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Analysis of the Effect of Interest Rates, Exchange Rate Inflation and Foreign Investment (PMA) on Economic Growth in Indonesia in 1986-2020

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ABSTRACT
This study aims to examine several factors influencing economic growth. The independent variables in this study encompass several macroeconomic variables of interest rates, inflation, exchange rates, and foreign investment. This study employed the Ordinary Least Square (OLS) approach to analyze time-series data during 1986-2020, and the estimation steps comprised classical assumption, model goodness, and regression coefficient tests. The study results revealed that the variables of interest rates, inflation, exchange rates had a negative and significant effect on economic growth in Indonesia. However, foreign investment did not affect economic growth.

Keywords: *Economic Growth, Foreign Investment, Interest Rate, Indonesia, Multiple Regression*

1. INTRODUCTION

Economic development planning is the main means of achieving high economic growth. A country can determine a series of economic targets quantitatively within a certain period with economic development planning. A country can also mobilize limited resources to obtain optimal results smoothly, progressively and in balance through development planning [1].

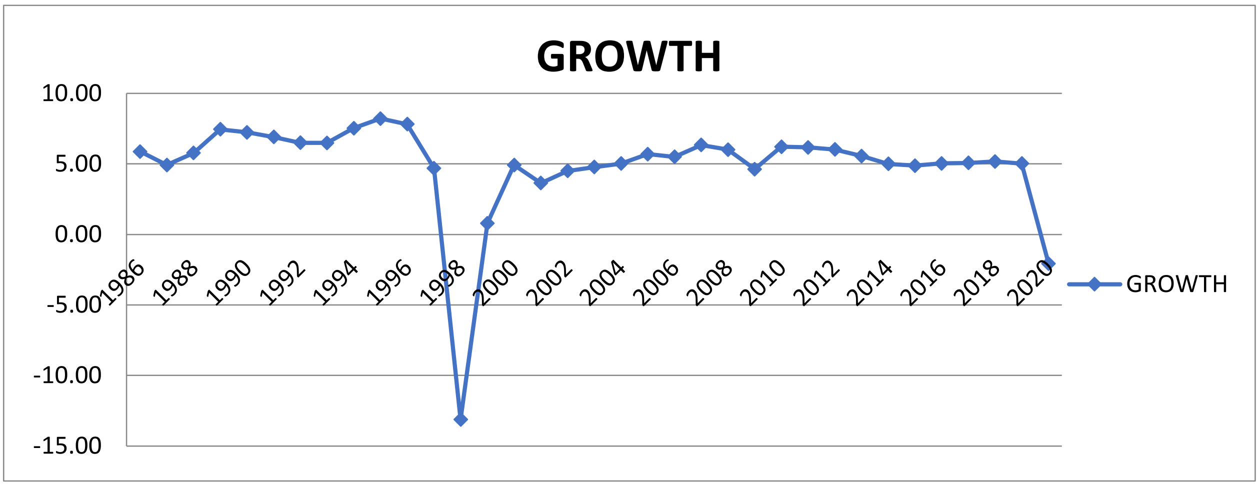
Increased economic development will also be accompanied by economic growth. Economic growth in any country is inseparable from the role of investment. When an investment shock occurs in a country, it will significantly affect its national income. One of the government's efforts to explore sources of domestic investment is to attract sources of financing from abroad, namely foreign investment [2].

Economic growth is a tool for measuring the performance of economic development. In macroeconomic analysis, the level of economic growth that a country wants to achieve is measured by developing real national income achieved in a certain year (Sukirno, 2013).

Economic growth can be utilized as a macro-economic indicator displaying the level of welfare of the people of a country. There is no exception for developing countries such as Indonesia; economic growth has always been the center of attention to determine the economic level. To achieve a high and stable level of the economy is not easy; it must be followed by the ability of macro-economic variables to overcome every problem [3].

Economic growth is an economic process causing an increase in goods and services rising prosperity in a country. Hence, if the economic growth is high, the goods to be produced will also increase, boosting the level of community welfare [4].

Graph 1.1 Economic Growth in Indonesia



Source: World Bank(2021)

World Bank data demonstrate that Economic Growth in Indonesia from 1986 to 2020 experienced fluctuations or unfixed conditions. The highest economic growth occurred in 1995 at 8.22, and the lowest was in 1998 at -13.13. National economic growth has decreased continuously for the last 10 years. Economic growth in 2010 was 6.22. In 2011, it was 6.17; in 2012, it fell to 6.03 until, in 2020, it fell to -2.07. In terms of production, the deepest growth contraction occurred in the Transportation and Warehousing Business Field of 15.04 percent.

Moreover, almost all components contracted in terms of expenditure; the export of goods and services experienced the deepest contraction of 7.70 percent. Meanwhile, imports of goods and services, a reducing factor, contracted by 14.71 percent [5]. Factors affecting economic growth encompass the consumption of a country's people, investment channeled to that country, interest rates, inflation rates, exchange rates and foreign investment.

Minister of Finance (Menkeu) Sri Mulyani Indrawati conveyed that Indonesia's economic growth in 2020 was relatively better than the average economic growth of other countries in Southeast Asia, at -4.0 percent, based on Asian Development Outlook data in April 2021. Indonesia experienced an economic contraction in 2020 by -2.07 percent. This figure makes Indonesia a country that can maintain the impact of the Covid-19 pandemic on the economy at a moderate level," explained the Minister of Finance in the Plenary Session of the Indonesian House of Representatives, Thursday (15/07). It is an extraordinary step, namely providing economic and financial stimulus. The Covid-19 Pandemic Handling and National Economic Recovery Program (PC-PEN) is directed at dealing with the health impacts of the pandemic, as well as restoring the national economy quickly and responsively [6].

2. LITERATURE REVIEW

2.1. Economic Growth

Economic growth measures the achievement of the development of an economy from one period to another. The ability of a country to produce goods and services will increase. This increased capability is due to the addition of factors of production both in quantity and quality. The investment will increase capital goods, and the technology used will also grow. In addition, the workforce increases due to population development along with the increase in their education and skills.

Economic growth is defined as an increase in the ability of an economy to produce goods and services. Adam Smith's classic growth model is as follows.

$$Y = f(L, K, T)$$

Y is output, L refers to labor, K means capital, and T is land. Thus, the output is related to labor, capital and land. As a result, output growth is driven by population growth, investment, land growth, and increases in overall productivity. In addition, he sees savings as the creator of investment growth. Therefore, income distribution is one of the most crucial determinants of sooner or later a nation will grow.

2.2 Interest Rate

The interest rate is one indicator determining whether a person will invest or save. The interest rate is the amount of Rupiah paid due to using the funds as compensation. Changes in interest rates are changes in the demand for money (credit). An increase in interest rates results in a decrease in aggregate demand or investment spending.

In the context of the international economy, changes in interest rates can affect the perception and interest of foreign investors to bring their funds into a country. For example, interest rates in Indonesia are higher than in other Southeast Asian countries, so foreign investors will be more interested in investing in Indonesia to obtain higher returns. Meanwhile, if interest rates in Indonesia are lower, foreign investors will be less interested in investing. Domestic investors can take their funds abroad if interest rates are too low. Credit interest rates positively affect economic growth. However, the effect is not statistically significant [7].

In research conducted by [8], interest rates had a positive and significant effect on economic growth. According to [9], interest rates positively and significantly impacted economic growth. Moreover, [1] revealed that interest rates significantly affected economic growth. In contrast, [10] unveiled that interest rates had a negative and significant effect on economic growth.

2.3 Inflation

According to M. Natsir (2014: 253), inflation is a tendency to increase the price of goods and services in general and continuously. Bank Indonesia defines inflation as a general and continuous increase in prices. An increase in one or two goods prices alone cannot be called inflation unless the increase extends to other goods. The opposite of inflation is called deflation.

Inflation is an economic event that often happens even though we never want it [4]. In principle, not all inflation has a negative effect on the economy. Well-managed inflation can positively impact the country’s economic growth. According to [11], inflation significantly affected economic growth. However, [12] discovered no significant effect of inflation on economic growth.

2.4 Exchange Rate

According to Mahyus Ekananda (2014:168), the exchange rate refers to the price of a currency relative to the currencies of other countries. Exchange rates play an important role in spending decisions, allowing us to translate prices from different countries into the same language.

Countries with a strong exchange rate (having a large number of transactions) have a strong influence on the fundamentals of the world economy so that market participants and investors will usually respond to central bank policies from developed countries toward this interest rate to take advantage of this moment to obtain maximum profits. The research conducted by [8] disclosed that the exchange rate had a positive and significant effect on economic growth. Similarly, according to [13], the exchange rate significantly affected economic growth.

2.5 Foreign Investment

Foreign investment (PMA) is a form of investment by building and buying a total or acquiring a company. Investment in Indonesia is stipulated by Law No. 25 of 2007 concerning Foreign Investment (PMA). Foreign investment (PMA) is an activity to enter capital or investment to conduct business activities with a composition of wholly foreign capital or in joint ventures with domestic investors (Salim, 2012).

Foreign investment in this Law is the activity of investing in conducting business in the territory of the Republic of Indonesia, which foreign investors carry out, either using completely foreign capital or in collaboration with domestic investors [14].

One of them is the entry of new capital to help fund various underfunded sectors. This foreign investment also opens up many new jobs, reducing the unemployment rate and improving the economy of a country. [15] discovered that foreign investment (PMA) partially depicted a significant influence on economic growth in Indonesia. Similarly, [16] proved that investment affected economic growth in Indonesia. If investment increases while inflation decreases, it will impact increasing economic growth in Indonesia. According to [8], foreign investment had a positive and significant effect on economic growth.

3. RESEARCH METHODS

3.1 Approaches, Sources, and Research Data Collection Techniques

In this study, the authors utilized a quantitative research approach. According to V. Wiratna Sujarweni

(2014:39), quantitative research produces findings that can be achieved using statistical procedures or other means of quantification (measurement). While quantitative research, according to Sugiyono (2017:8), refers to a research method based on the philosophy of positivism, used to examine certain populations or samples, data collection using research instruments, in which data analysis is quantitative or statistical, with the aim of testing hypotheses. This study examined the effect of several variables such as interest rates, inflation, exchange rates and foreign investment on economic growth in Indonesia.

This study employed secondary data. According to Wardiyanta (2017: 87), secondary data refers to information indirectly obtained from sources (third parties). The data were obtained from data published by the World Bank, the Central Statistics Agency (BPS), previous studies, books, and journals concerned. The data were collected by observing many things at different points simultaneously, or regardless of the time difference (cross-section). This research was analyzed using Ordinary Least Square (OLS).

3.2 Data Analysis Technique

This study utilized interest rates, inflation, exchange rates, and foreign investment data. Furthermore, data were analyzed using multiple linear regression. Multiple regression models were applied to test the effect of two or more independent variables on one dependent variable, generally expressed in the following equation:

$Y = \alpha + ß1\ X1 + ß2\ X2 + ß3\ X3 + ß3\ X4\mu$

Where:

Y = Economic growth in Indonesia

α = Constant

ß1, ß2, ß3,ß4 = Regression coefficient

X1 = Interest Rate

X2 = Inflation

X3 = Exchange Rate

X4 = Foreign Investment

Thus, the equation becomes as follows:

$PE = \beta_0 + \beta_1(TSBt) + \beta_2(INFt) + \beta_3(KURSt) + \beta_4\ (PMAt) + et$

Description:

PE = Economic Growth

α = Constant

1β2β3β4 = Regression Coefficient

TSB = Interest Rate

INF = Inflation

EXCHANGE = Exchange Rate

PMA = Foreign Investment

e = Error/residual

4. RESULTS AND DISCUSSION

4.1 Estimation Results

Multiple linear regression analysis with the Ordinary Least Square (OLS) approach was performed to determine the effect of interest rates, inflation, exchange, and foreign investment on economic growth in Indonesia. The OLS model is a linear regression model with the least-squares calculation method. The estimation steps included classical assumption, model goodness and effect validity tests to identify the model validity. Based on the regression analysis, the following results were obtained.

$PE = \beta_0 + \beta_1(TSBt) + \beta_2(INFt) + \beta_3(KURSt) + \beta_4\ (PMAt) + et$

Description:

PE = Economic Growth

TSB = Interest Rate

INF = Inflation

EXCHANGE = Exchange Rate

PMA = Foreign Investment

α = Constant

$B_1\ \beta_2\ \beta_3\ \beta_4$ = Regression Coefficient

e = Error/residual

Graph 4.1 Econometric Model Estimation Results

$$PE_t = 17.147 - 0.453\ TSB_t - 0.480INF_t\ - 0.000KURS_t - 2.550PMA_t$$

$$(0.000)\ \ *\qquad (0.000)*\ (0.000)*\ (0.239)$$

R^2 = 0.954; DW-Stat. = 1.430; F-Stat. = 153,180; Prob. F-Stat. = 0.000

Diagnostic Test

(1) Multicollinearity (VIF)
ln (*TSB*) = 7.055; *INF* = 6.866; *KURS* = 2.116; *PMA* = 1.947

(2) Residual Normality
JB(2) = 0.082 Prob. JB(2) = 0.959

(3) Autokorelasi
$\chi^2(3)$ = 5.114; Prob. $\chi^2(3)$ = 0.163

(4) Heteroskedastisitas
$\chi^2(14)$ = 21.074; Prob. $\chi^2(14)$ = 0.099

(5) Linieritas
F(2.27) = 2.327; Prob. F(2.27) = 0.116

Source: World Bank, processed. Description: *Significant at = 0.01; **Significant at = 0.05; ***Significant at = 0.10. The number in brackets is the empirical probability (p value) of the t-statistic.

The diagnostic test indicates that the estimated model did not have any problems violating the classical assumption test. All VIF values < 10, so the estimated model was free from multicollinearity problems. The empirical probability values for Residual Normality, Autocorrelation, Heteroscedasticity, and Linearity Tests, obtained 0.959 (> 0.05), 0.163 (> 0.05), 0.09 (> 0.05) and 0.116 (> 0.05), indicating that the estimated model had a normal residual distribution, free from autocorrelation and heteroscedasticity problems, with exact model specifications (linear).

4.2 DISCUSSION

According to the Ordinary Least Square (OLS) method, the interest rate had a regression coefficient of -0.453 with a probability t-statistic of 0.000 < 0.05, meaning that the interest rate variable had a negative and significant effect on economic growth in Indonesia. This empirical finding follows the research of [10] and [17], discovering that interest rates had a negative and significant effect on economic growth.

Compared to [9], disclosing that interest rates had a positive and significant effect on economic growth, research conducted by [8] unveiled that interest rates had a positive and significant effect on economic growth. The interest rate is one of the determining factors for a person to invest in investment and export activities. The higher the interest rate, the lower the tendency to invest, and vice versa, the lower the interest rate, the higher the tendency to invest. Interest rate is a “cost” that investors must incur in taking bank credit to carry out investment activities.

The Ordinary Least Square (OLS) estimation method demonstrates that the inflation variable had a regression coefficient of -0.480 with a probability t-statistic of 0.000 < 0.05, implying that changes in the inflation variable had a negative and significant effect on economic growth in Indonesia. The findings of this empirical research are supported by research [11] and [18], revealing that inflation had a negative and significant effect on economic growth in Indonesia. In contrast, [4] identified that inflation had a positive but insignificant effect on economic growth. In simple terms, inflation is defined as increasing prices continuously. An increase in the price of one or two goods alone cannot be called inflation unless the increase extends (or causes price increases) to other goods (Bank Indonesia). According to Ardiansyah (2017), inflation is an economic event that often occurs even though we never want it. Milton Friedman asserted that inflation is everywhere and is always a monetary phenomenon reflecting excessive and unstable monetary growth.

The Ordinary Least Square (OLS) estimation method displays that the exchange rate variable had a regression coefficient of -0.000 with a probability t-statistic of 0.000 <0.05, signifying that changes in the exchange rate variable had a negative and significant effect on economic growth in Indonesia; it follows [19]. Conversely, [8] uncovered that the exchange rate had a positive and significant effect on economic growth. The exchange rate is the amount of domestic money needed, namely the number of Rupiahs needed to obtain one unit of foreign currency. According to the Bank Indonesia dictionary, the exchange rate is one country's currency unit against another. There are two ways to value currencies: direct quotation and indirect quotation.

The Ordinary Least Square (OLS) estimation method exhibits that the foreign investment variable had a regression coefficient of -2550 with a probability t-statistic of 0.239>0.05, proofing that foreign investment variables did not affect economic growth in Indonesia. The findings of this empirical research are supported by research [20], stating that foreign investment had no significant effect on economic growth. However, [16], [21], and [22] declared that investment affected economic growth in Indonesia. According to [8], foreign investment had a positive and significant effect on economic growth. Foreign investment (PMA) includes investment in capital goods because it is a real investment in company establishment, factory establishment, purchase of capital goods, land, raw materials and controlling the investment. Hence, PMA can encourage increased economic growth. Without PMA in Indonesia, economic activity may run slowly or be less productive due to inadequate capital and infrastructure [15].

5. RESEARCH CONTRIBUTION

The results of this study are expected to contribute as follows:

For academics, this research is expected to add insight and scientific development of academics, especially those interested in researching the economic growth index and be used as a basis for making decisions regarding the research.

For investors, this research is expected to add references by being used as a decision-maker in investing.

For future researchers, this research is expected to be a reference material and empirical evidence on the effect of interest rates, inflation, exchange rates and foreign investment on economic growth in Indonesia.

6. CONCLUSION

Based on the results of regression analysis using Ordinary Least Square (OLS) with a significance (α) of (0.05), estimation of interest rates, inflation, exchange rates had a negative and significant effect on economic growth in Indonesia. Meanwhile, the foreign investment variable had a significant negative effect on economic growth. This study provides advice on the importance of paying attention to the impact of macroeconomic variables such as interest rates, inflation, exchange rates, the foreign investment reducing economic growth. Foreign investment must prioritize sectors that receive attention from investors, such as the secondary and tertiary sectors. Therefore, this sector must be improved and paid attention to by the government and related institutions.

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