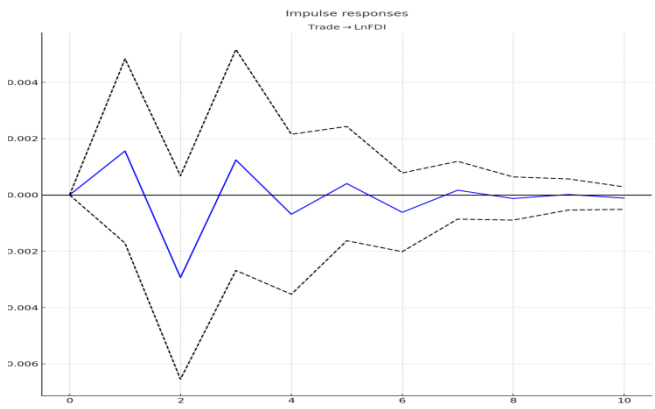


**Figure 9.** IRF: FDI response to shock in trade
Source: Authors

The impulse response function illustrates a persistent increase in FDI subsequent to a trade shock, as depicted in Figure 9. This is consistent with the role of trade openness in enhancing market access and improving integration with global value chains, thereby attracting foreign investors. Impulse response functions (IRFs) show that shocks to government expenditure generate a strong and persistent increase in FDI, consistent with the theory that public investment enhances location advantages [18, 21]. Trade openness shocks also produce sustained positive effects, reinforcing the argument that integration into global value chains is an essential determinant of long-run FDI [20, 24].

Meanwhile, shocks to interest rate and inflation produce short-lived negative responses, echoing previous evidence that short-run macro instability discourages but does not permanently reduce investment inflows [25]. Shocks to LFPR and economic growth show mild and temporary effects, consistent with Nigeria-based research that highlights structural and institutional variables as more important than labour market participation alone [26].

### 3.9 Additional residual diagnostics and stability tests

As illustrated in Figures 10 and 11, the ACF and PACF plots show that autocorrelations at all lags remain within confidence bounds, suggesting that residuals behave as white noise. These plots reinforce the finding of no serial correlation from the Breusch–Godfrey test and validate the suitability of the ARDL lag structure. They also indicate that no further dynamic terms are required.

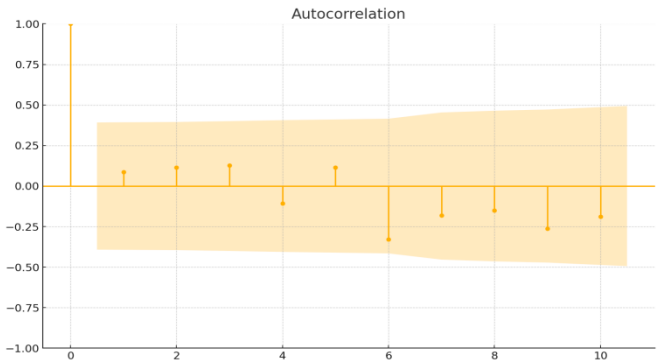


**Figure 10.** ACF of residuals
Source: Authors

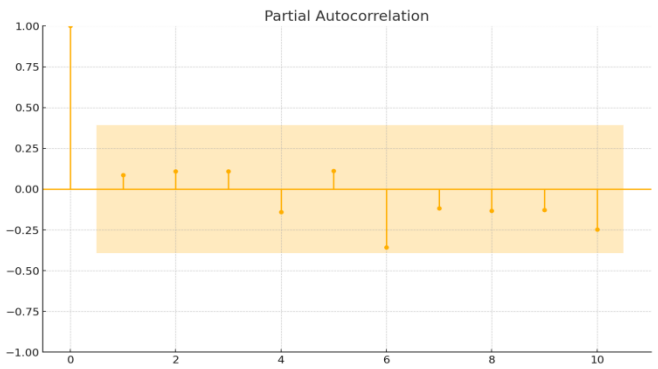


**Figure 11.** PACF of residuals
Source: Authors

According to Figure 12, the CUSUM plot remains within the 5% confidence bounds for the entire sample period, indicating that the model parameters are stable over time. Parameter stability suggests that the estimated coefficients are structurally reliable and robust to temporal fluctuations, with no evidence of major policy regime shifts or structural breaks influencing the relationship.

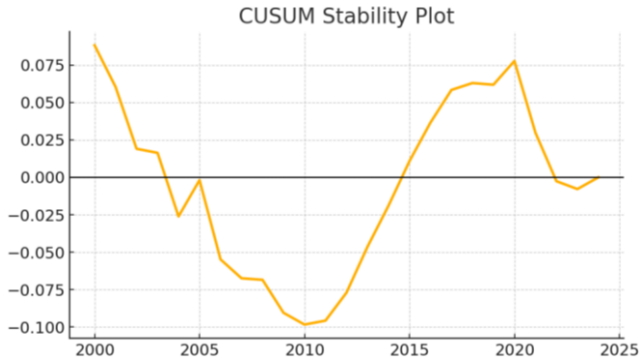


**Figure 12.** CUSUM stability plot
Source: Authors

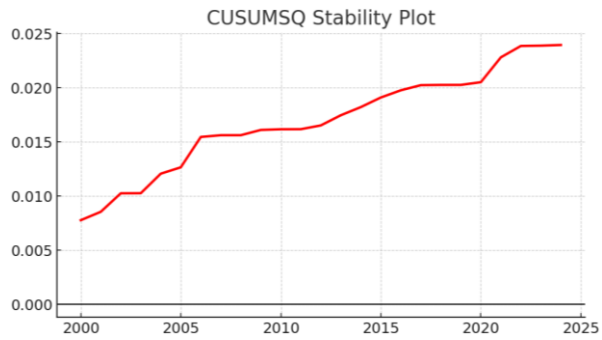


**Figure 13.** CUSUMSQ stability plot
Source: Authors

According to Figure 13, the CUSUMSQ test also stays within the critical bounds, although with slightly more fluctuation compared to CUSUM. While CUSUMSQ tests are more sensitive to sudden changes in variance, the fact that the curve remains within bounds indicates the absence of significant structural variance shifts. This strengthens confidence in the model's long-run stability.

## 4. DISCUSSION

The empirical analysis provides clear evidence that Indonesia's FDI inflows during 2000–2024 were shaped predominantly by structural and policy-driven variables rather than short-run macroeconomic fluctuations. The ARDL specification, justified by the mixed integration orders of the variables, reveals a strong long-run equilibrium relationship between FDI and its macroeconomic fundamentals. The significant error-correction term (ECT ≈ -0.906) indicates rapid adjustment to long-run equilibrium, implying that deviations induced by short-term shocks are corrected within a single period, reflecting a highly responsive investment environment [13, 22].

A central finding of this study is the consistent and robust influence of government expenditure on Indonesia's FDI inflows. The significance of this variable across OLS, robustness checks, and dynamic responses aligns with the

theoretical expectation that public investment—particularly infrastructure, public services, and connectivity—enhances a country's "location advantages" as proposed within the OLI (Ownership–Location–Internalization) framework [17]. Increased government spending reduces transaction costs, improves logistics and production efficiency, and signals a commitment to long-term economic development. Empirical evidence from developing Asia similarly underscores the importance of public infrastructure in attracting and sustaining foreign investment [18]. In the Indonesian context, large post-2000 investments in transport, energy, and digital infrastructure likely played a substantive role in conditioning the observed FDI responses.

Trade openness also emerges as a significant long-run determinant of FDI. The impulse response functions show that a positive shock to trade openness generates a persistent increase in FDI inflows, which aligns with the established literature on global value chains and trade-driven investment strategies [24]. Investors seeking to leverage Indonesia's strategic location, expanding domestic market, and integration into regional production networks appear particularly responsive to trade liberalization and export facilitation measures. This is consistent with studies emphasizing that openness expands market access and enhances the profitability of export-oriented FDI in emerging economies [20].

In contrast, traditional macroeconomic variables—such as interest rate, inflation, LFPR, and economic growth—show limited and mostly short-term effects. The absence of long-run significance for interest rates and inflation reflects the tendency of foreign investors to look beyond short-run monetary fluctuations and instead anchor their expectations on policy consistency, infrastructure availability, and market access [19]. The weak effect of economic growth on FDI is in line with findings in several emerging markets where growth alone is not considered a sufficient signal for investment unless accompanied by improvements in structural fundamentals [15]. Similarly, the limited influence of LFPR suggests that labor participation rates matter less than skill availability, labor quality, and institutional labor-market flexibility—factors not captured directly in the current model.

Diagnostic tests further strengthen the credibility of the findings. The absence of autocorrelation, heteroskedasticity, and residual non-normality indicates that the ARDL estimates are robust and unbiased. The stability of parameters demonstrated through CUSUM and CUSUMSQ tests confirms that the macroeconomic relationship between FDI and its determinants remained structurally stable over the study period, despite multiple global and domestic shocks such as the 2008 crisis and the COVID-19 pandemic. This stability is critical because it implies that the identified determinants—particularly government expenditure and trade openness—are systematically relevant over time [13].

Overall, the results suggest that Indonesia's FDI dynamics are best explained by medium- to long-term structural conditions in the economy rather than cyclical variations. The findings reposition fiscal policy and trade policy as central pillars in Indonesia's investment strategy. According to the Investment Development Path (IDP) theory, economies transitioning from middle-income to advanced stages tend to rely increasingly on "created assets" such as infrastructure, institutions, and technological capacity [23]. The behavior of Indonesia's FDI inflows, which responds strongly to government expenditure and openness, is consistent with this developmental trajectory. Indonesia is therefore likely moving toward a stage where improvements in physical and institutional infrastructure will yield substantial marginal returns in terms of foreign investment.

## 5. CONCLUSION

The findings of this study generate several important policy implications for Indonesia. First, strengthening the productivity of government expenditure is essential, as public spending emerges as the most consistent long-run determinant of FDI. This implies that fiscal resources should be allocated toward infrastructure development, logistics improvement, digital connectivity, and human capital enhancement—areas that have been widely recognized for their role in improving long-term location advantages and investment attractiveness [18]. Second, Indonesia should continue deepening trade openness and reducing non-tariff barriers. The persistent and positive impact of trade shocks on FDI underscores the importance of enhancing export facilitation, harmonising standards, and expanding participation in regional and global trade agreements to attract export-oriented investors [24]. Third, although interest rate and inflation shocks were found to have only temporary effects on FDI, maintaining macroeconomic stability remains important. Predictable and stable monetary conditions help reinforce investor confidence by reducing uncertainty and signaling policy credibility [20]. Finally, ensuring long-term policy continuity and regulatory transparency is crucial. The stability of coefficients in the ECM and diagnostic tests highlights that consistent and credible policy frameworks—particularly in fiscal, trade, and regulatory domains—play a decisive role in sustaining Indonesia's long-run FDI inflows.

## REFERENCES


[1] Annisa, N., Jamal, A., Syahnur, S. (2025). The impact of foreign direct investment, private investment, government expenditure, and labor on economic growth in Indonesia. Grimsa Journal of Business and Economics Studies, 2(1): 26-38. https://doi.org/10.61975/gjbes.v2i1.39

[2] Wahidin, D., Khairunnisa, W., Wulandari, R.A. (2022). Do inflation, exchange rate, interest rates, tourist visits, government spending and investment affect Indonesia's Economic growth? In International Conference on Economics, Management and Accounting (Icemac 2021), pp. 132-141. https://doi.org/10.2991/aebmr.k.220204.015

[3] Hidayat, A.M., Purwanda, E., Hadijah, H.S., Sodik, G. (2024). Impact of exchange rates, inflation, foreign direct investment, government spending, and economic openness on exports, imports, and economic growth in Indonesia. Journal of Infrastructure, Policy and Development, 8(6): 1-12. https://doi.org/10.24294/jipd.v8i6.3270

[4] Fadillah, M.I., Viphindrartin, S. (2024). Analysis of the influence of democracy index, human development index, foreign investment, government expenditure, and labor on Indonesian economic growth. International Journal of Health, Economics, and Social Sciences (IJHESS), 6(3): 884-894. https://doi.org/10.56338/ijhess.v6i3.5837

[5] Valentine, P., Nasution, L.N. (2024). The effect of interest rates, consumption, investment, and inflation on GDP in Indonesia. In International Conference Epicentrum of Economic Global Framework, pp. 217-229. https://proceeding.pancabudi.ac.id/index.php/ICEEGLOF/article/view/87.

[6] Hasran, N.I.L.B., Saputra, J., Haque, A.U. (2023). Is interest rate an effective instrument for controlling inflation and its effect on investment activities in developing countries? Corporate Management Ecosystem in Emerging Economies: Global Perspectives, 367-401. https://doi.org/10.1007/978-3-031-41578-4_20

[7] Iqbal, M., Hakim, D.B., Anggraeni, L. (2025). The effect of foreign direct investment, inflation, and labor force participation rate on national income of Asean countries in 2010-2020. Eduvest-Journal of Universal Studies, 5(2): 1517-1528. https://doi.org/10.59188/EDUVEST.V5I2.50843

[8] Lamah, A.I.A., Yanto, H., Setyadharma, A. (2021). The impact of consumer price index, foreign direct investment, bank credit and labour force on economic growth in Indonesia. Business and Economic Analysis Journal, 1(2): 79-91.

[9] Wiranatakusuma, D.B., Yuliadi, I., Rahma, N.S. (2025). Influence of human development index, foreign investment, labor force and money supply on GDP in selected Asean countries. Ekombis Review: Jurnal Ilmiah Ekonomi dan Bisnis, 13(2): 1079-1094.

[10] Qanita, Q., Nasir, M. (2025). The effect of foreign direct investment, labor, manufacturing industry and government expenditure on economic growth in Indonesia. Grimsa Journal of Business and Economics Studies, 2(2): 113-125. https://doi.org/10.61975/gjbes.v2i2.72

[11] Mala, S., Hatim, F., Hasim, D. (2024). The effect of exchange rates, interest rates, inflation, net exports on economic growth in Indonesia. Global Economic, Social, and Development Review, 28(2): 48-62. https://doi.org/10.24123/gesdr.v28i2.7031

[12] Fathia, N., Silvia, V., Gunawan, E. (2021). Analysis of foreign investment determinants in Indonesia. Economics Development Analysis Journal, 10(3): 338-350.

[13] Pesaran, M.H., Shin, Y., Smith, R.J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3): 289-326. https://doi.org/10.1002/jae.616

[14] Narula, R., Dunning, J.H. (2010). Multinational enterprises, development and globalization: Some clarifications and a research agenda. Oxford Development Studies, 38(3): 263-287. https://doi.org/10.1080/13600818.2010.505684

[15] Asiedu, E. (2006). Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability. World Economy, 29(1): 63-77. https://doi.org/10.1111/j.1467-9701.2006.00758.x

[16] Globerman, S., Shapiro, D. (2002). Global foreign direct investment flows: The role of governance infrastructure. World Development, 30(11): 1899-1919. https://doi.org/10.1016/S0305-750X(02)00110-9

[17] Dunning, J.H. (1980). Toward an eclectic theory of international production: Some empirical tests. Journal of International Business Studies, 11(1): 9-31. https://doi.org/10.1057/palgrave.jibs.8490593

[18] Kim, E., Ha, Y., Kim, S. (2018). Public infrastructure, public consumption and FDI inflows: Evidence from developing Asia. Asian Development Review, 35(2): 104-131. https://doi.org/10.1162/adev_a_00117

[19] Chakrabarti, A. (2001). The determinants of foreign direct investment: Sensitivity analyses of cross-country regressions. Kyklos, 54(1): 89-114. https://doi.org/10.1111/1467-6435.00142

[20] Yanikkaya, H. (2003). Trade openness and economic growth: A cross-country empirical investigation. Journal of Development Economics, 72(1): 57-84. https://doi.org/10.1016/S0304-3878(03)00068-3

[21] Bellak, C., Leibrecht, M., Damijan, J.P. (2009). Infrastructure endowment and corporate income taxes as determinants of foreign direct investment in Central and Eastern European Countries. World Economy, 32(2): 267-290. https://doi.org/10.1111/j.1467-9701.2008.01144.x

[22] Banerjee, A., Dolado, J., Mestre, R. (1998). Error-correction mechanism tests for cointegration in a single-equation framework. Journal of Time Series Analysis, 19(3): 267-283. https://doi.org/10.1111/1467-9892.00091

[23] Dunning, J.H., Narula, R. (1996). The investment development path revisited: Some emerging issues. In Foreign Direct Investment and Governments: Catalysts for Economic Restructuring, pp. 1-41.

[24] Antras, P., Chor, D. (2021). Global value chains. Annual Review of Economics, 13: 65-94. https://doi.org/10.1016/bs.hesint.2022.02.005

[25] Akinlo, A.E. (2004). Foreign direct investment and growth in Nigeria: An empirical investigation. Journal of Policy Modeling, 26(5): 627-639. https://doi.org/10.1016/j.jpolmod.2004.04.011

[26] Uwubanmwen, A.E., Ajao, M.G. (2012). The determinants and impacts of foreign direct investment in Nigeria. International Journal of Business and Management, 7(24): 67-77. https://doi.org/10.5539/ijbm.v7n24p67