The Effect of Budget Deficit, Foreign Direct Investment, and Human Development Index on Asean-5 Economic Growth

Ariski Aria Admaja[1*)], Feny Marissa[2]; Abdul Bashir[3]
ariskiariaadmaja23@gmail.com[1]; fenymarissa@fe.unsri.ac.id[2];
abd.bashir@unsri.ac.id[3]
Universitas Sriwijaya, Indonesia[1,2,3]

Abstrak

- **Tujuan:** Penelitian ini bertujuan untuk menganalisis pengaruh defisit anggaran, penanaman modal asing (PMA), dan Indeks Pembangunan Manusia (IPM) terhadap pertumbuhan ekonomi di negara ASEAN-5 (Indonesia, Malaysia, Thailand, Vietnam, dan Filipina).

- **Desain/metodologi/pendekatan:** Penelitian menggunakan data sekunder periode 2014–2023 dengan metode regresi data panel. Estimasi dilakukan menggunakan pendekatan Fixed Effect Model (FEM) untuk menguji pengaruh variabel independen terhadap pertumbuhan ekonomi.

- Temuan: Hasil penelitian menunjukkan bahwa defisit anggaran, PMA, dan IPM secara parsial maupun simultan berpengaruh positif dan signifikan terhadap pertumbuhan ekonomi di kawasan ASEAN-5.

- **Batasan penelitian/dampak:** Penelitian ini terbatas pada periode waktu 2014–2023 dan hanya mencakup lima negara ASEAN, sehingga hasilnya tidak dapat digeneralisasi ke seluruh kawasan Asia Tenggara. Studi lanjutan disarankan untuk memperluas variabel dan cakupan negara agar diperoleh pemahaman yang lebih komprehensif.

- **Implikasi praktis:** Temuan ini menekankan pentingnya kebijakan fiskal yang efektif, peningkatan iklim investasi yang kompetitif, serta pengembangan sumber daya manusia sebagai strategi pembangunan berkelanjutan di ASEAN.

- **Jenis makalah:** Makalah penelitian

Kata Kunci: Pertumbuhan ekonomi; defisit anggaran; penanaman modal asing; indeks pembangunan manusia.

Abstract

- *Purpose: This study aims to analyze the effects of budget deficit, foreign direct investment (FDI), and the Human Development Index (HDI) on economic growth in the ASEAN-5 countries (Indonesia, Malaysia, Thailand, Vietnam, and the Philippines).*
- *Design/methodology/approach: The study employs secondary data covering the period 2014–2023 and applies panel data regression methods. The estimation is conducted using the Fixed Effect Model (FEM) to examine the impact of the independent variables on economic growth.*
- *Findings: The results indicate that budget deficit, FDI, and HDI, both individually and simultaneously, have a positive and significant effect on economic growth in the ASEAN-5 region.*
- *Research limitations/implications: The study is limited to the 2014–2023 period and only covers five ASEAN countries; therefore, the findings cannot be generalized to the entire Southeast Asian region. Future research is recommended to expand the variables and country coverage to gain a more comprehensive understanding.*
- *Practical implications: The findings highlight the importance of effective fiscal policies, the promotion of a competitive investment climate, and the development of human resources as key strategies for sustainable development in ASEAN.*
- *Paper type: Research paper*

Keywords: Economic Growth; Budget Deficit; Foreign Direct Investment; Human Development Index.

Introduction

ASEAN, as a region with rapid economic growth, offers opportunities for its member states to improve the socio-economic well-being of their communities. By strengthening regional connectivity, ASEAN encourages infrastructure development, communications, and the mobility of people, goods, and services. Cooperation in education, research, and technology is also being enhanced to reduce development disparities and promote equitable prosperity (Gayatri, 2023). On the other hand, the post-COVID-19 economic recovery still faces global challenges, including conflicts that disrupt supply chains and slow economic growth. In this situation, proper budget management is crucial. However, rampant corruption practices result in ineffective and misdirected state spending. (Widianita, 2023).

The global financial crisis in 2008 had a major impact on economic growth in many countries. Many countries faced recession due to weakening global demand, declining investment, and rising unemployment (Masserini et al., 2024). Countries in Europe, Latin America and Asia have been heavily impacted by the global financial crisis. In 2020, economic growth in the region bottomed out due to the COVID-19 pandemic. Lockdowns and large-scale social restrictions (PSBB) in many countries significantly suppressed economic activity. In addition, the pandemic has created high uncertainty among businesses, both large and small companies. This

uncertainty encourages investors to be more cautious in making decisions, which in turn reduces capital flows to various sectors (Torres-Favela & Luna, 2024).

In times of crisis, budget deficits take center stage, making difficult fiscal policy decisions even more confusing. Due to its prominence as a topic of debate in the context of stimulating economic development throughout the business cycle, budget deficits (or surpluses) require careful examination (Sawitri, 2006).

Foreign Direct Investment (FDI) plays an important role in driving economic growth especially in ASEAN countries. FDI flows not only increase productivity through the adoption of new technologies and modern management practices but also open up employment opportunities in key sectors such as manufacturing, technology, and infrastructure. In addition, foreign investment contributes to the development of physical and digital infrastructure that is crucial for long-term economic growth. However, the effectiveness of FDI is highly dependent on the recipient country's ability to manage the investment optimally including through policies that support the investment climate, encourage efficient technology transfer, and strengthen domestic capacity through the utilization of foreign investment (Marthen et al., 2024).

Mankiw (2008) asserts that improving the quality of human capital can facilitate the advancement of Human Capital. Education is just one aspect of human capital, which further includes a wide array of expenditures aimed at improving public health. The development of a region largely depends on its education and healthcare systems. An optimal life can only be achieved through education, with health as the cornerstone of human progress. For developing countries to achieve sustainable economic progress, education is crucial in improving their capacity to embrace and use new technologies (Bastias, 2010). Korten's (1987) theory of the human-focused development paradigm suggests that poverty alleviation and the liberation of the global population from impoverishment can be achieved by prioritizing human development, particularly people-centered development. This style of development prioritizes individuals' competence on their knowledge and skills, aiming to transform them into active contributors to the development process, rather than passive recipients (Regina et al., 2020).

Several previous studies have discussed the dynamics of the global economic crisis and its impact on growth, but they are limited in examining how a country's internal capacity particularly the quality of public spending influences economic resilience and recovery. Masserini et al. (2024) show that the 2008 global financial crisis triggered an economic slowdown across various regions, but these studies have not examined the role of domestic fiscal policy in mitigating the impact of the crisis. Similarly, Torres-Favela and Luna (2024) note that the COVID-19 pandemic created uncertainty that reduced investment flows, but have not yet examined strategies for strengthening fiscal institutions in developing countries. On the other hand, Marthen et al. (2024) highlight the importance of FDI in economic growth, but tend to view it linearly, without considering mediating variables such as the effectiveness of state budget allocations and the quality of public governance. Several other studies also tend to focus on FDI volume and macro-growth indicators (Wijeweera & Mounter, 2020; Nguyen & Nguyen, 2021), without explaining the conditions that enable FDI to generate sustainable positive spillovers. There is also tension between economic growth-based development approaches and human

development approaches. Although the people-centered development approach has been widely supported (Bastias, 2010; Ranis & Stewart, 2015), its implementation has received little attention in macroeconomic policy, particularly in the management of public expenditure and alignment with foreign investment. A study by Tregenna (2015) shows that public spending not directed at productive sectors tends to fail to generate long-term effects, while Pradhan et al. (2020) confirm that strengthening human capital plays a crucial role in bridging FDI and inclusive growth. However, the interrelationships between the three—public spending, FDI, and human development—are rarely studied simultaneously in the context of developing countries, particularly in the ASEAN region.

Therefore, this study is novel in filling this gap by integratively examining the role of public spending quality and FDI effectiveness in promoting human development as a foundation for sustainable economic growth. To date, there are still few studies that combine these three elements into a coherent analytical framework, particularly in the context of developing countries following the global crisis and pandemic. This study is expected to provide empirical and conceptual contributions to the design of more inclusive and humane fiscal policies and foreign investment strategies.

Literature review and hypothesis development

Keynes' Theory of Economic Growth

John Maynard Keynes proposed the Keynesian theory of economic development in 1930. It emphasizes the importance of aggregate demand on employment and national production in the near term. The theory highlights the important role of government in managing and regulating economic activity. According to Keynes, during a recession, private consumption and investment tend to decline so the government must take active steps by increasing spending through fiscal policy. This policy involves managing state finances (Meiriza et.al., 2024). In addition, Keynes also said that fiscal policy can be utilized to promote economic growth by increasing government spending or reducing taxes, which has a multiplier effect by stimulating increased demand for household consumption goods (Aruan, 2023).

In this theory, Keynes explained that budget deficits are influenced by various factors, including high unemployment rates and difficulties in servicing economic debt. In the Keynesian view, a budget deficit is considered to have a positive impact if it is able to stimulate economic growth in a country. In other words, a well-managed budget deficit can be a tool to increase economic activity through increased government spending. When the unemployment rate is high, the government is advised to increase spending to create more jobs.

Classical and Neoclassical Economic Literature

Economic growth in classical and neoclassical economic literature is largely explained through the accumulation of capital, labor, and productivity. Neoclassical growth theory (Solow, 1956) emphasizes the importance of physical investment in driving long-term output, but places technology as an exogenous factor. In this

context, investments such as Foreign Direct Investment (FDI) become important instruments for accelerating growth through technology transfer and productivity improvements (Borensztein et al., 1998). However, this approach has been criticized for ignoring the role of domestic institutions and the quality of government spending in optimizing returns from foreign investment. Endogenous growth theory (Romer, 1990; Lucas, 1988) then emphasizes the importance of human capital accumulation, innovation, and government policies as internal determinants of economic growth. From this perspective, the role of public spending particularly in the education, health, and infrastructure sectors is considered strategic for creating sustainable long-term growth.

However, the existing literature tends to be fragmented. Studies on FDI and growth tend to focus on the quantity of capital flows and macroeconomic output, while studies on human development are more isolated within the social studies space. This creates a gap in the literature, with little research examining in an integrated manner how the quality of public spending can strengthen the effect of FDI on inclusive and sustainable growth. For example, Wijeweera & Mounter (2020) found that the effect of FDI is inconsistent in developing countries due to weak public institutions, while Tregenna (2015) emphasized that the effectiveness of public spending is more important than its size. This study aims to fill this gap with an integrative approach that combines the perspectives of endogenous growth, fiscal effectiveness, and human development, particularly in the context of developing countries in the ASEAN region following the global crisis and pandemic.

Hipotesis

Based on endogenous growth theory and previous empirical findings, this study hypothesizes that budget deficits, foreign direct investment, and the human development index influence economic growth in ASEAN-5 countries. Budget deficits, if managed productively, are expected to stimulate economic growth, especially during crises. Meanwhile, FDI inflows are expected to have a positive impact through technology transfer and job creation. Furthermore, the human development index (HDI), which reflects the quality of education, health, and living standards, is thought to strengthen a country's productive and innovative capacity, thus encouraging sustainable economic growth. Therefore, this study empirically examines how these three variables influence economic growth in ASEAN-5 countries.

- H1: Budget deficits have a significant impact on economic growth in ASEAN-5 countries.
- H2: Foreign Direct Investment (FDI) has a significant impact on economic growth in ASEAN-5 countries.
- H3: The Human Development Index (HDI) has a significant impact on economic growth in ASEAN-5 countries.

Research Method

Scope

The countries studied in this study are ASEAN-5 countries from 2014-2023 with the aim of analyzing the effect of budget deficits, foreign direct investment and human development index on economic growth in the two countries obtained data from the World Bank, United Nations Development Programme, Country Economy in numbers.

Types and Sources of Research

This study uses a quantitative approach with a panel data model to examine the effect of budget deficits, Foreign Direct Investment (FDI), and the Human Development Index (HDI) on economic growth in ASEAN-5 countries over a period of [years]. Three regression models were used: Pooled Least Squares (PLS), Fixed Effects Model (FEM), and Random Effects Model (REM). To determine the best model, a Chow test (PLS vs. FEM) and a Hausman test (FEM vs. REM) were performed. The test results indicated that the FEM model was more appropriate than the other two models. The selection of the Fixed Effects Model (FEM) was based on the characteristics of the data and the research objectives. This model allows for control of unobservable but time-invariant individual heterogeneity between countries, such as institutional factors, economic structure, or national policies that are not directly measured. In the ASEAN-5 context, each country has unique fiscal characteristics, bureaucratic capacity, and social structure, making the FEM more capable of accurately capturing the specific effects of each entity (Baltagi, 2008).

The type of data in this study is quantitative data that is numerical and has a time span. The data in this study is data that researchers get from the second party (secondary) or data that has been collected and compiled directly and published to the public which is certainly done by authorized and credible institutions.

Analysis Technique

The analysis technique used in this research is the Panel Data Regression Analysis method. Panel data is a combination of time series and cross section data. This study uses the EViews 12 program as a tool in analyzing data. The model equation in this study is as follows:

$$PE_{it} = \beta_0 + \beta_1 DA_{it} + \beta_2 IAL_{it} + \beta_3 IPM_{it} + \varepsilon$$

Figure 1. Economic Growth in the i-th country in year t (Percent)

Where:
PE_{it} : Economic Growth in the i-th country in year t (Percent)
DA_{it} : Variable Budget Deficit in the i-th country in year t (Billion US$)
IAL_{it} : Variable Foreign Direct Investment in the i-th country in year t (Billion US$)
HDI_{it} : Human Development Index variable in the i-th country in year t (Percent)

β_0 : Constant
$\beta_1, \beta_2, \beta_3$: Coefficient of independent variables
ε : Error
I : Number of Cross section (ASEAN-5 Countries)
t : Time period (2014-2023)

There is a significant unit difference in the model used, namely economic growth in percent but the data is negative so it must be absolved (abs (economic growth variable)) and the human development index in percent while the budget deficit is in billions but the data is negative so it must be absolved such as ln (abs (budget deficit variable)) and foreign direct investment in billion US dollars. So in this study will use a semi-Log model.

According to Nachrowi (2018) semi-Log is a model in which only one variable appears in logarithmic form. The semi-Log model is the result of a logarithmic transformation of a non-linear model. Semi-Log model transformation is only carried out on the dependent variable only or the independent variable only. Based on the principle of semi-Log transformation, the semi-Log model has two types of models, namely:
1. Log-Lin model, which is a model formed because the dependent variable (Y) is transformed into logarithmic form, while the independent variable (X) is not transformed or remains in linear form.
2. Lin-Log model, which is a model formed because the independent variable (X) in the study is transformed into logarithmic form, while the dependent variable (Y) remains in linear form.

Therefore, this study uses the Lin-Log model, with the following research model transformation:

$$PE_{it} = \beta_0 + \beta_1 lnDA_{it} + \beta_2 lnIAL_{it} + \beta_3 IPM_{it} + \varepsilon$$

Figure 2. Economic Growth in the i-th country in year t (percent)

Description:
PE_{it} : Economic Growth in the i-th country in year t (percent)
DA_{it} : Natural logarithm of the variable Budget Deficit in the i-th country in year t (billion US$)
IAL_{it} : Natural logarithm of Foreign Direct Investment variable in the i-th country in year t (billion US$)
HDI_{it} : Human Development Index in the i-th country in year t (percent)
ε : Error
i : Total cross section (ASEAN-5 countries)
t : Time period (2014-2023)

Result and discussion

Descriptive Statistical Analysis
Unit Root Test

Here are the unit root test results from the data I used:

Table 1. Unit Root Test Results

Variables	Unit Root Test	Methods	Statistic	Prob.**
PE	Level	*ADF - Fisher Chi-Square*	9.68711	0.4684
		PP - Fisher Chi-square	14.5434	0.1496
	1st difference	*ADF - Fisher Chi-square*	22.0973	0.0146
		PP - Fisher Chi-square	37.7351	0.0000
LN_DA	Level	*ADF - Fisher Chi-square*	9.09224	0.5234
		PP - Fisher Chi-square	15.1274	0.1275
	1st difference	*ADF - Fisher Chi-square*	16.9298	0.0759
		PP - Fisher Chi-square	41.3206	0.0000
	2nd difference	*ADF - Fisher Chi-square*	22.9550	0.0109
		PP - Fisher Chi-square	65.4497	0.0000
LN_IAL	Level	*ADF - Fisher Chi-square*	10.3355	0.4116
		PP - Fisher Chi-square	24.9112	0.0055
	1st difference	*ADF - Fisher Chi-square*	18.5923	0.0458
		PP - Fisher Chi-square	49.0282	0.0000
IPM	Level	*ADF - Fisher Chi-square*	14.8345	0.1382
		PP - Fisher Chi-square	36.2233	0.0001
	1st difference	*ADF - Fisher Chi-square*	13.0898	0.2187
		PP - Fisher Chi-square	40.5649	0.0000
	2nd difference	*ADF - Fisher Chi-square*	44.2031	0.0000
		PP - Fisher Chi-square	71.0217	0.0000

Source: Data processed by Eviews (2024)

Based on Table 1, it can be seen that the results of the unit root test using panel data in this study. These results show that the unit root test at the 2nd difference level is the budget deficit variable with a coefficient value of 22.9550 and a probability of 0.0109 and a human development index with a coefficient of 44.2031 and a probability of 0.0000. Then the other variables are tested based on the 1st difference, the results show that the variables of economic growth and foreign direct investment are stationary, because they have statistical values and probabilities less than 0.05.

Panel Data Regression Model Estimation Results

In panel data regression testing, there are several models that need to be tested to select the most suitable model used in this study. The three tests used for model specification are the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test. The following are the results of the estimation model selection:

1.   Chow Test

In this chow test, it is conducted to determine the best model between the Common Effect Model (CEM) or the Fixed Effect Model (FEM). The following are the results of the chow test with Redundant Fixed Effect - Likelihood Ratio:

Table 2. Chow test

Model Tests	Chi-Square Probability	Significance Value	Description
Chow Test	0.0000	0.05	*Fixed Effect Model*

Source: Data processed by Eviews (2024)

From the Chow Test analysis results above, the probability value on the cross-section F is 0.0000, which means 0.0000 <0.05 or smaller than the significance level. Therefore, H1 is accepted, which means that the FEM model is selected. Since the FEM model is selected, the test proceeds to the Hausman Test.

2.   Hausman Test

The Hausman test is conducted to determine the best model between the Random Effect Model (CEM) or the Fixed Effect Model (FEM). The following are the results of the Hausman test in this study using the Correlated Random Effect - Hausman Test:

Table 3. Hausman Test

Model Tests	Chi-Square Probability	Significance Value	Description
Hausman Test	0.0350	0.05	*Fixed Effect Model*

Source: Data processed by Eviews (2024)

The Hausman test results above show that the probability value is 0.0350, which means 0.0350 <0.05 or it can be said that the probability value is smaller than the significance level. Based on these results, H0 is rejected, which means that the more appropriate model used in this study is the FEM model.

Residual Diagnosis

1.   Normality Test

Based on the results of the normality test in Figure 1, it is known that the probability obtained is 0.675987> 0.05, which means that it can be said that the data is normally distributed.

Figure 3. Normality Test Results
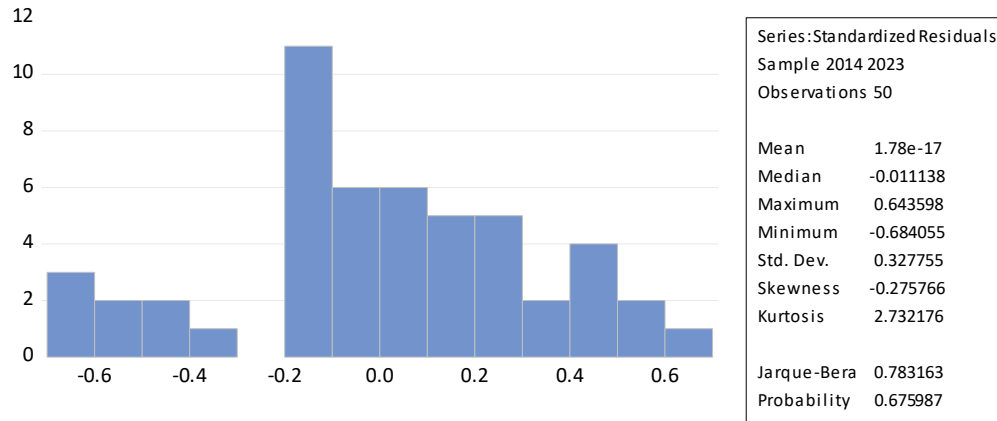
Source: Data processed with Eviews (2024)

2.   Autocorrelation Test

Table 4. Autocorrelation Test Results

Durbin-Watson stat	1.953049

Source: Data processed with Eviews (2024)

Based on the results of autocorrelation through Durbin-Watson in Table 4, it can be seen that the value obtained is 1.95, which means that there is no autocorrelation problem based on the value of -2 to 2.

3.   Inter-variable Coefficient Results

Table 5. Inter-variable Coefficient Results

	LN_DA	LN_IAL	IPM
LN_DA	1.000000	-0.025880	0.049290
LN_IAL	-0.027519	1.000000	0.120203
IPM	0.049290	0.120203	1.000000

Source: Data processed by Eviews (2024)

In Table 5, the inter-variable coefficient results show that the coefficient of determination of each variable is <0.85. This indicates that there is no significant inter-variable coefficient between the variables in the panel data regression model.

4.   Heteroscedasticity Test

In the heteroscedasticity test if the significance value between the independent variable and the absolute is greater than 0.05, there is no heteroscedasticity problem.

Table 6. Heteroscedasticity Test

Variables	Probability	Decision
LN_DA	0.6356	Heteroscedasticity Free
LN_IAL	0.9300	Heteroscedasticity Free
IPM	0.3997	Heteroscedasticity Free

Source: Data processed by Eviews (2024)

In Table 6, the results of the heteroscedasticity test show that the probability value of each variable standing for the constant, budget deficit, foreign direct investment, and human development index is greater than 0.05, so there is no heteroscedasticity problem in the regression model in ASEAN countries.

Regression Test Results

Regression for the FEM model was conducted using Eviews to calculate the three independent variables. The following panel regression model estimation results for ASEAN countries can be seen in Table 7.

Table 7. Results of FEM Regression Test

Variables	Coefficient	Probability
C	-12.18492	0.0140
LN_DA	0.145073	0.0190
LN_IAL	0.191425	0.0212
IPM	17.42016	0.0094

Source: Data processed by Eviews (2024)

Table 7 shows the regression test results for the research model using the Fixed Effect Model (FEM) conducted with independent and dependent variables, and using cross-section data from 5 ASEAN countries. Based on the regression test results with the FEM model, a panel data linear regression equation is obtained, namely:

Panel Data Linear Regression Analysis

PE= -12.18492 + 0.145073LN_DA + 0.191425LN_IAL + 17.42016IPM + ε
The following is an analysis of the regression equation
1. The constant value of -12.18492 indicates that if DA (budget deficit), IAL (foreign direct investment), and HDI (human development index) are 0, then the PE (economic growth) variable is worth -12.18492.
2. The regression coefficient of the budget deficit variable (DA) of 0.145073 has a positive effect, meaning that every 1% increase in the budget deficit will reduce the value of economic growth (PE) in ASEAN-5 countries by 0.145073%, assuming other independent variables are constant.
3. The regression coefficient of the foreign direct investment (IAL) variable of 0.191425 has a positive effect, in other words, every 1% increase in foreign direct

investment will reduce the value of economic growth (PE) in ASEAN-5 countries by 0.191425%, assuming other independent variables are constant.
4. The regression coefficient of the human development index variable (HDI) of 17.42016 has a positive effect, meaning that every 1% increase in foreign direct investment will reduce the value of economic growth (PE) in ASEAN-5 countries by 17.42016%, assuming other independent variables are constant.

Statistical Test

This test consists of F test, t test, and coefficient of determination (R^2), with regression estimation using FEM as follows:

1.   F test

The F test results show a significant difference between the dependent and independent variable groups, which can be seen in Table 8.

Table 8. F Test Results

F-count	F Table	Probability (F Statistic)
13.84213	2.806844929	0.000000

Source: Data processed by Eviews (2024)

The results of F statistical testing show that all independent variables have a significant influence on the dependent variable. This is because the F-statistic value is 0.000000 or below alpha 0.05 and F Count (13.84213) is greater than F Table (2.806844929).

2.   T test

The t test is used to test whether the regression coefficient of an independent variable is significant individually or in groups and to determine the significance of the effect of the independent variable on the dependent variable. The t test results of this study can be seen in Table 9.

Table 9. t-test results

Variables	t-Statistic	Probability	Description
LN_DA	2.439423	0.0190	Significant
LN_IAL	2.393480	0.0212	Significant
IPM	2.723604	0.0094	Significant

Source: Data processed by Eviews (2024)

Table 9 shows the results of statistical tests using the t test with a significance level of 5 percent, which results in a t table value of 2.010634758. This value illustrates the effect of the independent variables on the dependent variable. The panel data regression test results with the FEM model show the following t-test results:

1) The t test results on the Budget Deficit (DA) variable individually have a significant effect on the Economic Growth variable because it has a probability of 0.0190 below alpha 0.05.
2) The results of the t test on the Foreign Direct Investment (IAL) variable individually have a significant effect on the Economic Growth variable because they have a probability of 0.0212 below alpha 0.05.
3) The results of the t test on the Human Development Index (HDI) variable individually have a significant effect on the Economic Growth variable because they have a probability of 0.0094 below alpha 0.05.

3.   Coefficient of Determination (R2)

The Coefficient of Determination (R^2) indicates that the independent variable can almost completely explain the variation in the dependent variable. The following is the Regression Coefficient (R^2) which can be seen in Table 10.

Table 10. Coefficient of Determination (Adjusted R2)

Adjusted R²	Adjusted R-squared
0.697613	0.647215

Source: Data processed by Eviews (2024)

In Table 10, the Adjusted R-squared value of 0.64 (64%) means that the dependent variable or economic growth can be predicted through the model equation with a percentage of 64% or indicates that all independent variables (budget deficit, foreign direct investment, and human development index) are able to explain changes in the dependent variable or economic growth by 64% while the remaining 36% is explained by other variables outside the model.

Discussion

1.   The Effect of Budget Deficit on Economic Growth

The results of panel data regression estimation using the Fixed Effect model show that the budget deficit variable has a positive and significant effect on economic growth in ASEAN-5 countries in the 2014–2023 period, with a coefficient value of 0.145073. This means that every 1% increase in the budget deficit is associated with a 0.145% increase in economic growth. This finding is in line with several previous studies showing that the budget deficit can function as an instrument of fiscal expansion, especially in the face of economic slowdown (Elmendorf & Mankiw, 1999; Fatás & Mihov, 2001).

However, these results are not always consistent across countries. Several other studies, such as those by Barro (1989) and Alesina & Perotti (1997), actually show that excessive budget deficits can negatively impact long-term growth due to increased debt burdens and the risk of fiscal instability. Therefore, the positive findings in the ASEAN-5 context can be attributed to the effective allocation of deficit spending to productive sectors, such as infrastructure, education, and health, which directly contribute to increased productivity and domestic demand.

In the ASEAN-5 context, budget deficits tend to be actively used as a tool to stimulate post-pandemic recovery and accelerate structural transformation. For

example, Indonesia and the Philippines adopted massive fiscal stimulus during the COVID-19 pandemic, directed at labor-intensive programs, social assistance, and basic infrastructure development. This contrasts with developed countries facing long-term debt pressures and low interest rates that reduce their fiscal space.

Furthermore, the developing characteristics of ASEAN-5 countries make the impact of deficit spending on growth more pronounced. Countries with suboptimal basic infrastructure, growing levels of public consumption, and significant human resource development needs tend to experience stronger fiscal multiplier effects from government spending. This aligns with the Keynesian view that government spending can be a major driver of growth when the private sector is not yet fully developed.

However, it should be emphasized that this positive effect remains contingent on the quality of fiscal governance. If deficits are not managed carefully, especially if they are financed by external debt or are consumptive in nature, they can create macroeconomic imbalances and depress growth in the medium term. Therefore, deficit policies must be accompanied by strategies to increase state revenue, increase spending efficiency, and monitor debt continuously. Thus, the empirical contribution of this study not only confirms that budget deficits have an expansionary effect in the ASEAN-5 context but also reinforces the position that active fiscal policy in developing countries remains a relevant tool for stimulating economic growth, as long as it is managed credibly and productively.

2.   The Effect of Foreign Direct Investment on Economic Growth

Panel data estimation results using a fixed effect model indicate that foreign direct investment (FDI) has a positive and significant impact on economic growth in ASEAN-5 countries during the 2014–2023 period. The coefficient of the FDI variable is 0.191425, indicating that every 1% increase in FDI is associated with a 0.19% increase in economic growth. This finding aligns with numerous previous studies that emphasize the role of FDI in bringing capital, technology, and job creation, which drive growth (Borensztein et al., 1998; Alfaro et al., 2004; Nguyen & Nguyen, 2021).

However, the literature also indicates that the effect of FDI on economic growth is contextual and not automatically positive. Several studies have found that FDI only has a significant impact if the recipient country has good institutional quality, macroeconomic stability, and adequate human resource capacity (Balasubramanyam et al., 1996; Herzer, 2012). In the ASEAN-5 context, this is reflected in the variation in the impact of FDI across member countries. Singapore and Vietnam, for example, with their efficient bureaucracies and pro-investment policies, tend to benefit more from FDI, particularly in high-tech manufacturing sectors. Conversely, countries like Indonesia or the Philippines still face structural barriers such as regulatory uncertainty, uneven infrastructure, and limited skilled human resources, which can limit the effectiveness of FDI.

From the perspective of endogenous growth theory (Romer, 1990), FDI can boost long-term growth if it fosters innovation and human capital accumulation. In this regard, the role of public policy is crucial. FDI entering technology-intensive sectors or requiring the transfer of knowledge and training of local workers will create spillover effects that promote sustainable growth. Conversely, FDI that solely

seeks to profit from low wages or exploit natural resources tends to have less significant long-term impacts.

The coefficient value of 0.19 in this study is within the moderate range compared to other cross-country studies. Several studies have found smaller or even statistically insignificant FDI coefficients (Wijeweera & Mounter, 2020), particularly in countries with low institutional quality. Therefore, these results strengthen the argument that the ASEAN-5 have generally been quite successful in creating a relatively conducive environment for foreign investment, although disparities between countries still warrant attention. Policy-wise, ASEAN-5 governments need to focus not only on increasing the volume of FDI, but also on the quality and sectors of investment destinations. Strengthening the role of institutions, legal certainty, and improving the quality of the workforce are prerequisites for FDI to not only create short-term growth, but also encourage structural economic transformation and regional competitiveness.

3.   The Effect of Human Development Index on Economic Growth

The results of panel data estimation using the Fixed Effect Model in this study indicate that the human development index partially has a positive and significant relationship to economic growth in ASEAN-5 countries in 2014-2023. The coefficient value of the human development index variable is 17.42016 with a positive sign. This means that any increase in the human development index variable in these countries will be followed by an increase in economic growth. When the human development index increases by 1 percent, economic growth in ASEAN-5 will also increase by 17.42016 percent.

Improvements in HDI that include aspects of education, health and living standards directly contribute to economic growth in the region. The higher the quality of a country's human capital, the greater its labor productivity, which in turn leads to increased economic output. Investments in education result in a more skilled and innovative workforce, while improved access to healthcare improves life expectancy and work efficiency. In addition, a better standard of living creates higher purchasing power, thus driving growth in the consumption and investment sectors. Therefore, ASEAN governments need to continue to strengthen policies that focus on improving HDI, both through greater budget allocations to the education and health sectors and by creating a favorable economic environment for people's well-being. With the right strategy, increasing HDI will not only impact short-term economic growth but also create sustainable development in the long run.

Conclusions

Based on the results of panel data regression estimation using the Fixed Effect Model (FEM) method, this study concludes that the budget deficit, foreign direct investment (FDI), and the human development index (HDI) simultaneously have a significant effect on economic growth in ASEAN-5 countries (Indonesia, Malaysia, Thailand, the Philippines, and Vietnam) in the period 2014–2023. These three variables have a positive relationship with economic growth, indicating that increases in fiscal spending, foreign investment inflows, and improvements in the quality of education, health, and the population's standard of living can accelerate

regional economic growth. These findings theoretically support the view in endogenous growth theory, which emphasizes the role of human capital investment and public policy as drivers of long-term growth. Practically, these results emphasize the importance of formulating productive fiscal policies, creating a stable investment climate oriented towards value-added sectors, and sustainable investment in human resource development so that economic growth is not only high in numbers, but also high in quality and inclusive. This study contributes to the development of literature on the determinants of economic growth in developing countries, particularly with a simultaneous approach to three main variables that have previously been studied separately.

References

Aida, N., Palupi, W. A., & Husain, F. R. (2023). What is the Role of Tourism, Foreign Direct Investment, and Institutions in Economic Growth in ASEAN?. WSEAS Transactions on Environment and Development, 19, 571–581. https://doi.org/10.37394/232015.2023.19.55

Akbar, M. Y. (2018). The Effect of Budget Deficit, Government Expenditure, Foreign Direct Investment, and Inflation on Economic Growth in Asean Countries. Thesis Islamic University of Indonesia: Yogyakarta.

Akintunde, A. J., & Arumona, J. (2020). Effect of Budget Deficit and Foreign Direct Investment on Economic Growth in Nigeria. BUJAB: Bingham University Journal of Accounting and Business. 87–97.

Anggraeni, E. E. (2018). Analysis of the Effect of Budget Deficit, Current Account on Economic Growth in ASEAN Countries. University of Lampung Thesis: Bandar Lampung.

Anwar, K. (2014). Analysis of the Impact of Budget Deficit on Indonesia's Macroeconomy. Network of Public Administration, 6(2), 588-603.

Appiah, M., Amoasi, R., & Idan Frowne, D. (2019). Human Development and Its Effects on Economic Growth and Development. International Research Journal of Business Studies, 12(2), 101–109. https://doi.org/10.21632/irjbs.12.2.101-109

Ardyansyah, D. (2014). The Effect of Size, Leverage, Profitability, Capital Intensity, Ratio, and Independent Commissioners on Effective Tax Rate (ETR) (Empirical Study of Manufacturing Companies Listed on the IDX During the 2010-2012 Period). Diponegoro University Thesis: Semarang.

Arfita, A. P., & Padjadjaran, U. (2023). Analysis of the Effect of Human Development Index Components on Economic Growth in Indonesia in 2014 - 2018. Regress: Journal of Economics & Management, 3(1), 31-38.

Arsyad, L. (2010). Development Economics. Yogyakarta: UPP STIM YKPN

Asnawi, A., Hasyim, P., Anwar, K., & Roni, M. (2023). the Effect of Foreign Debt, Foreign Investment (FDI), and Government Spending on Economic Growth in 5 Asean Countries. Journal of Malikussaleh Public Economics, 6(1), 20. https://doi.org/10.29103/jmpe.v6i1.12138

Basnayake, D., Naranpanawa, A., Selvanathan, S., & Bandara, J. S. (2024). Financial inclusion through digitalization and economic growth in Asia Pacific

countries. International Review of Financial Analysis, 96(PA), 103596. https://doi.org/10.1016/j.irfa.2024.103596

Bastias, D. D. (2010). Analysis of the Effect of Government Spending on education, health and infrastructure on economic growth 64 Indonesia. Faculty of Economics Diponegoro University Semarang, 1-141.

Budget Deficit Indonesia dan Malaysia. https://countryeconomy.com/search=budget+defisit.

Deliarnov, N. W. (2005). Microeconomic Theory I. Translation of Deliarnov. Jakarta: Rajawali.

Dordhaus, S. (2002). Macroeconomic Science. Jakarta; Erlangga

Elisabeth, P., & Sugiyanto, F. (2021). Analysis of the Effect of Budget Deficit, Central Government Expenditure, and Government Debt on Economic Growth in Indonesia 1990-2019. Diponegoro Journal of Economics, 10(3), 184-207.

Foreign Direct Investment, net inflows (BoP, current US$), https://data.worldbank.org/indicator

Gayatri, F. D. (2023). The Effect of Budget Deficit, Government Expenditure and Foreign Direct Investment on ASEAN Economic Growth. Thesis University of Sriwijaya.

GDP growth annual (%) https://data.worldbank.org/indicator/ .

Husriah. (2019). The Effect of State Budget Deficit on Economic Growth in Indonesia. Economix Journal, 7, 17-24.

Human Development Index of Indonesia and Malaysia. https://www.undp.org/

Irawan, E. (2022). the Effect of Unemployment, Economic Growth and Human Development Index on Poverty Levels in Sumbawa Regency in 2012-2021. IJEBAR: International Journal of Economics, Business and Accounting Research, 6(2), 950. https://doi.org/10.29040/ijebar.v6i2.5455

Istikomah, & Kustituanto, B. (2022). The Role of Foreign Direct Investment (FDI) on Economic Growth in Indonesia. Indonesian Journal of Economics and Business, 14 (1999).

Istiqomah, N., & Mafruhah, I. (2022). Economics Development Analysis Journal The Effect of Budget Deficit in Indonesia: A Comparative Study Article Information. Economics Development Analysis Journal, 1, 110–119. http://journal.unnes.ac.id/sju/index.php/edaj

Karimah, F., Harsono, I., Astuti, E., Sutanto, H., & Suprapti, I. A. P. (2024). The Effect of GRDP Per Capita, HDI and Unemployment Rate on Poverty Level in West Nusa Tenggara (2020-2022). LANCAH: Journal of Innovation and Trends, 2(1), 99-105.

Kell, H. J., Robbins, S. B., Su, R., & Brenneman, M. (2018). A Psychological Approach to Human Capital. ETS Research Report Series, 1–23. https://doi.org/10.1002/ets2.12218

Kholis, M. (2012). The Impact of Foreign Direct Investment on Indonesia's Economic Growth; A Macroeconomic Study with Panel Data Application. Journal of Organization and Management, 8(2), 111-120. https://doi.org/10.33830/jom.v8i2.260.2012

Mankiw, N. G. (2007). Macroeconomic Theory. Sixth Edition. Translation by Yati Sumiharti. Jakarta: Erlangga.

Mulyani, S. (2017). System Analysis and Design Methods. Bandung: Abdi Sistematika.

Marthen, A. E., Usmany, Efita, W., Kasman, H., Setiawan, R., & Windreis, C. (2024). Foreign Direct Investment in Economic Development of Developing Countries: A Literature Synthesis. Journal of Education and Teaching Review, 7(2), 3227-3233.

Masserini, L., Bini, M., Zeli, A., & Forciniti, A. (2024). Measuring the impact of the 2008 and 2011 financial crises and the 2015 recovery on the unemployment rate in Italy. Socio-Economic Planning Sciences, 95(July), 102032. https://doi.org/10.1016/j.seps.2024.102032

Maharani, I. G. A. C., Suardana, K. A. (2014). The Effect of Corporate Governance, Profitability, and Executive Characteristics on Tax Avoidance of Manufacturing Companies. E-journal of Accounting Udayana University, Vol. 9 (No. 2), pp. 525-539

Nachrowi, N., & Usman, H. (2018). Econometrics Popular and Practical Approaches to Economic and Financial Analysis. 11(1). https://doi.org/10.21043/iqtishadia.v10i2.2863

Nasir, Y., Hamid, A., Yusuf, Z., & Zakaria. (2023). Analysis of the Effect of Economic Growth, Local Revenue and Capital Expenditure Budget Allocation on Human Development Index in Banda Aceh City. Journal of Economics and Technology Management, 7(3), 676-683.

Nasyri, I. A., Harsono, I., Yuniarti, T., Sutanto, H., Ekonomi, F., & Mataram, U. (2024). Journal of MISTER. 1(2).

Oktanira, C. (2024). The effect of poverty, unemployment, and HDI on economic growth in ASEAN countries. Journal of Economics and Business.

Purnamasari, R. (2013) Analysis of the Impact of Foreign Direct Investment, Foreign Portfolio Investment, and Labor Migration on Economic Growth in Indonesia for the Period 1995-2011. Thesis, Universitas Airlangga.

Rahardja, P., & Manurung, M. (2004). Macroeconomic theory: An Introduction (Second Edition). Faculty of Economics, University of Indonesia.

Regina, Sinring, B., & Arifin. (2020). Analysis the Effects of Poverty, General Allocation Fund and Economic Growth To Human Development Index (Hdi) in Indonesia. Jurnal Economic https://doi.org/10.57178/jer.v3i2.300

Salam, A., & Wahab, A. (2023). The Effects of Gender Development Index and Human Development Index on Poverty Level and Economic Growth in South Sulawesi Province. 68-80, (Vol.3, Number 2). Bulletin of Economic Studies (BEST).

Sabr, S., Ahmed, Y., & Khan, T. (2021). Government Budget Deficit and Economic Growth: Evidence from Iraq 1980-2018. Arab Journal of Administration. 404–389. https://doi.org/10.21608/aja.2021.151252

Sari, S. D., & Setyowati, E. (2022). Analysis of Unemployment, Capita Income, and HDI on Economic Growth on Indonesia, 2017-2020. Procedia of Social Sciences and Humanities, 3(c), 8–18. https://doi.org/10.21070/pssh.v3i.195

Sarwedi. (2002). Foreign Direct Investment in Indonesia. In Journal of Accounting & Finance (Vol. 4, Number 1). http://puslit.petra.ac.id/journals/accounting/

Sasongko, & Parulian. (2015). Budget. Salemba Empat.

Sawitri, Hendrin H. (2006). "The Impact of Budget Deficit on Economic Growth." Journal of Organization and Management 2(1):1-10. doi: 10.33830/jom.v2i1.811.2006.

Shopia, A., Sulasmiyati, S. (2018). The Effect of Foreign Direct Investment, Exports, and Foreign Debt on ASEAN Economic Growth (Study on Gross Domestic Product of Indonesia, Malaysia, and Thailand Period. Journal of Business Administration 61.3, 9.

Sonarajah. (2010). The International Law an Foreign Investment. Cambridge University Press. Cambridge USA.

Sulasni, P., & Surbakti, S. B. B. (2022). Economic Freedom, FDI, Inflation and Economic Growth in East and Southeast Asian Countries: A Panel Data Analysis. International Journal of Research Publication and Reviews, 3(11), 135–143. https://doi.org/10.55248/gengpi.2022.3.11.2

Suryabrata, S. (2000). Research Methods. Jakarta: PT Raja Grafindo Persada.

Torres-Favela, M., & Luna, E. M. (2024). The role of informality in the economic 64 Journal growth, employment, and inflation during the COVID-19 crisis. Latin American of Central https://doi.org/10.1016/j.latcb.2024.100150

Tripathi, S. (2021). How does urbanization affect the human development index? A cross-country analysis. Asia-Pacific Journal of Regional Science, 5(3), 1053–1080. https://doi.org/10.1007/s41685-021-00211-w

Trisnawati, I. (2023). The Effect of FDI, Government Spending, and Trade Openness on Economic Growth in Indonesia. Thesis Tidar University.

Van, V. B., & Sudhipongpracha, T. (2015). Exploring Government Budget Deficit and Economic Growth: Evidence from Vietnam's Economic Miracle. Asian Affairs (UK), 42(3), 127–148.
https://doi.org/10.1080/00927678.2015.1048629

Yunmi Yunan, Z., Fakultas Ekonomi dan Bisnis, G., Ibnu Sina, jl, Pisangan, K., Ciputat, K., & Tangerang Selatan, K. (2023). Economics Development Analysis Journal Kualitas Kelembagaan dan Pertumbuhan Ekonomi di Negara-Negara Muslim. Economics Development Analysis Journal, 12(4), 427-440. http://journal.unnes.ac.id/sju/index.php/edaj