

Economic Growth in the Era of Economic Openness in Indonesia

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Abstract

The global economy has entered economic globalization, where with this economic globalization there is an escalation of the openness of a country's economy to international trade, foreign investment and international capital flows. Economic openness in both the financial sector and trade relations can be used as a driver of economic growth. Indonesia is one of the countries that continues to strive to become a developed nation. In recent years, Indonesia has experienced significant development, particularly in the economic sector. This progress is evident through a relatively good economic growth. The objective of this research is to examine the impact of petroleum and natural gas exports, petroleum and natural gas imports, foreign direct investment (FDI), and foreign exchange reserves on the economic growth of Indonesia's Gross Domestic Product (GDP) from 1990 to 2022. In terms of methodology, this study employed quantitative descriptive approaches and utilized secondary data for analysis. The data collection method uses the documentation method or documentation study using multiple linear regression analysis methods. The findings indicated that the exportation of petroleum and natural gas had a notable adverse impact on the economic growth of Gross Domestic Product (GDP). While petroleum and natural gas imports, foreign direct investment (FDI) and foreign exchange reserves make a positive and significant contribution to Gross Domestic Product (GDP). The implication of this study underscores the significance of considering the roles played by petroleum and natural gas export, petroleum and natural gas import, foreign direct investment, and foreign exchange reserves in shaping economic policies in Indonesia.

Keywords: Economic Growth, Energy Trade, Foreign Direct Investment, Foreign Exchange Reserves, Export, Import

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1. Introduction

Indonesia is one of the countries that continues to strive to become a developed nation. In recent years, Indonesia has experienced significant development, particularly in the economic sector. This progress is evident through a relatively good economic growth, as stated by [1]. Economic growth is a parameter used to assess the success of a country's economic development and serves as a determinant for future development policies. The commonly used parameter is the growth rate of the Gross Domestic Product (GDP). Stable and sustainable economic growth along with positive Gross Domestic Product (GDP) development are key indicators in assessing the economic health of a country [2]. According to the Central Statistics Agency (BPS), Indonesia's economic growth in 2022 reached 5.31%, an increase from the previous year's 3.70%. This reflects the success of various economic policies implemented by the government to promote growth in key sectors of the Indonesian economy.

GDP growth is also a significant highlight in economic analysis. GDP measures the total value of all goods and services produced by a country within a specific period, typically within a year. Data from the World Bank shows that Indonesia's GDP in 2022 reached 1.3

million US dollars, indicating significant economic potential on both regional and global scales. However, it is important to note that despite positive economic growth, there are still challenges and gaps that need to be addressed. Fluctuations in economic growth from year to year, especially influenced by external factors such as changes in global commodity prices or international market uncertainties, can impact the economic stability of a country.

In this context, Indonesia's economic growth fluctuates and is not always stable and consistent. Despite fluctuations in economic growth, the Bank of Indonesia asserts that the economic growth in Indonesia is still relatively high and stable. The following data represents Indonesia's economic growth from 1990 to 2022 :



Fig 1. Gross Domestic Product in Indonesia 1990-2022

The chart above illustrates Indonesia's economic growth from 1990 to 2022, showing a positive trend. By the peak year of 2022, Indonesia's economic growth reached 1,319,100 million US dollars, marking the highest point in economic growth figures over the last three decades. Despite the economic crisis that hit Indonesia in 1997 to 1998 which caused a decline in economic growth of up to 13.3%, the Indonesian economy slowly rose despite the 2008 global financial crisis. Until 2010 Indonesia's economic growth continued to grow by 6.29% from 2009. Structural reforms to support long-term economic growth have been implemented by the Indonesian government, which could accelerate economic growth after a slowdown in the previous years and from 2011 to 2015. According despite strong and stable economic growth in recent years, slowing global economic growth and uncertain global economic conditions require Indonesia to remain vigilant against increasingly uncertain global economic conditions [3].

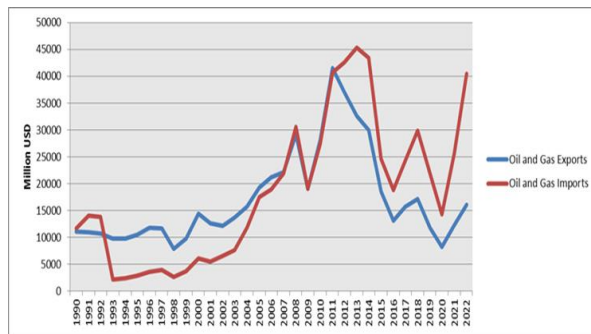
Based on the factors mentioned above, economic growth is not only influenced by domestic economic developments but also by international economic progress. The global economy has entered economic globalization, where this phenomenon entails an escalation of a country's openness to international trade, foreign investment, and international capital flows [4]. Economic openness in both the financial sector and trade relationships can serve as a driver for economic growth [5]. Essentially, economic openness is related to the diminishing barriers to international trade, as evidenced by the smoother mobility of goods, services, and capital exchanges. International trade acts as a means to enhance economic development, aiming to foster sustainable economic growth in a country through the transfer of goods or services from one country to another. This involves foreign investment, exports and imports, and the accumulation of foreign exchange reserves for currency stability. The movement of goods or services from one country to another is commonly known as exports and imports [6].

International trade creates opportunities for inclusive economic growth and sustainable development [7]. By opening access to markets, countries can expand their economic base and enhance efficiency in production [8]. The importance of fair and transparent trade regulations is crucial to ensure that the benefits of trade are distributed equitably while addressing potential negative impacts on inequality and environmental damage. In this era of globalization, cooperation among countries in international trade not only enriches economies but also provides opportunities to collaborate in addressing global challenges, ensuring sustainable and inclusive growth worldwide [9]. International trade in energy, particularly in the export

and import of oil and gas, plays a key role in supporting global economic stability and meeting a country's energy needs [10]. In this context, foreign direct investment in the energy sector can help a country develop sustainable energy resources and increase energy production capacity. This can enhance long-term energy availability, reduce dependence on fossil fuels, and support the realization of Sustainable Development Goals (SDGs), especially Goal 7, which focuses on clean and affordable energy.

The importance of diversifying energy sources and developing environmentally friendly technologies becomes more evident, given the challenges related to climate change and efforts towards renewable energy. Therefore, energy trade, especially in oil and gas, not only acts as an economic growth catalyst but also requires global coordination to address environmental challenges and ensure the sustainability of energy supplies worldwide. In this context, Indonesia is known as one of the providers of petroleum and natural gas and is one of the export products that has been quite successful in increasing foreign income and economic growth [11]. Where this is also supported, stating that there is a notable positive correlation between the export of petroleum and natural gas and economic growth [12], [13]. In contrast, state that exports of petroleum and natural gas have a negative consequence on economic growth [14], [15]. In an effort to increase the export of energy resources in Indonesia, natural resources must be utilized effectively and efficiently and develop infrastructure that is useful for supporting energy resource export activities.

In addition, Indonesia also procures petroleum and natural gas imports which can increase power in meeting domestic needs. This is because most developing countries, including Indonesia, often experience difficulties in ensuring energy security because the availability of energy resources in the country is insufficient to meet the country's energy needs [16]. Energy trading is considered a strategy to increase energy consumption levels, and this is thought to be a viable approach to stimulate economic growth, especially in energy import dependent countries [17]. This is further substantiated which demonstrates that the importation of petroleum and natural gas exerts a substantial positive influence on economic growth [16], [18]. Conversely, energy imports can also depress the economic growth of importing countries as they can cause a surge in the import bill [19]. A high surge in import bills can affect foreign exchange reserves which in turn can suppress Indonesia's economic growth. Research conducted indicates a negative correlation between imports of petroleum and natural gas and economic growth, where when petroleum and natural gas imports increase, economic growth decreases [20], [21].



Source: Badan Pusat Statistik Indonesia, processed 2023

Fig 2. Total exports and imports of petroleum and natural gas in Indonesia 1990-2022

Looking at the graph presented above, the condition of exports and imports in Indonesia from 1990 to 2022, Indonesia's oil and gas exports tended to fluctuate until in the end it continued to decline. Conversely, the condition of petroleum and natural gas imports from 2011 to 2022 is higher than petroleum and natural gas exports. In the realm of international trade, particularly concerning the exports and imports of petroleum and natural gas, Indonesia has encountered a trade deficit in this sector in recent years [22]. On the other hand, the continuously growing domestic economy requires more energy sources, far beyond the capacity of national-scale oil production. In the end, the government increases oil and gas imports to meet these needs, which if this happens continuously will cause oil and gas import dependence. John Maynard Keynes proposed a new concept in economic thought, indicating that an increase in consumption (C), investment (I), government spending (G), and net exports (X-M) can boost the production of goods and services. Therefore, changes in these variables are expected to have a positive influence on Gross Domestic Product (GDP), reflecting the extent to which a country achieves economic growth. Conversely, if there is a decrease in the levels of consumption, investment, government spending, and net exports, the production of goods and services will decline, leading to a decrease in economic growth [23]. In this context, an increase in exports contributes to higher national income as exports add to domestic spending. Conversely, an increase in imports reduces national income because a portion of domestic spending is used to purchase imported goods and services [24]. Thus, Keynes emphasized the importance of maintaining a balance between exports and imports to support economic growth [25].

Another indicator that determines or influences economic growth is foreign direct investment, which plays a role in helping reduce dependence on petroleum and natural gas imports by building energy infrastructure and natural resources, while also increasing domestic energy production [26]. The presence of foreign direct investment is a crucial

variable for sustainable economic growth and development, as it can contribute to expanding productive economic potential, creating jobs, and increasing a country's income [27]. In neoclassical growth theory according to the Harrod-Domar model, FDI can channel funds into sectors lacking capital, thereby enhancing economic growth by increasing capital [28]. Foreign Direct Investment (FDI) denotes the investment of capital by one country into another country, which can be either private capital or state capital. The interrelation of FDI and economic growth is that FDI will provide capital so that companies have a more massive, effective and efficient production capacity so that companies can provide surplus income to investors and provide output to the economic growth of a country, especially Indonesia [29]. In research by, it is asserted that FDI exerts a noteworthy positive impact on economic growth. Conversely, findings from the study conducted indicate a substantial adverse consequence of FDI on economic growth [30].

Foreign exchange reserves are also a pivotal indicator influencing economic growth, where these reserves serve as an integral element of the national savings. Consequently, the growth or magnitude of foreign exchange reserves holds significant importance in the global market [35]. Keynes regarded sufficient foreign exchange reserves as crucial for providing economic and financial stability while enhancing investor confidence. Foreign exchange reserves can influence imports (M) and exports (X) through the balance of trade. If foreign exchange reserves are adequate, a country can import goods and services needed to support economic growth, while exports can boost national income and drive economic growth through increased investment, consumption, and infrastructure development. Thus, Keynesian theory underscores the importance of maintaining sufficient foreign exchange reserves to support economic growth [36]. According to Keynes, for an open economy, foreign exchange reserves can play a pivotal role in influencing the level of aggregate expenditure and output [37]. In this case, foreign exchange reserves serve as a mode of payment in international transactions, paying for imported goods, installments and interest on foreign debt. Foreign exchange reserves play a vital role as a pointer in the monetary sector, reflecting the stability or instability of a country's economy. Indonesia, which has an open economy, makes Indonesia quite dependent on international trade flows which can change at any time so that it can result in Indonesia being affected by trade competition by developed countries through greater international trade expansion [38]. Prudent management of foreign exchange reserves can stabilize international trade and provide confidence to markets and foreign investors which in turn can affect Indonesia's economic growth. State that foreign exchange reserves has a noteworthy positive consequence on economic growth [39], [40].

Strengthening a sustainable economy starts from being able to compete with a country, especially Indonesia, in international trade, which focuses on sustainable economic activities or what is referred to as SDGs (Sustainable Development Goals) [42]. Where the strengthening of renewable energy alternatives through increasing added value in the energy sector as a form of economic sustainability goals with energy use efficiency in a region associated with the international trade system for economic openness in a region seen through Gross Domestic Product as a parameter of the economic activity of a region is considered important to be researched and becomes an urgency in research. The form of research renewal is carried out by initiating how a country carries out open economic activities by involving variables of petroleum and natural gas exports, petroleum and natural gas imports, foreign direct investment, and foreign exchange reserves as variables that support economic sustainability as measured by domestic product activities produced by a country with related energy use.

Although there are several studies that discuss the consequence of exports, imports and foreign investment on economic growth as has been done there has been no research that combines all these factors in the framework of economic growth in the time span of 1990 to 2022 [43]. In addition, the research literature that specifically discusses the consequence of foreign exchange reserves on economic growth is still limited, although from a theoretical perspective the interrelation between foreign exchange reserves and economic growth is clearly defined [41]. Thus, there is a research gap that needs to be filled related to the integration of the influence of petroleum and natural gas exports, petroleum and natural gas imports, FDI, and foreign exchange reserves on Indonesia's economic growth in the time span of 1990 to 2022. Research that combines these factors over a wide time span can provide a more comprehensive understanding of the dynamics of Indonesia's economic growth during this period.

2. Research Method

This study falls within the realm of quantitative research employing a descriptive approach. This study relies on secondary data, with the dataset encompassing time series information spanning from 1990 to 2022. The selection of the time range from 1990 to 2022 as the analysis period is to allow for a more holistic understanding of Indonesia's economic dynamics over the past two decades. This extended time frame can provide a more comprehensive overview of the relationship between the studied economic variables and overall economic growth. The variables used in this study are as follows:

Table 1. Operational Definition

Variables	Operational Definition
Economic Growth (GDP)	GDP (Current US\$) represents the total value of goods and services produced in a country in current US dollars, sourced from World Bank data.
Petroleum and Natural Gas Export	Total value of petroleum and natural gas products exported by Indonesia over a specific period, measured in million US dollars, sourced from BPS data.
Petroleum and Natural Gas Import	Total value of petroleum and natural gas products purchased by Indonesia from other countries over a specific period, measured in million US dollars, sourced from BPS data.
Foreign Direct Investment	Total inflow of direct investment capital from foreign countries to Indonesia in Balance of Payments (BoP) units, measured in US dollars, sourced from World Bank data.
Foreign Exchange Reserves	Total value of assets in foreign currencies owned by Bank Indonesia and the Indonesian government, measured in million US dollars, sourced from BPS data

The analytical approach employed for data evaluation is multiple linear regression. The formula for this research model is formulated as follows :

$$LOG_{GDP_{it}} = \beta_0 + \beta_1 LOG_{Ekspor Migas_{it}} + \beta_2 LOG_{Impor Migas_{it}} + \beta_3 LOG_{FDI_{it}} + \beta_4 LOG_{Cadangan Devisa_{it}} + \varepsilon_t \tag{1}$$

Where β is intercept or constant; $\beta_1, \beta_2, \beta_3, \beta_4$ is coefficient; $LOG_{GDP_{it}}$ is logarithm of gross domestic product; $LOG_{Ekspor Migas_{it}}$ is logarithm of petroleum and natural gas export; $LOG_{Impor Migas_{it}}$ is logarithm of petroleum and natural gas imports; $LOG_{FDI_{it}}$ is logarithm of foreign direct investment; $LOG_{Cadangan Devisa_{it}}$ is logarithm of foreign exchange reserves and ε_t is error.

To evaluate the credibility of the regression model, a classic assumption test is carried out which involves several tests. First, the normality test is used to evaluate the normality distribution of the residuals or confounding variables in the regression model [44]. Second, a multicollinearity test is conducted to ascertain if there is any correlation among the independent variables within the regression model. Multicollinearity identification can be done by using the Variance Inflation Factor (VIF) as an indicator. Furthermore, the heteroscedasticity test is utilized to examine whether there is unevenness in the residual variance across observations within the regression model. The detection of heteroscedasticity in this study uses the White method. Finally, the autocorrelation test is implemented to examine whether there exists a correlation between residual errors in period t and errors in period t-1 within a linear regression model. A commonly known autocorrelation test is the Langrange Multiplier (LM) test.

After testing the classical assumptions, the next step is to test the hypothesis. In hypothesis testing, there are several methods carried out, the first is the t test to

Source : Ewe

verify the error or correctness of the null hypothesis (H0) using sample results. Next, an F-test is performed to conducted the collective impact of all independent variables on the dependent variable. This is achieved by comparing the calculated F-value with the critical F-value obtained from the distribution table. The final step involves the coefficient of determination, which explains the extent to which a proportion of the variation in the dependent variable is explained by the independent variables, as reflected in the R-square value.

3. Result and Discussion

In this study, we conducted multiple linear regression analysis to explore the relationship between various factors influencing the target variable. Utilizing available data, our aim was to understand the relative contributions of each predictor to the response variable, as well as to identify the most significant factors in predicting its outcome.

In this study, we also conducted classic assumption tests to validate the use of the multiple linear regression model. We performed tests to assess assumptions regarding normality, homoscedasticity, and the lack of correlation between independent variables and residuals. The results of these tests are crucial to ensure the reliability and validity of our regression outcomes. The following are the results of the analysis :

Table 2. Classical Assumption Test Results

Test	Variable	Prob. Value	Description
Normality Test		0.636244	Normally Distributed Data
	Petroleum and Natural Gas Export	2.325888	
Multicollinearity Test	Petroleum and Natural Gas Import	3.225163	No symptoms occur multicollinearity
	FDI	2.267077	
	Foreign Exchange Reserves	1.984541	
Heteroscedasticity Test		0.0679	No Heteroscedasticity
Autocorrelation Test		0.0631	Positive Autocorrelation

The results of a series of classical assumption tests show that the data distribution can be considered normal, given that the probability value is > 0.05 , reaching 0.636244. In the multicollinearity test results using the VIF (Variance Inflation Factors) method on the oil and gas export, oil and gas import, FDI (Foreign Direct Investment) and foreign exchange reserves variables have a value of 2.325888, 3.225163, 2.267077, and 1.984541. The Variance Inflation Factor (VIF) for the four variables is below 10, indicating the

absence of any indications of multicollinearity for each variable. This suggests that there is no noteworthy issue of heteroscedasticity. Finally, in the autocorrelation test, the Chi-Squared probability value is at 0.0631 where this figure is more than 0.05. This means that this model is suitable for use because it does not contain autocorrelation or positive autocorrelation.

Partial Test (t)

Partial tests are conducted to evaluate the significance of each independent variable's impact on the dependent variable individually, while holding other variables constant.

- The t statistic for the petroleum and natural gas export variable is -2.101982 with a probability of 0.0447. If the probability is below 0.05, it can be inferred that petroleum and natural gas exports significantly and negatively impact on Gross Domestic Product.
- The t statistic for the petroleum and natural gas import variable is 3.868588, and the probability is 0.0006. When the probability is less than 0.05, it can be inferred that the importation of petroleum and natural gas has a substantial positive influence on Gross Domestic Product.
- The FDI variable is associated with a t statistic of 4.583989 and a probability of 0.0001. When the probability is less than 0.05, it can be inferred that Foreign Direct Investment (FDI) has a substantial positive influence on Gross Domestic Product.
- The foreign exchange reserves variable shows a t statistic of 7.052451, and the probability is 0.0000. With a probability less than 0.05, it can be inferred that foreign exchange reserves has a substantial positive influence on Gross Domestic Product..

F test

The F-test is designed to assess the combined influence of all triggering variables on the dependent variable. According to the results of the regression estimation, the variables such as export of petroleum and natural gas, import of petroleum and natural gas, Foreign Direct Investment (FDI), and foreign exchange reserves exhibit an F value of 89.49566, with a statistical probability of 0.000000. Since the probability value is less than 0.05, it can be inferred that collectively, petroleum and natural gas export, petroleum and natural gas import, FDI, and foreign exchange reserves significantly influence Gross Domestic Product.

Coefficient of Determination (R²)

Based on the research above, an R-squared value of 0.927458 was recorded. Therefore, it can be concluded that 92.74% of the variation in Gross Domestic

Product (GDP) can be explained by the triggering variables, namely petroleum and natural gas export, petroleum and natural gas import, FDI, and foreign exchange reserves. Meanwhile, the remaining 7.26% can be ascribed to other factors not encompassed within the scope of this research..

Discussion

Utilizing the outcomes of the multiple linear regression on the petroleum and natural gas export variable, which features a variable coefficient of -0.318576 and a probability of 0.0447 , it can be deduced that the petroleum and natural gas export variable significantly and negatively influences economic growth in Indonesia from 1990 to 2022. In the event of a 1 million USD rise in petroleum and natural gas exports, it is projected that Gross Domestic Product will decrease by 0.318576 million USD.

The outcomes of this research align with the findings of studies carried out by [15] and [14], both of which affirmed that petroleum and natural gas exports exert a substantial negative impact on the economic growth of Gross Domestic Product (GDP). However, these results are contrary to Keynesian theory, where the value of exports should ideally be positive. If the value of petroleum and natural gas exports is positive and exceeds petroleum and natural gas imports, then foreign exchange reserves will increase, contributing to economic growth. The findings suggest that petroleum and natural gas exports do not significantly impact economic growth. The fluctuating and declining trend in Indonesia's petroleum and natural gas exports over the past five years may be attributed to the lack of productivity in oil and gas exports, as Indonesia mainly exports raw materials [45].

Additionally, the fluctuations and decline in the volume of petroleum and natural gas exports in recent years have been linked to the decreasing oil production in Indonesia. Insufficient investment in the oil industry has led to a decline in oil production over the last two decades, despite Indonesia's substantial oil reserves. On the other hand, Indonesia is also a net oil importer because some types of oil produced in Indonesia cannot be processed directly by Indonesian-owned oil refineries, and due to inadequate technology. The plummeting world oil prices have also affected operational costs and national income. Therefore, the government needs to formulate a policy in the form of petroleum and natural gas exports in the form of value-added goods as a form of competitiveness that has the ability to compete internationally. If a country has high petroleum and natural gas exports, it can generate additional income for the country. Income from oil and gas exports can be used to develop the sustainable energy sector, such as investing in renewable energy or environmentally friendly energy infrastructure

projects. This contributes in a positive manner to the attainment of Sustainable Development Goals (SDGs).

Drawing from the outcomes of multiple linear regression on the petroleum and natural gas import variable, featuring a variable coefficient of 0.321883 and a probability of 0.0006 , it can be inferred that the petroleum and natural gas import variable significantly and positively influences economic growth in Indonesia from 1990 to 2022. With a 1 million USD increase in petroleum and natural gas imports, it can be inferred that there will be a rise of 0.321883 million USD in Gross Domestic Product.

The outcomes of this research align with the findings of studies carried out by [18] and [16] assert that the import of petroleum and natural gas has a substantial positive impact on the Gross Domestic Product (GDP). From 2011 to 2022, petroleum and natural gas imports in Indonesia consistently increased, with the highest percentage increase occurring in 2014 at 61.67% . This was due to the continuous growth of the domestic economy, which required more energy sources far beyond the capacity of national oil and gas production. One of the production sectors that significantly demands energy is the industrial sector. Energy imports are part of economic globalization, allowing countries to coordinate and support each other's energy supplies. The existence of energy imports is crucial to address energy shortages in countries dependent on energy imports, and as a result, energy imports can be associated with increased economic output [17]. Therefore, it can be predicted that economic growth will experience an upturn.

However, this contrasts with Keynesian ideas, where imports have a negative impact on economic growth, meaning that an increase in the value of imports corresponds to a decrease in economic growth. Reducing dependence on energy imports is also recognized to stimulate further economic growth [46]. Continuous energy imports can increase the energy import bill, which in turn can put macroeconomic pressure on the economy of the importing country. Countries that rely heavily on imports of energy resources tend to be more vulnerable to fluctuations in energy prices, which in turn can complicate overall macroeconomic stability [47]. Hence, endeavors to incorporate domestic energy resources into the national energy mix, along with decreasing dependence on energy imports are anticipated to make a more substantial contribution to economic growth. By reducing dependence on petroleum and natural gas imports and replacing them with sustainable energy sources, a country can mitigate its balance of payments deficit and enhance long-term energy availability, aligning with the Sustainable Development Goals (SDGs).

Derived from the outcomes of multiple linear regression on the Foreign Direct Investment (FDI)

variable, featuring a variable coefficient of 0.221884 and a probability of 0.0001, it can be inferred that the FDI variable significantly and positively influences economic growth in Indonesia from 1990 to 2022. In the event of a 1 million USD rise in FDI, it is anticipated that Gross Domestic Product will experience an increase of 0.221884 million USD. The findings of this research align with the Neo-Classical Economy theory, where this neoclassical theory supports the presence of foreign investment through transnational corporations as it is deemed to have positive impacts on the host country [48]. The outcomes of this research align with the findings of studies carried out of which affirmed that FDI has a substantial positive impact on Gross Domestic Product (GDP) [32], [33]. This condition is grounded in the fact that investments in Indonesia show a tendency to increase. As per the World Bank's Ease of Doing Business (EoDB) ranking, Indonesia is placed at 72nd position out of 190 countries.

The signals of growing investment in Indonesia can be referenced from the World Investment Report 2018, illustrating a significant growth in Foreign Direct Investment (FDI) in Indonesia. Indonesia has become a priority for foreign investors to invest their capital. Additionally, the performance and opportunities in attracting foreign investments are also categorized as high. The ample support for foreign investors, efficient bureaucracy, and supportive infrastructure are among the factors contributing to Indonesia's appeal for foreign investment ("Investasi Dan Indonesia Maju | Sekretariat Negara," n.d.). The beneficial impact of foreign direct investment on economic growth, as measured by Gross Domestic Product (GDP), is seen in the increasing investment activities leading to the fulfillment of investment funds and the productivity of goods and services.

Consequently, Gross Domestic Product (GDP) experiences growth along with economic expansion. These investments may involve projects such as road, port, airport construction, as well as digital infrastructure supporting connectivity and economic growth. Simultaneously, investments in the energy sector can prioritize the advancement of renewable energy sources, such as solar and wind energy, to strengthen national energy resilience while reducing environmental impact. Partnering with foreign investors in these projects will not only enhance Indonesia's basic infrastructure but also support the transition to clean energy sources, create job opportunities, and stimulate sustainable economic growth. Foreign investor support in infrastructure development and the renewable energy sector is also one of the Indonesian government's efforts to improve the investment climate and foster economic growth.

Derived from the outcomes of multiple linear regression on the foreign exchange reserves variable,

featuring a variable coefficient of 0.401029 and a probability of 0.0000, it can be inferred that the foreign exchange reserves variable significantly and positively influences economic growth in Indonesia from 1990 to 2022. With an increase in foreign exchange reserves by 1 million USD, it is estimated that Gross Domestic Product will increase by 0.401029 million USD. The outcomes of this research align with the findings of studies carried out both of which affirmed that foreign exchange reserves have a substantial positive impact on Gross Domestic Product (GDP) economic growth [40], [41].

These findings also align with Keynes's idea that foreign exchange reserves can influence imports (M) and exports (X) through the balance of trade. If foreign exchange reserves are sufficient, a country can import goods and services needed to support economic growth, while exports can increase national income and drive economic growth through increased investment, consumption, and infrastructure development. The condition of foreign exchange reserves in Indonesia fluctuates annually, reaching its peak in 2021 when Indonesia ranked third in ASEAN with a value of 144.908 billion US dollars ("Sekretariat Nasional ASEAN – Indonesia," n.d.). Despite the global pandemic in 2020 due to COVID-19, Indonesia, as one of the developing countries, managed to recover, and in 2021, it held the highest foreign exchange reserves in its history. This indicates that Indonesia was capable of stabilizing the global economy during the COVID-19 pandemic. According to foreign exchange reserves will only increase if exports exceed imports [49].

However, the results of this research show that the value of imports surpasses the value of exports. The rise in foreign exchange reserves in 2021 can be attributed in part to the additional allocation of Special Drawing Rights (SDR), totaling 4.46 billion SDR or approximately US\$ 6.31 billion, which Indonesia received from the International Monetary Fund (IMF). As a developing country, an effective strategy to increase foreign exchange reserves involves increasing exports, which play a pivotal factor in the national development process. Thus, the expansion of foreign exchange resulting from export activities will become more substantial [50]. A strong foreign exchange reserves condition can boost investment, especially in infrastructure and renewable energy sectors, supporting economic growth and the welfare of the community [48]. However, an increase in foreign exchange reserves that is not in accordance with the procedure will be a burden for the country itself and not a benefit that can be obtained because there will be potential opportunity costs, so wise management of foreign exchange reserves is needed.

4. Conclusion

The results of this study indicate that the increase in petroleum and natural gas exports has a significantly negative impact on Gross Domestic Product (GDP) from 1990 to 2022. On the other hand, petroleum and natural gas imports, Foreign Direct Investment (FDI), and foreign exchange reserves have a substantial positive influence on GDP economic growth during the same period. The implication of this study underscores the significance of considering the roles played by petroleum and natural gas export, petroleum and natural gas import, foreign direct investment, and foreign exchange reserves in shaping economic policies in Indonesia. According to the findings of the study, there is an anticipation that the government can develop sustainable, diversified and value added oriented export policies to increase the contribution of exports to economic growth. Furthermore, foreign direct investment in the energy sector can assist a country in developing sustainable energy resources and enhancing energy production capacity. This can improve long-term energy availability, reduce dependence on fossil fuels, and contribute to the fulfillment of Sustainable Development Goals, especially Goal 7. For researchers, it is expected that future researchers conduct more in-depth studies by expanding the scope of research to other countries or comparisons between countries and using the Error Correction Model (ECM) analysis method to obtain a more comprehensive understanding.

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