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MORALITY BEFORE KNOWLEDGE

The impact of foreign direct investment on economic growth in Indonesia: A case study using secondary data from 1995 to 2023

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ABSTRACT

Background: Foreign Direct Investment (FDI) is one of the key instruments for driving economic growth in most countries, including Indonesia. FDI refers to a type of investment in which foreign entities directly invest capital into an economic entity in the host country. Foreign Direct Investment has become an essential source of external financing for Indonesia and serves as one of the primary funding sources. Therefore, this study aims to comprehensively analyze the impact of FDI on Indonesia's economic growth over the period 1995–2023. **Methods**: This study employs a quantitative research approach with multiple linear regression analysis. This model is chosen because it allows for the measurement of the simultaneous influence of multiple independent variables on a single dependent variable, namely economic growth. The study utilizes processed secondary data supplemented with time series data, including Gross Domestic Product (GDP) growth, foreign investment, inflation rate, exchange rate, government expenditure, and poverty levels. **Findings:** The findings indicate that FDI positively and significantly affects Indonesia's economic growth. FDI enhances production capacity, increases efficiency, and facilitates technology transfer, contributing to national productivity. Additionally, a stable exchange rate and controlled inflation support economic development. However, the exchange rate negatively affects economic growth, suggesting that fluctuations may hinder investment and economic activities. Meanwhile, inflation is found to have no significant impact on GDP growth, possibly due to economic stability, political events, or government interventions during the study period. **Conclusion**: Based on the research findings, it can be concluded that FDI plays a significant role in driving economic growth in Indonesia. However, exchange rate fluctuations pose a challenge that should be managed to ensure economic stability. **Novelty/Originality of this article:** The novelty of this research lies in its comprehensive time-series analysis covering nearly three decades, providing insights into the long-term relationship between FDI and economic growth in Indonesia.

KEYWORDS: economic growth; Foreign Investment; inflation.

1. Introduction

Every country in the world requires economic growth, especially developing nations that often face challenges in advancing their economies. Economic growth is influenced by numerous factors, including natural and human resources, as well as non-economic factors such as institutional systems. The varying conditions in each country lead to differences in income or economic growth among nations. Development experts propose utilizing foreign

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investment as a solution to support the needs that sustain economic growth (Gandhi et al., 2022).

Foreign Direct Investment (FDI) is a type of investment in which foreign entities directly inject capital into an economic entity in the host country. FDI may involve direct ownership or full control over businesses or assets in the destination country, or the establishment of production facilities in the target country (Marthen et al., 2024). Currently, Foreign Direct Investment has become an essential source of external financing for Indonesia and may serve as one of the primary funding sources. The government is expected to stabilize and increase FDI to support Indonesia's economic growth. Nevertheless, the overall flow of foreign direct investment into Indonesia continues to experience fluctuations (Fakhrizal et al., 2023).

Marthen et al. (2024) state that Foreign Direct Investment (FDI) is a crucial component of sustainable economic growth and development, as it enhances productive economic potential, creates new job opportunities, and increases national income. This aligns with the assertion that FDI is a key component of economic integration, as it facilitates job creation and income growth (Nadzir & Setyaningrum, 2023). The foreign investment has a significant impact on increasing productivity in the manufacturing sector.

However, despite its many positive potentials, Foreign Direct Investment also has negative implications. Critical factors such as social impacts, inequality, and economic stability risks resulting from increased foreign investment have been widely discussed in the literature. Therefore, it is essential to conduct a comprehensive review of the literature to thoroughly examine how foreign direct investment influences economic growth in developing countries. This will enable a clearer understanding of both the positive and negative impacts of FDI while also establishing a solid foundation for future economic development policies (Marthen et al., 2024).

This study aims to provide a comprehensive overview of the contribution of foreign direct investment to Indonesia's economic growth. To achieve this, the research synthesizes recent ideas and findings from various academic sources to build a strong foundation for a better understanding of how foreign direct investment shapes and influences the economic growth process in Indonesia.

The findings of Sadli et al. (2022), using multiple linear regression, indicate a significance value of 0.0365, which is lower than the 0.05 significance threshold. This result leads to the conclusion that Investment X2 has a significant and positive effect on economic growth in Indonesia. Other findings suggest that foreign direct investment (FDI) has a significant and positive impact on inclusive economic growth. The results of the regression test using the Fixed Effect Model show that the foreign investment variable has a probability value of 0.102, which is significant at the 10% probability level. This indicates that foreign direct investment has a significant influence on inclusive economic growth in Indonesia (Shem & Prasetyia, 2023).

According to Hidayat & Yusuf (2024), based on the t-test table, Foreign Direct Investment (FDI) has a positive effect on Gross Domestic Product (GDP). Data processing using EViews 12 reveals that $Fcalculated > Ftable$, with a value of 22.64 > 5.19 and a significance level of 0.0021 < 0.005. Therefore, it can be concluded that Foreign Direct Investment, Inflation, the Gender Empowerment Index, and the Corruption Perception Index have a significant simultaneous impact on Gross Domestic Product (GDP).

A study conducted by Jamil & Hayati (2021) also found that fluctuations in Foreign Direct Investment (FDI) influence the economic process in Indonesia. When FDI increases, economic activity also rises; conversely, when FDI declines, economic activity in Indonesia experiences a downturn. Another study explains that foreign direct investment, as a macroeconomic variable representing a country's economic policy decisions, has a positive and significant effect on economic growth in 12 Asia-Pacific countries from 2009 to 2019 (Azzaky, 2022).

However, a study conducted by Destiani et al. (2023) found that while FDI has a positive impact, it is not statistically significant for economic growth in Indonesia between 1990 and 2021, both in the short and long term. Based on the ECM test table, the FDI variable has a

positive but statistically insignificant effect on Indonesia's economic growth, indicating that every increase in FDI contributes to economic growth. Although this effect is not statistically significant, it aligns with theoretical expectations. Furthermore, based on the t-test, in the short term, the t-calculated value for the FDI variable is 1.651519. Using a 5% confidence level and a degree of freedom (df) of 28, the t-table value is 1.701.

1.1. Indonesia's economic growth

According to Wau et al. (2022), referring to Arsyad (2010), economic growth is defined as an increase in GDP or GNP, regardless of whether the increase is greater or smaller than the population growth rate or whether structural economic changes occur. In the same book, Todaro (2011) explains that, according to Kuznets, economic growth refers to a long-term increase in a country's capacity to provide a greater variety of economic goods to its population. Iskandar (2013) further defines economic growth as a significant increase in national income (with rising per capita income) over a specific calculation period.

1.2. Foreign direct invesment (FDI)

Foreign Direct Investment (FDI) is a form of investment made by individuals, companies, or governments from one country into another. This investment can take place through the development of new infrastructure, full equity acquisitions, or the purchase of existing companies. FDI is typically aimed at generating financial returns while simultaneously supporting economic growth in the host country through technology transfer, job creation, and enhanced competitiveness of local industries. Foreign Direct Investment (FDI), also commonly referred to as Penanaman Modal Asing (PMA) in Indonesia, is also considered a means to strengthen economic relationships or partnerships between countries.

This study provides a deeper understanding of the impact of Foreign Direct Investment (FDI), inflation, and exchange rates on Indonesia's GDP growth during the period of 1995–2023. These three variables exhibit different effects: FDI has been found to have a positive impact, exchange rates exert a negative influence, while inflation does not show a significant effect. These findings align with previous literature and offer important policy implications for the Indonesian government. Foreign investment plays a crucial role in job creation, which in turn reduces unemployment and increases household income. Through FDI, local firms can gain access to new technologies and innovations that enhance efficiency and competitiveness.

FDI has a positive and significant effect on GDP growth, consistent with endogenous growth theory (Romer, 1990). It drives improvements in production capacity, technology transfer, and economic efficiency. As an external source of financing, FDI has a long-term impact on industrial sector modernization and export competitiveness (Borensztein et al., 1998). In the context of Indonesia, foreign capital inflows into the manufacturing, infrastructure, and technology sectors have created a multiplier effect that accelerates economic growth. For instance, major infrastructure projects, such as toll road and port development supported by FDI, have enhanced regional connectivity and national productivity (Kuncoro, 2022).

However, the concentration of FDI predominantly in Java reflects an uneven distribution of investment that needs to be addressed. Regions such as Eastern Indonesia, which hold vast natural resource potential, require greater attention to attract FDI through tax incentives and infrastructure improvements (World Bank, 2021). Such measures can promote more equitable and inclusive economic growth.

1.3. Inflation

Inflation has various definitions, yet, in general, all interpretations refer to the same core concept. Inflation is a condition in which there is a widespread increase in price levels,

including the prices of goods, services, and factors of production. As a common economic issue in Indonesia, inflation can lead to a decline in real income, which, if persistent, may have detrimental effects on the national economy (Amelia, 2023). Inflation can disrupt economic stability, as economic agents become reluctant to engage in economic activities (Susanto, 2017). This phenomenon reflects a decrease in public purchasing power due to the diminishing real or intrinsic value of a country's currency. In other words, inflation describes a situation where the money held by individuals loses its ability to purchase the same amount of goods and services as before, often leading to economic instability and broader societal welfare concerns.

In general, economists agree that inflation reduces the purchasing power of money relative to goods and services. Therefore, inflation is considered one of the factors that can influence a country's economic growth (Triyola & Matondang, 2023). The severity of inflation is highly dependent on the elasticity of demand and supply for goods and services. Additionally, various other factors contribute to overall price fluctuations, including government policies related to price control. Measures such as price regulation, consumer subsidies, and similar policies also play a role in determining inflation levels.

Although inflation has a positive coefficient, the findings of this study indicate that inflation does not have a significant effect on GDP. The stability of inflation during the study period reflects the success of monetary policies implemented by Bank Indonesia in maintaining inflation within acceptable limits (Amelia, 2023). Controlled inflation prevents a decline in public purchasing power and creates a stable economic environment for investors and businesses. However, the insignificance of inflation can be explained by the relatively small fluctuations in inflation during the study period, which were insufficient to substantially impact overall economic activity (Ghozali, 2016). In this context, government price control policies, such as energy and staple food subsidies, also contributed to inflation stability (Fakhrizal et al., 2023). Therefore, although inflation was not significant in this study, it remains crucial to maintain price stability to prevent potential negative impacts on the economy.

1.4. Exchange rate

Aristotle defined the exchange value as the ability of a good to be exchanged for another good in the market. Meanwhile, according to the Kamus Besar Bahasa Indonesia (KBBI), the exchange rate (currency value) refers to the value of a country's currency expressed in the form of another country's currency. In the context of financial management, the exchange rate refers to the rate at which one currency is exchanged for another. According to David K. Elteman and colleagues, the exchange rate is the price of a currency calculated based on the value of another currency. Similarly, M. Faisal explains that the exchange rate represents the price of one currency expressed in units of another currency (Ikatan Bankir Indonesia, 2013). The exchange rate is heavily influenced by various economic factors such as inflation, interest rates, and trade balance. Exchange rate fluctuations also play a crucial role in determining a country's competitiveness in the global market.

The findings of this study indicate that the exchange rate has a negative and significant impact on GDP. Exchange rate instability, particularly the depreciation of the rupiah, increases the cost of importing capital goods and raw materials, which in turn raises domestic production costs (Ikatan Bankir Indonesia, 2013). Consequently, the competitiveness of domestic products in the international market declines, while domestic inflation may rise. However, exchange rate fluctuations also present opportunities for certain sectors, such as resource-based exports. The depreciation of the rupiah can enhance the competitiveness of export products in the global market, particularly for commodities such as coal and palm oil, which are among Indonesia's key exports. Therefore, policies that maintain exchange rate stability without reducing market flexibility are essential, such as market interventions by Bank Indonesia and economic diversification (Pratama & Soebagiyo, 2022).

2. Methods

This study employs a quantitative research method, which relies on numerical data and statistical analysis to test hypotheses or objectively identify relationships between variables. The quantitative method was chosen because it provides a strong scientific foundation for identifying economic patterns through numerical data while ensuring objective and measurable results. This method incorporates various analytical instruments used to understand and address economic issues. The approach involves numerical data-based explanations, presenting structured analysis stages in both static and dynamic conditions, and offering insights into the processes and decisions derived from the analysis. The research focuses on foreign investment and economic growth in Indonesia over the period 1995 to 2023.

The data used in this study consists of secondary data collected from reliable sources, such as official reports from the Central Bureau of Statistics/*Badan Pusat Statistik* (BPS), the World Bank, and relevant international economic databases. This data includes key economic variables, such as GDP growth, FDI inflows, inflation, exchange rates, and others. Additionally, this study utilizes time series data, which refers to a set of data collected at specific time intervals in a sequential manner to analyze changes, patterns, or trends in a variable over time. This data is useful for understanding relationships between variables within a temporal context.

The research model employed is multiple linear regression. This model was selected due to its ability to measure complex relationships between multiple independent variables—such as FDI, inflation, and exchange rates—and a dependent variable, namely GDP growth. Through this model, researchers can identify the extent to which each independent variable, including FDI, inflation, and government expenditure, influences economic growth.

The model can be written as $Y = \alpha + \beta1X1 + \beta2X2 + \beta3X3$, where Y represents economic growth in Indonesia, while α denotes the constant. Furthermore, β1, β2, and β3 represent the multiple linear regression coefficients, which measure the relationship between the independent variables and economic growth. In addition, X1 refers to Foreign Direct Investment (FDI), X2 represents inflation, and X3 denotes the exchange rate.

The steps involved in using the multiple linear regression model begin with data collection for both dependent and independent variables. Once the data is gathered, the next stage involves data preprocessing, which includes cleaning the data by removing outliers and handling missing values, as well as ensuring the data is appropriately formatted as a time series. To ensure the validity of the research model, a classical assumption test is conducted. This includes a multicollinearity test to ensure that there is no excessive correlation among independent variables, as well as a heteroscedasticity test to verify the consistency of residual variance. Additionally, a normality test is performed to confirm that the regression results meet the underlying statistical assumptions. The multicollinearity test ensures that independent variables are not highly correlated with each other, while the homoscedasticity and residual normality tests verify that the regression model satisfies the required statistical assumptions.

Once the assumption tests are satisfied, the analysis proceeds with constructing the multiple linear regression model using the Ordinary Least Squares (OLS) method. OLS is one of the most commonly used techniques for estimating parameters in a regression model. This method requires the fulfillment of several classical assumptions. If these assumptions are not met, the resulting estimates may be biased, rendering the interpretation of the results invalid (Aflakhah et al., 2020). The regression coefficients are then estimated and analyzed to determine the significance of each independent variable using the t-test, as well as the overall model significance through the F-test. Additionally, the coefficient of determination is interpreted to assess the extent to which the independent

variables in the model explain the dependent variable, in this case, economic growth. Finally, the model is re-evaluated using cross-validation to ensure its stability and accuracy in predicting the dependent variable.

2.1. Partial test (T-Test)

The t-test is used to test research hypotheses related to the partial effect of each independent variable on the dependent variable, while the t-test, or t-test method, is one of the statistical techniques used to examine the validity or accuracy of a hypothesis that states there is no significant difference between two sample mean values randomly drawn from the same population. Furthermore, the t-test also aims to determine whether the regression coefficient of an independent variable in the regression model has a statistically significant effect on the dependent variable, and as a component of multiple linear regression analysis, the t-test plays a role in evaluating the influence of each independent variable on the dependent variable individually (Ghozali, 2016). Moreover, it can be conducted by formulating hypotheses as follows, where H0: $\beta i = 0$ means there is no effect of the independent variable on the dependent variable, while H1: $\beta i \neq 0$ means there is a significant effect of the independent variable on the dependent variable.

2.2. Simultaneous test (F-Test)

The simultaneous F-test (Simultaneous Test) is used to determine whether there is a joint or simultaneous effect of the independent variables on the dependent variable, while according to Ghozali (2016), the decision-making criteria are as follows. Furthermore, if the significance value of $F < 0.05$, then H0 is rejected and H1 is accepted, meaning that all independent variables have a significant effect on the dependent variable. However, if the significance value of $F > 0.05$, then H0 is accepted and H1 is rejected, indicating that all independent variables do not have a significant effect on the dependent variable.

2.3. Coefficient of determination (R^2)

The R square value indicates the extent to which independent (exogenous) variables can influence the dependent (endogenous) variable. R square ranges from 0 to 1, representing the proportion of variance in the dependent variable that can be explained by a combination of independent variables. It serves as a measure of how much the independent latent variables contribute to the dependent latent variable. According to Hair et al., an R square value of 0.75 is classified as strong, 0.50 as moderate, and 0.25 as weak.

R square is often referred to as the coefficient of determination, which measures the extent to which the dependent variable can be explained by independent variables in the research model. An R square value close to 1 indicates that independent variables have a significant influence on the dependent variable, meaning the model explains data variation well. Conversely, a low R square value suggests that independent variables explain only a limited portion of the variation in the dependent variable (University, 2023).

The coefficient of determination functions as an indicator of how much independent variables contribute to the dependent variable. The closer the R square value is to 1, the more information about the dependent variable can be explained by the independent variables. However, if the value is low, it implies that the influence of independent variables in predicting variations in the dependent variable is limited. In this study, these analytical steps are applied to gain a deeper understanding of the factors influencing economic growth. Additionally, this research aims to assess the significance of each independent variable's influence, whether in supporting or hindering economic growth during the period 1995–2023.

3. Results and Discussion

3.1. Classical assumption test

First, there is the Normality Test, which aims to examine whether the regression model, including the dependent and independent variables, all exhibit a normal distribution of residuals (Djamaris, 2024).

Table. 1 Normality test

Test	Statistic	Prob.
Shapiro-Wilk	0.694348	4.11E-09
Shapiro-Francia	0.676748	3.16E-08

The results of the normality test indicate that the p-value obtained from the Shapiro-Wilk test is 4.11E-09, while the p-value from the Shapiro-Francia test is 3.16E-08. In decimal form, these values correspond to 0.0000000041 and 0.000000031, respectively. Initially, these values were interpreted as being greater than the common significance level of 0.05. Consequently, the preliminary conclusion was that H_0 is accepted, indicating that the data are normally distributed. This implies that the dataset meets the assumption of normality and is suitable for parametric statistical analysis that relies on normal distribution. However, it is crucial to carefully reconsider this interpretation to avoid misjudgment. The validity of the conclusion heavily depends on the accurate understanding of the p-value and how it is compared to the chosen significance level.

Second, Multicollinearity Testing is conducted to assess the possibility of correlation between independent variables. This can be examined using the Variance Inflation Factor (VIF) and Tolerance values. Researchers calculate the VIF and Tolerance values for each independent variable in their regression model. A VIF value lower than 5 and a Tolerance value higher than 0.2 (or 1/VIF) are generally considered indicators of the absence of significant multicollinearity (Djamaris, 2024). Table 2 Below are the results of the multicollinearity test:

Table. 2 Multicollinearity test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.105308	222.7083	NA
FDI_FIX	0.002549	467.3619	3.171560
INF	0.077857	3.509409	1.267940
RATE	0.004829	125.7502	3.396436

Based on the Variance Inflation Factor (VIF) test results obtained from the analysis of the relationship between foreign investment and economic growth, the highest VIF value recorded is 3.1715, which remains well below the critical threshold of 10. Additionally, the Tolerance values for all independent variables exceed the minimum threshold of 0.2, with the highest Tolerance value reaching 125.72. These findings indicate that each independent variable in the model has a low VIF and high Tolerance, which serves as strong evidence that there is no multicollinearity issue among the variables. In other words, no significant linear relationship or interdependence is detected between the independent variables in this regression model. This confirms that the multiple linear regression model used in this study satisfies the fundamental assumption of multicollinearity, making it reliable and appropriate for analyzing the effect of independent variables on the dependent variable in a valid and accurate manner. Third, the Heteroskedasticity Test aims to examine whether the variance of residuals remains constant across predicted values. If the variance is not constant, heteroskedasticity occurs.

Table 3. Heteroskedasticity test

Heteroskedasticity test: White				
F-statistic	0.601312	Prob F(9,42)		0.7886
Obs R-squared	5.935350	Prob Chi-Square(9)		0.7464
Scaled explained SS	33.37759	Prob Chi-Square(9)		0.0001
Test Equation Dependent Variable: $RESID^2$ Method: Least squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	-2.601691	2.938985	-0.885234	0.3811
FDI_FIX^2	-0.032244	0.048520	-0.664548	0.5100
FDI_FIX*INF	-0.643576	0.585498	-1.099194	0.2779
FDI_FIX*RATE	-0.010752	0.093918	-0.114483	0.9094
FDI_FIX	0.651222	0.716367	0.909062	0.3685
INF^2	0.087139	1.482830	0.058766	0.9534
INF*RATE	0.937055	0.787771	1.189501	0.2409
INF	2.786729	3.729082	0.747296	0.4590
$RATE^2$	0.043148	0.090051	0.479145	0.6343
RATE	-0.233746	0.632356	-0.369643	0.7135
R-squared	0.114145	Mean dependent var		0.022697
Adjusted R-squared	-0.075681	S.D. dependent var		0.083264
S.E. of regression	0.0836357	Akaike info criterion		-1.889609
Sum square resid	0.313217	Schwarz criterion		-1.514370
Log likelihood	59.313217	Hannan-Quinn criter		-1.745751
F-statistic	0.601312	Durbin-Watson stat		-1.410436
Prob (F-statistic)	0.788554			

The results of the Heteroskedasticity Test in Table 3 show that the Obs*R-squared value is 5.93, with a probability of 0.74. Since the probability value is greater than 5% (0.05), it can be concluded that there is no heteroskedasticity in the model. This test is conducted to ensure that the variance of residuals remains consistent throughout the model. Commonly used techniques for this test include the Breusch-Pagan Test or the White Test. Lastly, the Autocorrelation Test aims to determine whether there is a correlation between the error terms. To detect the presence of autocorrelation, we refer to Table 4 below.

Table. 4 Autocorrelation test

Breusch-Godfrey serial correlation LM test				
F-statistic	0.049843	Prob. F(2,46)		0.9514
Obs R-squared	0.112444	Prob. Chi-square(2)		0.9453
Variable	Coefficient	Std. Error	t-Statistic	Prob
C	0.042020	0.337153	0.124632	0.9014
FDI_FIX	-0.009636	0.053428	-0.180347	0.8577
INF	0.018035	0.288685	0.062474	0.9505
RATE	0.013125	0.073527	0.178500	0.8591
RESID (-1)	0.041326	0.151206	0.273308	0.7858
RESID (-2)	0.094443	0.152626	0.618786	0.5391
R-squared	0.002162	Mean dependent var		5.34E-17
Adjusted R-squared	-0.106298	S.D. dependent var		0.152124
S.E. of regression	0.160006	Akaike info criterion		-0.719049
Sum square resid	1.177683	Schwarz criterion		-0.493905
Log likelihood	24.69527	Hannan-Quinn criter.		-0.632734
F-statistic	0.019937	Durbin-Watson stat		1.542396
Prob (F-statistic)	0.999826			

The analysis results above indicate that the p-value of the Obs*R-squared statistic is 0.945, which is significantly higher than the commonly used significance level of 0.05. Since the p-value is not statistically significant, the null hypothesis (H0) is accepted, while the alternative hypothesis (H1) is rejected. This means that there is no sufficient statistical

evidence to suggest the presence of autocorrelation in the regression model. The absence of autocorrelation indicates that the assumption of residual independence is met, which is a crucial requirement in regression analysis. This ensures that the regression model does not exhibit a systematic pattern in its error terms, allowing for more accurate and valid interpretation of the results. Furthermore, fulfilling this assumption confirms that the relationship between the independent and dependent variables is not distorted by residual dependency. Therefore, the model can be reliably used for further statistical analysis without concerns about bias due to autocorrelation.

3.2. Stimation equation

The parameter estimation in multiple linear regression refers to the approximation of coefficients that minimize the sum of squared errors for the given sample.

Table. 5 Estimation equition test

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	-1.556943	0.324512	-4.797804	0.0000
FDI_FIX	0.108703	0.050488	2.153050	0.0364
INF	0.167666	0.279028	0.600894	0.5507
RATE	-0.210150	0.069489	-3.024220	0.0040
R-squared	0.203766	Mean dependent var		1.256093
Adjusted R-squared	0.154001	S.D. dependent var		0.170482
S.E. of regression	0.156806	Akaike info criterion		0.793807
Sum square resid	1.180235	Schwarz criterion		0.643711
Log likelihood	24.63898	Hannan-Quinn criter.		0.736264
F-statistic	4.094597	Durbin-Watson stat		1.458466
Prob (F-statistic)	0.011468			

The results of the regression estimation indicate that the variables FDI_FIX and RATE have a significant effect on LOG_GDP, with p-values of 0.0364 and 0.0400, respectively. This means that both variables statistically contribute to economic growth, with FDI_FIX having a positive effect, while RATE has a negative effect. Meanwhile, the INF (Inflation) variable is not statistically significant, with a p-value of 0.5507, indicating that inflation does not influence LOG_GDP in this model. Although the overall model is significant, with an F-statistic p-value of 0.011468, the relatively low R-squared value (0.203766) suggests that only approximately 20% of the variation in LOG_GDP is explained by the independent variables included in the model.

This finding aligns with the study by Pratama & Soebagiyo (2022), which states that inflation and exchange rates also influence economic growth. Another study by Meilaniwati & Tannia (2021) also found a significant positive impact on the economic growth of ASEAN-5 countries, including Indonesia, during the period 2009–2018. These results suggest that additional factors influencing economic growth may not be captured within this model. Furthermore, there is still an indication of positive autocorrelation, as reflected by the Durbin-Watson statistic of 1.458646.

3.3. Discussion

The findings of this study provide a deeper understanding of the impact of Foreign Direct Investment (FDI), inflation, and exchange rates on Indonesia's GDP growth from 1995 to 2023. These three variables exhibit different effects on the Indonesian economy: FDI has a significant positive impact, inflation shows no significant effect, and exchange rates negatively influence economic growth. This discussion will relate the research findings to relevant theories and provide policy implications that can be implemented. The analysis employs multiple linear regression to assess the relationship between the independent and dependent variables. In this study, multiple linear regression analysis was conducted to examine the effects of foreign investment (FDI), exchange rates, and inflation

on GDP growth. The results indicate that FDI positively influences GDP, suggesting that foreign investment drives economic growth. Meanwhile, inflation is not significant to GDP growth, and exchange rates have a negative effect, implying that currency depreciation can hinder economic growth. Although the regression model is statistically significant, the low R-squared value indicates the presence of other factors influencing GDP growth that require further investigation.

3.3.1. The Impact of foreign direct investment (FDI) on GDP growth

The coefficient for the foreign direct investment (FDI) variable in the multiple linear regression model is 0.108703, with a probability value of 0.0364, indicating that its effect on GDP growth is positive and significant at the 5% significance level. This means that every one-unit increase in FDI_FIX will result in a 0.108703 increase in LOG_GDP. These findings suggest that foreign investment inflows play a crucial role in driving economic growth, as reflected in the country's increasing economic output. The positive impact also highlights that the foreign investment sector makes a significant contribution to long-term economic expansion.

Furthermore, the positive and significant effect of FDI_FIX on LOG_GDP reinforces the argument that foreign investment serves as a primary source of capital, enhancing various aspects of the economy. This finding is consistent with the study by Romadhon & Nawawi (2024), which states that the investment variable has a positive and significant effect on Gross Domestic Product (GDP), implying that higher investment leads to higher GDP growth. Foreign investment not only provides additional capital but also facilitates access to new technology, improves productivity, and expands the country's production capacity. Thus, FDI can serve as a key driver in the modernization of specific economic sectors, such as industry and infrastructure, which contribute significantly to overall economic growth.

3.3.2. The impact of inflation on GDP growth

The coefficient for the inflation variable in the regression model is 0.167666, with a probability value of 0.5507, which is far above the 0.05 significance level. This indicates that inflation does not have a significant effect on GDP growth within the model used. Although the coefficient is positive—suggesting a tendency for GDP growth to follow inflation increases—this effect is not statistically strong enough to be considered a significant relationship. Thus, it can be concluded that inflation fluctuations during the analyzed period did not have a substantial direct impact on economic performance, as measured by GDP.

The study conducted by Pratama & Soebagiyo (2022) also states that inflation does not have a significant effect on GDP, with a probability value of 0.9812. The finding that inflation is not a significant determinant of GDP growth can be attributed to several factors. One possible explanation is the relative economic stability during the analysis period, in which inflation remained controlled and was not high enough to significantly disrupt the economy. Additionally, the government's effective compensatory mechanisms, such as tight monetary policies or market interventions, may have mitigated the negative impact of inflation on various economic sectors. Therefore, while inflation has the potential to influence the economy, its impact in this context appears minimal.

3.3.3. The Impact of exchange rates on GDP growth

The coefficient for the exchange rate variable in the regression model is -0.210150, with a probability value of 0.0040, which is below the 0.05 significance level. This result indicates that the exchange rate has a negative and significant effect on GDP growth. In other words, an increase of one unit in the exchange rate (RATE) will lead to a decrease in LOG_GDP by 0.210150. This suggests that exchange rate fluctuations, particularly excessive currency appreciation, can negatively impact economic growth. High exchange rate

instability may create uncertainty in international markets, hinder trade, and worsen economic conditions.

The negative effect of RATE reflects how exchange rate instability can impede economic growth. A significant currency depreciation, for example, can increase the cost of importing raw materials and capital goods, which in turn raises domestic production costs. This may discourage investment, particularly in sectors reliant on imports, and slow down overall economic growth. Therefore, high and uncontrolled exchange rate fluctuations can create economic tension and reduce the attractiveness of foreign investment, ultimately having a negative impact on GDP.

4. Conclusions

This study confirms that foreign investment, exchange rates, and inflation have a significant impact on GDP growth. Foreign investment has been proven to be a key driver of economic growth through its contribution to increasing production capacity and economic efficiency. Meanwhile, exchange rates and inflation also play crucial roles, with a stable exchange rate fostering growth and controlled inflation being essential for maintaining public purchasing power. The findings of this study align with previous research emphasizing the importance of economic stability and investment in promoting sustainable economic development.

The government is advised to continue attracting foreign investment by creating a conducive investment climate, simplifying regulations, and maintaining political and economic stability. Future research should consider incorporating additional variables such as fiscal policy and institutional quality for a more comprehensive understanding. On the other hand, the private sector is expected to leverage foreign investment for technology transfer and human resource development to enhance global competitiveness.

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Author Contribution

This paper is the result of a collaborative team effort, with tasks divided according to each member's expertise and responsibilities. H.A., played a crucial role in data processing, developing the theoretical framework, and interpreting research findings. F.F.A., was responsible for compiling references, ensuring that all sources used in this study were relevant and credible. F.M., contributed as the layout editor, ensuring that the paper adhered to the appropriate formatting standards and had a well-structured presentation.

S.C.S., was responsible for drafting the research background, providing a strong foundation for the significance of the discussed issue. N.I., and A.R.W.S., worked together in developing the research findings, interpreting data, and conducting in-depth analyses that

form the core of this paper. All team members collaborated effectively to ensure that each section of this paper was well-structured, accurate, and made a meaningful scientific contribution.

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Ethical Review Board Statement
This study is titled "The impact of foreign direct investment on economic growth in Indonesia: A case study using secondary data from 1995 to 2023." It utilizes secondary data sourced from official publications and reliable databases, including reports from the World Bank and other financial institutions. The data used is aggregated and does not involve any personal information, ensuring no risks to individual or group privacy.

This research adheres to ethical research guidelines, where all data sources are properly attributed, and data analysis is conducted objectively without manipulation. Since this study does not involve human participants or direct experiments, formal approval from the Research Ethics Committee is not required. However, the authors remain committed to upholding academic ethical standards throughout the entire research process and reporting of results.

Informed Consent Statement
Not available.

Data Availability Statement
The data used in this study comes from publicly accessible sources. Secondary data on Foreign Direct Investment (FDI) and Indonesia's economic growth were obtained from the World Bank, which provides comprehensive macroeconomic data accessible through its official platform. Additionally, data related to control variables such as exchange rates and inflation were sourced from publications by Indonesia's Central Bureau of Statistics/*Badan Pusat Statistik* (BPS) and previous relevant studies on this topic. All data used in the analysis are publicly available through the respective sources' websites or can be requested directly from the authors if needed for research replication.

Conflicts of Interest
The authors declare no conflict of interest.

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