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The Impact of Foreign Direct Investment, Private Investment, Government Expenditure, and Labor on Economic Growth in Indonesia

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Abstract

Sustainable economic growth is a key goal for every developing country, including Indonesia. In this context, several key factors have been identified as the main determinants influencing the pace of economic growth. This study investigates Indonesia's economic growth in relation to foreign direct investment (FDI), private investment, government spending, and labor. The Autoregressive Distributed Lag (ARDL) method is applied to analyze time series data from 1986 to 2022. The results indicate that, in the long term, government spending has a positive and significant effect on economic growth in Indonesia, while labor has a negative effect. In the short term, FDI has a positive and significant impact on economic growth. Therefore, regulations and policies are needed in Indonesia regarding tax collection, currency stabilization, and the facilitation of permit acquisition, protection, and legal certainty.

Introduction

Economic growth is a long-term challenge faced by a country in its effort to increase real national income. Economic growth measures how successful a country is in producing goods and services, which is influenced by factors that increase in both quantity and quality, thereby improving people's welfare. In macro analysis, it is stated that the economic growth rate achieved by a country is measured by the development of real national income, as noted by [1,2]. Economic growth indicates an increase in the potential GDP or output of a country. The economic growth of a region can be calculated through the GDP growth indicators from year to year. An economy is said to be improving if the level of economic activity in the present is higher than that achieved in the past. Sustainable economic growth is growth that is supported by investment, as this growth is believed to increase productivity and, in turn, help enhance economic growth. Investment increases the amount (stock) of capital. In developing countries, especially those with the highest population growth rates, an oversupply of labor is a common feature [3,4].

However, in 1998, Indonesia experienced a significant monetary crisis, causing its economic growth to sharply decline, resulting in a negative growth rate of 13.12%. In 2020, Indonesia's economic growth declined again due to the Covid-19 pandemic, which hampered community activities, including economic activities, leading to negative growth of 2.06%. After the pandemic subsided, the following period saw gradual improvement, with the economy slowly experiencing positive growth [5].

One of the factors suspected to affect economic growth in Indonesia is investment. Investment is the first step in production activities and a key factor in increasing economic growth. Thus, investment is essentially the first step in economic development activities [6–8]. The dynamics

of investment impact the highs and lows of economic growth, reflecting rapid or sluggish development. Issues regarding investment often receive significant attention from development theorists and practitioners [9–11]. Speculation about the importance of investment in supporting the development of developing countries began with the discovery of post-World War II growth models in the 1950s and 1960s by several development experts, such as Rostow and Harrod-Domar [12,13]. Every effort to stay on track requires the mobilization of domestic and foreign savings with the intention of creating sufficient investment to accelerate economic growth [14–16].

In addition to the investment variable, another variable that also affects economic growth is government expenditure. The government is one of the economic actors whose role is increasingly important in the modern economy. Economic activities carried out by the government are aimed at changing the economic structure through fiscal policy, by determining state revenue and expenditure budget plans [17,18]. Theoretically, government expenditure intended for the public interest and community welfare will encourage an increase in per capita income, which grows larger year by year. This increase is marked by a rise in Gross Domestic Product through the multiplier effect. In turn, the rise in Gross Domestic Product will affect the amount of government revenue in the form of taxes, either directly or indirectly [14,19].

In addition to government spending, job opportunities are a factor that affects the output of a region. Labor is also a factor that influences the output of a region. A large workforce will result from a large population. However, population growth is feared to have a negative effect on economic growth. [20] mentioned that rapid population growth encourages the emergence of underdevelopment problems and makes development prospects more distant. Furthermore, it is stated that the population problem arises not from the large number of family members, but because they are concentrated in urban areas due to the rapid rate of migration from villages to cities [21–23].

Economic growth often has an impact that creates instability, which can be caused by several factors, one of which is a monetary crisis that seriously affects economic growth. This can hinder investment, reduce people's purchasing power, and decrease overall economic production. Monetary crises often trigger economic recessions that have long-term impacts on economic growth, including capital reductions, loss of investor confidence, and a general decline in economic activity. This is also true during global crises, which cause a decline in investment, an increase in unemployment, and broad economic contractions in various countries. The COVID-19 pandemic has also had a wide and profound impact on economic growth, leading to a drastic decline in economic activity, with many sectors experiencing contractions [24–27].

In several previous studies, there were differences in the results between the studies conducted. For instance, research by Maharani & Isnowati [28] stated that government spending and private investment have a positive and significant effect on economic growth. This is because, with regional autonomy, government spending and private investment play a major role in the development that increases economic growth. This finding aligns with research conducted by Buana et al. [29], Haryanto [30], and Suparno [31]. However, this study contradicts the research by Jirang et al. [32] and Kurniawan et al. [33], which states that government spending and private investment do not have a significant effect on economic growth, meaning that changes in government spending and private investment cannot increase or decrease economic growth. Research by Supratiyoningsih & Yuliarmi [34] states that the workforce has a positive and significant effect on economic growth, which is in line with research by Suparno [31], Mamuane et al. [35], and Setijawan et al. [36]. However, this finding contradicts the research by Ganar et al. [37]. This contradiction is attributed to the low quality of the existing workforce, which results in lower productivity and does not positively impact Indonesia's economic growth.

This study extensively explores the impact of foreign direct investment (FDI), private investment, government spending, and labor on economic growth, while certain research gaps still exist, particularly in the context of Indonesia. Understanding these gaps is essential for developing effective economic policies. First, the impact of FDI on Indonesia's economic growth has been studied in various contexts, showing positive impacts [38]. However, recent research is needed to examine how shifts in global economic dynamics and Indonesia's investment climate have altered this relationship. Additionally, the interaction between FDI and domestic private investment has not been sufficiently explored. Recent studies indicate that FDI can complement or replace domestic investment depending on the sector and regulatory environment [39].

Second, the role of government spending in driving economic growth has been well documented, but its effectiveness can vary greatly based on the efficiency of public spending and sectoral investment [40,41]. There is a gap in understanding how Indonesia's government spending, particularly in infrastructure and education, affects growth in the long term and how this interacts with private investment flows. Furthermore, although labor market dynamics are recognized as important for economic growth, comprehensive studies on how labor characteristics such as skills, education, and quality of work affect growth in Indonesia are limited [42]. Understanding how labor market policies and reforms affect economic performance alongside investment and public spending is essential for a holistic view.

Finally, no studies have integrated these variables into a combined model to evaluate their collective impact on economic growth and policy effectiveness in Indonesia. Such integration is important for formulating coherent policies that address multiple economic drivers simultaneously [43]. Addressing these research gaps will provide a deeper understanding of economic mechanisms in Indonesia and guide the formulation of more effective and targeted economic policies.

Literature Review

Foreign Direct Investment and Economic Growth

Foreign Direct Investment (FDI) is theorized to stimulate economic growth by providing capital, technology, and management skills that may be lacking in host countries. According to the neoclassical growth theory, FDI enhances productivity by introducing new technologies and practices, which lead to increased output and economic development [44]. Moreover, FDI can result in higher levels of human capital and infrastructure improvements in the host country, further driving growth [45,46].

Private Investment and Economic Growth

Private investment is crucial for economic growth as it leads to increased capital formation, higher productivity, and innovation. The endogenous growth theory posits that private investment in physical and human capital drives long-term growth by improving technological capabilities and creating new products [47,48]. Additionally, private investment is often more efficient than public investment because it is driven by profit motives and market signals [49,50].

Government Spending and Economic Growth

Government spending is theorized to influence economic growth through its impact on infrastructure, public services, and overall economic stability. According to Keynesian theory, increased government spending can boost aggregate demand and economic activity during downturns [51,52]. Additionally, public investment in infrastructure and education can enhance the productivity of the private sector and foster long-term growth [10,53].

Labor and Economic Growth

Labor plays a crucial role in economic growth by contributing to productivity and output. The human capital theory posits that investments in education and skills improve labor productivity, which in turn drives economic growth [42,54]. Additionally, labor market efficiency and employment levels are critical for maximizing economic potential [55,56].

Materials and Methods

Data Types and Sources

This study uses a quantitative approach. The research time period is from 1986 to 2022, with the research object being Indonesia. The scope of discussion in this study will focus on examining the influence of foreign direct investment (FDI), private investment, government spending, and labor on economic growth. In this case, the researcher will use secondary data from the World Bank [57] and Statistics Indonesia (BPS) [58]. The operational definition of the research variables is carried out to clarify the intent of each variable before conducting the analysis, instruments, and measurement sources. The operational definitions in this study are shown in Table 1.

Table 1. Details of the variables.

Variable Name	Symbol	Definition	Units
Economic Growth	PE	Annual Gross Domestic Product (GDP) growth rate over constant prices.	Percent
Foreign Direct Investment	FDI	Direct investment from foreign sources, net inflows (% of GDP).	Percent
Private Investment	IVS	Gross fixed capital formation (% of GDP).	Percent
Government Expenditure	PP	General government final consumption expenditure (% of GDP).	Percent
Labor	TK	Labor force participation rate (% of the total population aged 15+ years).	Percent
Dummy Crisis	DUM	Monetary crisis, global crisis, and COVID-19 pandemic.	No crisis (0) and crisis (1)

In the crisis dummy variables, there are three types: an economic crisis, a global crisis, and COVID-19. The crisis dummy variable is used to identify periods in the dataset that experience economic crisis conditions compared to periods without a crisis. This variable takes a value of 0 or 1 to distinguish between the two conditions. The economic crisis occurred during the 1997-1998 period, the global crisis during the 2008-2010 period, and the COVID-19 crisis during the 2020-2022 period.

Model and Method

The method to be used in this study aims to analyze and evaluate data using the Autoregressive Distributed Lag (ARDL) model. Before estimating, a stationary test, determination of optimal lag, cointegration test, model stability test, and classical assumption tests are carried out [59]. This ARDL model is a combination of Autoregressive (AR) and Distributed Lag (DL) models. According to Gujarati and Porter [60], the AR model uses one or more past data points from the dependent variable among the explanatory variables. The DL model is a regression model that involves data on the present and the past (lagged) values of the explanatory variables. The basic equation of the ARDL model is expressed in Equation 1 as follows:

$$\Delta Y_t = \beta_0 + \sum_{t=1}^{p} \beta_1 \Delta Y_{t-1} + \sum_{t=1}^{p} \beta_2 \Delta X_{t-1} + \varphi_1 Y_{t-1} + \varphi_2 X_{t-1} + e_t \quad (1)$$

The ARDL model that will be used in this study is designed to analyze the influence of FDI, private investment, government spending, and labor on economic growth in Indonesia in the

short and long term. The model, which will be adjusted to the variables used in this study, is written in Equation 2 as follows:

$$\Delta PE_t = \beta_0 + \sum_{t=1}^{p}\beta_1\Delta PE_{t-1} + \sum_{t=1}^{p}\beta_2\Delta FDI_{t-1} + \sum_{t=1}^{p}\beta_3\Delta IVS_{t-1} + \sum_{t=1}^{p}\beta_4\Delta PP_{t-1} + \sum_{t=1}^{p}\beta_5\Delta TK_{t-1} + \sum_{t=1}^{p}\beta_6\Delta DUM_{t-1} + \varphi_1 PE_{t-1} + \varphi_2 FDI_{t-1} + \varphi_3 IVS_{t-1} + \varphi_4 PP_{t-1} + \varphi_5 TK_{t-1} + \varphi_6 DUM_{t-1} + e_t \quad (2)$$

Where PE is economic growth; FDI is foreign direct investment; IVS is private investment; PP is government spending; TK is the workforce; and DUM represents the dummy crisis variables. Δ is the first difference operator, and β_1-β_6 coefficients represent the long-term impact, while φ_1-φ_6 coefficients capture short-term effects. The optimal lag is determined using the Akaike Information Criteria (AIC). This study has 37 observational data points, and ARDL is very suitable for use in research with a relatively low amount of data. In addition, it can still be applied when the variables are stationary at different orders.

Results and Discussion

Descriptive Statistics

Descriptive statistics in Table 2 show that the total data used for each variable in this study amount to 37 observations. The average economic growth (PE), using the annual GDP growth rate at constant prices as an indicator, is 4.84 percent, with maximum and minimum values of 8.22 and -13.12 percent, respectively. The high or low value of economic growth depends on the performance and productivity of the economy, as well as the economic policies implemented. In addition, foreign direct investment (FDI) averaged 1.201 percent, with the largest investment during 1986-2022 being 1.38 percent, while the least was -2.75 percent. These maximum and minimum values show a significant difference, and investors' decisions to make investments are primarily determined by interest rates and macroeconomic conditions. Similarly, private investment (IVS) averaged 27.72 percent, with the largest investment during 1986-2022 being 32.81 percent and the least being 19.42 percent. These maximum and minimum values also indicate a considerable difference. Moreover, government expenditure (PP) during 1986 to 2022 has an average of 8.59 percent, with a maximum value of 11.24 percent and a minimum value of 5.69 percent. Data from the World Bank show that government spending fluctuates in Indonesia.

Table 2. Descriptive statistics.

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
PE	4.8454	5.3085	8.2200	-13.126	3.5490
FDI	1.2018	1.3879	2.9161	-2.7574	1.2803
IVS	27.728	28.429	32.811	19.429	4.2860
PP	8.5991	9.0059	11.242	5.6935	1.1309
TK	66.507	66.580	68.240	64.210	0.8023
DUM	0.2162	0.2162	0.2162	0.2162	0.2162

Furthermore, the total labor force (TK) in Indonesia has an average of 66.5 percent. During the period from 1986 to 2022, the maximum workforce was 68.24 percent and the minimum was 64.21 percent. According to the data collected, the workforce in Indonesia tends to continue to increase, and this increase can be attributed to the growing number of people entering the age of inclusion in the labor force, supported by the level of labor absorption. Lastly, the dummy variable (DUM) shows an average value of 0.2162 points, with a maximum value of 1.00 and a minimum value of 0.000, indicating the existence of several crises that occurred between 1986 and 2022.

Stationarity Test

To test the stationarity of the data, this study employs the Augmented Dickey-Fuller (ADF) test. The stationarity test results are presented in Table 3. Based on these results, it can be concluded that the five variables in this study exhibit stationarity at different orders. Economic growth is stationary at the level, while the other variables—such as FDI, private investment, government expenditure, labor, and the dummy variables—are stationary at the first difference. This justifies the use of ARDL, as the method is particularly well-suited for datasets with mixed orders of stationarity.

Table 3. Results of ADF unit root test.

Variable	ADF		Conclusion Order
	Level	1st Difference	
Economic Growth	0.0016*	-	I(0)
FDI	0.1540	0.0000*	I(1)
Private Investment	0.2757	0.0185**	I(1)
Government Expenditure	0.1034	0.0000*	I(1)
Labor	0.0555	0.0000*	I(1)
Dummy Crisis	0.0917	0.0000*	I(1)

Note: * and ** indicate significance at the 1% and 5% confidence levels, respectively.

Optimum Lag Determinant

The optimal lag should be determined for the sake of further stage analysis. The results of the optimum lag test for the model are shown in Figure 1. The results of the optimum lag test using the Akaike Information Criteria (AIC) indicate that the optimal lag for the model to be used is the ARDL lag (1, 4, 1, 4, 0, 2). The lag obtained for this model will be applied in the ARDL estimation process.

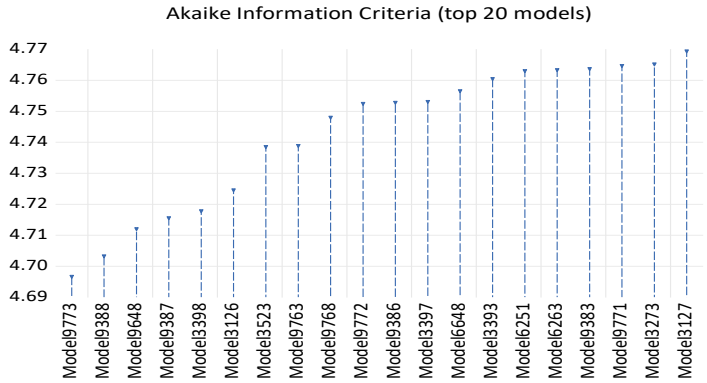


Figure 1. Results of the optimum lag test.

Cointegration Test

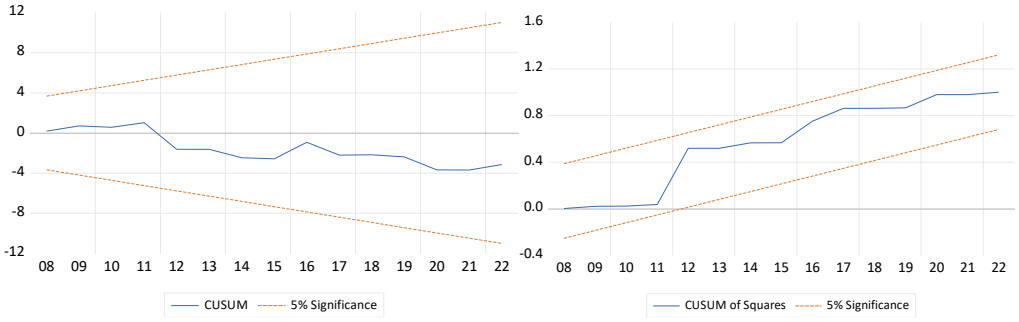
To use the ARDL method, it is necessary to check for the existence of long-term relationships in the model or perform cointegration testing. This study applies the ARDL bounds test to assess cointegration. As shown in Table 4, the F-statistical value is 8.8031, which is greater than both the lower bound and upper bound (3.06 to 4.15) at a confidence level of 1%. The conclusion of the bounds test results is that this research model is cointegrated, indicating a long-term relationship between economic growth and the independent variables in the model.

Table 4. Results of ARDL bounds test.

Test Statistic	Value	Sig.	I(0)	I(1)
F-statistic	8.8031	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.70	3.73
		1%	3.06	4.15

Model Stability Test

To assess the stability of the research model, the CUSUM and CUSUMQ tests were conducted. The results of the model stability tests are shown in Figure 2. Figure 2(a) depicts the CUSUM test, while Figure 2(b) depicts the CUSUMQ test. The results indicate that the model exhibits good stability. The tests show that the CUSUM and CUSUMQ lines are within the critical values at a confidence level of 5%. These results confirm that the model used is stable during the study period.



(a) (b)

Figure 2. Results of the CUSUM (a) and CUSUMQ (b) tests.

Classical Assumption Test

The classical assumption test was conducted by testing for normality, autocorrelation, heteroscedasticity, and multicollinearity, as summarized in Table 5. The data normality test was performed using the Jarque-Bera test, autocorrelation was detected using the Breusch-Godfrey LM test, and heteroscedasticity issues were examined using the Breusch-Pagan-Godfrey test method.

Table 5. Results of the classic assumption test.

	Normality Test		Autocorrelation Test		Heteroskedasticity Test	
	Jarque-Bera	Prob.	Obs*R^2	Prob.	Obs*R^2	Prob.
Model	1.0429	0.5936	2,3949	0,1217	25.908	0,0761
		IVA	IVS	PP	TK	DUM
Multicollinearity Test	IVA	1.0000				
	IVS	0.7268	1.0000			
	PP	0.4325	0.5801	1.0000		
	TK	-0.1417	0.2711	-0.1258	1.0000	
	DUM	0.2896	0.4381	0.0949	0.2816	1.0000

The results of the normality test show that the residuals of the model are normally distributed, as indicated by the Jarque-Bera probability value, which is above 0.05 (1.0429 > 0.05). Meanwhile, based on the results of the autocorrelation test using the LM test, no autocorrelation problems were detected. This conclusion is supported by the chi-square probability value of the Breusch-Godfrey LM test, which is above 0.05 (0.1217). There was also no heteroscedasticity problem in this study. This conclusion is derived from the chi-square probability value of the Breusch-Pagan-Godfrey test, which is above 0.05 (0.0761), indicating that the model is

homoscedastic. The results of the multicollinearity test showed that there was no strong relationship between the independent variables, as all values were below 0.8.

Estimation Results

The short-term and long-term results of the ARDL model estimates are shown in Table 6. The coefficient obtained for the FDI variable in the short-term is significant at the 1 percent level (probability 0.0000 < 0.01), with a positive coefficient of 2.4058, indicating that a 1 percent increase in FDI will raise economic growth by 2.4 percent in the short term, ceteris paribus. This result aligns with the research conducted by Nizar et al. [61]. However, in the previous year, two years, and three years, FDI was significantly shown at the 1 percent level with a negative coefficient. This is in line with research conducted by Hafriandi & Gunawan [62], which stated that due to the low quality and productivity of human resources, the technology transfer plan has not been properly implemented, and the unstable influence of national politics makes foreign investors less inclined to invest in Indonesia. In the long term, FDI is not significant (probability 0.1004 > 0.1), with a positive coefficient of 2.4018.

Table 6. Results of ARDL estimation.

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.
Short-term	D(FDI)	2.4059	0.4089	5.8833	0.0000*
	D(FDI(-1))	-1.2308	0.3907	-3.1506	0.0066*
	D(FDI(-2))	-1.3200	0.3608	-3.6584	0.0023*
	D(FDI(-3))	-2.1564	0.4339	-4.9702	0.0002*
	D(IVS)	0.0769	0.2464	0.3121	0.7592
	D(PP)	0.5964	0.6073	0.9820	0.3417
	D(PP(-1))	-2.1973	0.7835	-2.8044	0.0133**
	D(PP(-2))	-1.6875	0.7191	-2.3466	0.0331**
	D(PP(-3))	-2.0488	0.6616	-3.0966	0.0074*
	D(DUM)	-0.5334	1.0330	-0.5163	0.6132
	D(DUM(-1))	-4.9332	0.9207	-5.3583	0.0001*
	CointEq(-1)	-1.1656	0.1255	-9.2882	0.0000*
Long-term	IVA	2.4019	1.3717	1.7511	0.1004
	IVS	-0.7947	0.4626	-1.7181	0.1063
	PP	3.0792	1.3002	2.3683	0.0317**
	TK	-1.5669	0.8288	-1.8906	0.0782***
	DUM	0.8049	1.5574	0.5168	0.6128
R-Squared		0.8881			
Adj. R-Squared		0.8294			

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

Private investment (IVS) has a negative coefficient of 0.7947; however, it is not significant, with the short-term probability value of 0.7592 and the long-term value of 0.1063 both exceeding 0.1. This result is likely explained by studies by Bawinti et al. [63] and Parasan [64], which stated that the influence on economic growth is potentially caused by production factors that have not been utilized optimally and a lack of production facilities.

Government expenditure (PP) is significant in the long term at the 5 percent level (probability 0.0317 < 0.05), with a positive coefficient of 3.0792. This indicates that a 1 percent increase in PP will increase economic growth by 3.0732 percent in the long term, ceteris paribus. This is because government spending, especially in infrastructure investments and development projects, can stimulate economic activity, create jobs, and raise household income. Increased government spending can also enhance labor productivity and innovation, spurring long-term growth. Overall, prudent and targeted government spending is a key driver of economic growth in both the short and long term. These findings align with those of Wahyudi [65], who also found that government spending positively influences economic growth, as higher spending leads to increased growth. In the short term, current-year government spending has no

significant effect on economic growth. However, in the previous one, two, and three years, PP was significant at the 1 percent and 5 percent levels, with negative coefficients of -2.1973, -1.6875, and -2.0489, respectively.

Labor (TK) is significant at the 5 percent level (probability 0.0317 < 0.05) in the long term, with a negative coefficient of -1.5669, indicating that a 1 percent increase in TK would reduce economic growth by 1.5669 percent in the long term, ceteris paribus. This result is consistent with the research by Ganar et al. [37], suggesting that the low quality of the workforce may hinder productivity and economic growth in Indonesia, instead becoming a burden on the state.

The current year crisis dummy (DUM) variable has no significant effect on economic growth. However, in the previous year, the DUM was significant at the 1 percent level (probability 0.0001 < 0.01), with a negative coefficient of -4.9332.. This indicates that the monetary crisis, global crisis, and the COVID-19 pandemic had a negative impact on economic growth by reducing both foreign and domestic investment. Investment from foreign sources often declines during crises as investors avoid markets with high economic and financial uncertainty, while domestic investment may also decrease due to limited access to capital and higher borrowing costs. During such crises, the government's role in driving the economy through spending on infrastructure, education, health, and other programs is critical. However, a crisis can limit the government's ability to spend, as sudden budget deficits may force spending cuts or tax increases, both of which can depress economic growth [26,66]. This also affects the workforce, with limited job opportunities leading to higher unemployment in Indonesia.

The CointEq(-1) term in the ECM model has a probability of 0.0000 < 0.01 and a coefficient of -1.1655. The negative sign indicates an adjustment toward equilibrium. When the value of CointEq(-1) is between -1 and -2, it suggests that the lagging error correction term results in dampened fluctuations around the equilibrium path. In the short-term model, CointEq(-1) appears with a coefficient of -1.16, implying that the error correction process does not lead directly to a smooth convergence toward equilibrium, but rather fluctuates around the long-term value before settling. Once this process is complete, the convergence to equilibrium becomes rapid [67]. This assumes that existing regulations and policies in Indonesia, including fiscal policy (tax collection), monetary policy (currency stabilization), and easier facilitation of licensing, protection, and legal certainty, support economic growth. As Ramayani [68] suggests, to enhance economic growth in Indonesia, the government must promote balanced development, improve bureaucracy to create a conducive environment for investment, stabilize the economy in response to inflation, and improve human resources to boost output.

Discussion

The results of this study show that, in the long term, foreign investment and government expenditure have a positive and significant effect on economic growth in Indonesia. However, private investment and labor have a negative effect on economic growth. The crisis dummy variable has no significant effect on economic growth. In the short term, foreign investment continues to have a positive and significant effect on economic growth, while private investment, government spending, and the crisis dummy variable show no significant impact.

This study aligns with the extensive literature that indicates foreign investment and government spending positively contribute to economic growth. Foreign investment, by bringing capital, technology, and managerial expertise into the economy, often accelerates industrialization and increases productivity [45]. Similarly, government spending on infrastructure and public services fosters an environment conducive to economic growth by enhancing economic efficiency and capacity [69]. These findings emphasize the importance of policies that support foreign investment and effective government budget allocation.

In contrast, the findings that private investment and labor negatively impact economic growth in Indonesia raise important discussions about structural challenges in the country's economy. Negative private investment may indicate regulatory instability or a lack of adequate incentives for investors [70]. The negative effect of labor may point to issues related to workforce quality and skills, as well as a mismatch between the skills needed and those available in the market [71]. These findings highlight the need for reforms to create a more investment-friendly environment and improve workforce quality. Policies that enhance ease of doing business and provide relevant education and training would be highly beneficial.

The fact that the crisis dummy variable does not show a significant impact on economic growth suggests that the effects of certain crises may not have been fully captured in this study. This could imply that Indonesia's recovery mechanisms are effective or that the crisis dummy variable used does not encompass the full spectrum of possible crisis impacts [72]. Further research should explore the specific effects of different types of crises and develop more detailed mitigation strategies.

Conclusions

The study examines the factors affecting economic growth in Indonesia, focusing on foreign investment, private investment, government spending, labor, and the dummy crisis. The results primarily show that, in the long term, government spending has a positive and significant influence on economic growth, while labor has a negative effect. Foreign direct investment (FDI), private investment, and the dummy crisis show no significant impact on long-term economic growth, which may be due to existing regulations and policies in Indonesia. In the short term, foreign investment has a positive and significant effect on economic growth, while private investment, government spending, and the dummy crisis have no significant effect.

Based on the results of this study, two main recommendations are proposed. First, investment can be a strong driver of economic growth in Indonesia, and the government should focus on improving the business environment to make it more attractive to investors. This can be accomplished through regulatory reforms, reducing bureaucratic barriers, and enhancing legal protections for investors, all of which will support economic growth and sustainable development. Second, the labor market is a crucial aspect of the economy, and the government should prioritize upskilling the workforce through targeted training and education programs. This includes strengthening vocational and technical education, expanding access to industry-specific skills training, and developing curricula that align with job market demands.

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Data Availability Statement: The data can be downloaded for free from the official websites of Statistics Indonesia and the World Bank.

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